

Original Article

# Perceptions of clinical postgraduate students during COVID-19 pandemic – A survey from South India

H. S. Kiran<sup>1</sup>, H. S. Rajani<sup>2</sup>, N. Rashmi<sup>2</sup>, H. Basavana Gowdappa<sup>3</sup>

<sup>1</sup>Department of General Medicine, JSS Medical College and Hospital, JSS Academy of Higher Education and Research, JSS Hospital, <sup>2</sup>Department of Pediatrics, JSS Medical College and Hospital, JSS Academy of Higher Education and Research, JSS Hospital, Mysore, Karnataka, India, <sup>3</sup>Professor and Principal, JSS Medical College and Hospital, JSS Academy of Higher Education and Research, JSS Hospital, Mysore, Karnataka, India.

## ABSTRACT

**Objectives:** The COVID-19 pandemic with its peaks and lockdowns has resulted in an unprecedented situation. Medical postgraduate (PG) residents were the “frontline COVID warriors” involved in direct patient care including COVID patients in many medical institutions across India. While the perceptions of undergraduate-MBBS students have been assessed, there are few studies assessing the perceptions of medical PG students in India during the COVID-19 pandemic. The objective of this study was to assess the perceptions of medical PG students during the COVID-19 pandemic in general including online teaching

**Material and Methods:** The survey-based study was conducted using a pre-tested online questionnaire during the peak periods of COVID-19 outbreak in India including both the first and second waves. A cross-sectional internet-based online survey in the form of a questionnaire was prepared using Google Forms, and the responses were collected from the respondents. All respondents were from various places in South India.

**Results:** A total number of participants were 135 across South India. All were involved in direct care of COVID patients. This study shows that many PGs were stressed, anxious, and worried but nearly 69% rated their overall sleep quality as “good.” Nearly, 75% reported that they “miss regular practical/bedside classes” while nearly 61% reported that they “miss regular seminar classes.”

**Conclusion:** The unprecedented COVID-19 pandemic has impact on medical PG residents in training both in terms of psychological aspects and their education as well. This study highlights the perceptions of PG students during the COVID-19 pandemic and hints at possible indications of resilience and intact coping mechanisms among PG students and the inevitability of online teaching during this unprecedented situation.

**Keywords:** COVID19, Online teaching, Perceptions, Postgraduate students

## INTRODUCTION

COVID-19 pandemic has affected every aspect of human life worldwide including medical education, involving undergraduate (UG) and postgraduate (PG) training.<sup>[1]</sup> Not only patient care became the main concern during this pandemic but also the medical education, because of its practical implications and also due to the fact that the majority of its stakeholders (clinical teachers and PG residents) are directly involved in patient care. Patient-teacher-PG resident safety became a matter of concern as all stakeholders could potentially harbor the virus during asymptomatic/pre-symptomatic phase and they could get infected from each other during the training sessions.<sup>[2]</sup> Social/physical distancing became a norm to prevent transmission; hence, all face-to-face classes/seminars/teaching sessions were put on hold and online teaching sessions had to be

started.<sup>[3]</sup> The COVID-19 pandemic with its peaks and lockdowns has resulted in an unprecedented situation wherein online teaching became the primary modality of medical education.<sup>[4]</sup> While the perceptions of UG-MBBS students have been assessed,<sup>[5-7]</sup> there are few studies assessing the perceptions of medical PG students in India during the COVID-19 pandemic. Moreover, medical PG residents were the “frontline COVID warriors” involved in direct patient care including COVID patients in many medical institutions across India with its associated psychological effects. The objective of this study was to assess the perceptions of medical PG students during the COVID-19 pandemic in general including online teaching. This study is significant amidst this unprecedented pandemic because online teaching has never been attempted at this scale, more so, in medical PG education and patient care has never been so challenging.

\*Corresponding author: H. S. Kiran, Department of General Medicine, JSS Medical College and Hospital, JSS Academy of Higher Education and Research, JSS Hospital, Mysore, Karnataka, India. drhskiran@gmail.com

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## MATERIAL AND METHODS

This survey-based study was conducted using a pre-tested online questionnaire during the peak periods of COVID-19 outbreak in India including both the first and second waves. The study was approved by the Institutional Ethical Committee of JSS Medical College, Mysore. A cross-sectional internet-based online survey in the form of a questionnaire was prepared using Google Forms, which included multiple-choice questions and open-ended questions as well. Multiple-choice questions included 5-point Likert-type questions (example: Responses ranging from strongly disagree to strongly agree). Online invitations were sent along with Google Forms by WhatsApp and E-mails to PGs in clinical subjects. The students participating in the survey were explained regarding the study and consent was taken. Confidentiality, anonymous response, and voluntary participation were ensured. Basic information such as year of PG training, subject, and location of training was collected from each of the respondents. All respondents were from various places in South India. Data collected from the filled in questionnaire were tabulated and were then subjected to descriptive statistical analysis.

## RESULTS

The overall reliability coefficient alpha (Cronbach's alpha) for the questionnaire was 0.806 which is satisfactory. Data were entered into Microsoft Excel, and statistical analysis was performed using the Statistical Package for the Social Sciences version 21.0 for Windows. A total number of participants were 135 across South India (Bangalore, Mysore, Mangalore, Belgaum, Cochin, Chennai, Madurai, Hyderabad, etc.). Mean age was 27.27 years (SD 2.29). Among respondents,

73 (54.1%) were male and 62 (45.9%) were female. The most of the PGs were from pediatrics and general medicine. About 45.2% were final year PGs [Table 1].

All were involved in direct care of COVID patients. Nearly 88% reported discomfort with personal protective equipment use. Nearly 75% reported "Feeling tired or having little energy" and nearly 80% reported "Trouble concentrating on things, such as studying, attending online classes." Many PGs were stressed, anxious, and worried (nearly 63% reported "Feeling nervous, anxious, or on edge," nearly 55% reported "Not being able to stop or control worrying," nearly 61% reported "Becoming easily annoyed or irritable," nearly 57% reported "Trouble relaxing," nearly 47% reported "Being so restless that it's hard to sit still," and nearly 58% reported "Feeling afraid as if something awful might happen"). Nearly 68% were worried about "Family getting infected with Coronavirus" while nearly 8% were worried about personally "Getting infected severely with Coronavirus" and 6% were worried about economic impact [Table 2]. Nearly 56% reported not getting regular physical exercise. Nearly 69% rated their overall sleep quality as "good" (fairly good – 58.5% and very good – 10.4%). Content analysis of open-ended questions revealed: Majority expressed their outlook toward "Medical Education" in general as "challenging" and majority reported their outlook toward "future role as clinician" as "positive but challenging" while a few were pessimistic, negative, and disillusioned in the background of current COVID-19 pandemic; nearly 26% would discourage the new generation of students who want to join MBBS, now, in the context of COVID pandemic [Table 3].

Perceptions regarding online teaching [Table 4]: Zoom was the most common online platform used for online

Table 1: Basic data of study population				
Age in years	N	Min	Max	Mean(SD)
	135	23.0	37.0	27.27(2.28)
Gender	N	MALE	FEMALE	
	135	73(54.1%)	62(45.9%)	
Year of PG training N (%)	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	Total
	36(26.7%)	38(28.1%)	61(45.2%)	135(100%)
Place of working N (%)	Government hospital-medical college	Private hospital-medical college	Private hospital	Total
	34(20%)	87(64.4%)	14(9.6%)	135(100%)
Residence While Work N (%)	Home(With Family)	Hostel	Other	Total
	41(30.4%)	51(37.8%)	43(31.9%)	135(100%)
Department/Specialty	Frequency	Percent		
Anesthesiology	8	5.93		
General Medicine	40	29.63		
General surgery	7	5.19		
OBG	4	2.96		
Orthopedics	12	8.89		
Pediatrics	54	40		
Others	10	7.41		
Total	135	100		

teaching while Cisco WebEx and Microsoft Teams were also utilized. Mobile phone was the most common device used for participating while laptop was the most common device used for presentation. Nearly 35% felt that their transition to remote online learning was “smooth” and classes through online platform were smooth (35%). Only 25% felt that their “learning process was progressing well.” Although virtual case scenarios of actual cases with photos and videos of patients with clinical features were used, nearly 75% reported that they “miss regular practical/bedside classes” while nearly 61% reported that they “miss regular seminar classes.” Nearly 24% felt that they “were able to concentrate fully throughout the online session.” Nearly 47% reported that they “take breaks while the online class was going on” and another 24% reported “may be” so while 29% denied taking breaks while the online class was going on. Nearly 35.5% felt that “online classes were interactive.” After the online classes, nearly 22% reported “Eyestrain,” 4% reported “Headache,” 30% reported “Both eyestrain and headache,” while nearly 44% reported “none.” Nearly 21% reported that they did not read standard textbooks after the class while the rest said that they did (44%) and maybe (35%); nearly 39% were against any kind of online

**Table 2:** Worrying about.

What are you more worried about	Frequency	Percent
Economic impact of coronavirus	8	5.9
Family getting infected with coronavirus	92	68.1
Getting infected severely with coronavirus	11	8.1
Other	24	17.8
Total	135	100.0

**Table 3:** Advice for students regarding joining MBBS.

For the new generation of students who want to join MBBS, now, in the context of COVID pandemic, do you	Frequency	Percent
Discourage them	35	25.9
Encourage them	58	43.0
Neutral	42	31.1
Total	135	100.0

**Table 4:** Perception of PGs on online teaching.

	Strongly agree, n (%)	Agree, n (%)	Neutral, n (%)	Disagree, n (%)	Strongly disagree, n (%)	Total
My transition to remote online learning was smooth	8 (5.9)	39 (28.9)	54 (40.0)	25 (18.5)	9 (6.7)	135 (100)
Classes through online platform are smooth	5 (3.7)	41 (30.4)	52 (38.5)	30 (22.2)	7 (5.2)	135 (100)
My learning process is progressing well	5 (3.7)	29 (21.5)	52 (38.5)	41 (30.4)	8 (5.9)	135 (100)
I miss regular seminar classes	18 (13.3)	65 (48.1)	35 (25.9)	13 (9.6)	4 (3.0)	135 (100)
I miss regular practical/bedside classes	41 (30.4)	61 (45.2)	19 (14.1)	10 (7.4)	4 (3.0)	135 (100)
I am able to concentrate fully throughout the online session	2 (1.5)	30 (22.2)	35 (25.9)	45 (33.3)	23 (17.0)	135 (100)
The online classes are interactive	1 (0.7)	47 (34.8)	46 (34.1)	32 (23.7)	9 (6.7)	135 (100)

PG: Postgraduate

assessment. Content analysis of open-ended questions reveals that most frequent factors hindering learning were “technical glitches” and “prolonged sessions” while many students felt that the online sessions were tailored to the students’ learning needs and also felt that online classes were safe, comfortable, and enjoyable; common issues such as teachers not being technology friendly, lack of interactive teaching, easy distraction, and technical issues were highlighted by some of them. Some suggested that sessions could be made more interactive by advance sharing of the session’s content beforehand, sharing videos, other online materials, resources, etc., and making every PG participate by asking questions individually while ensuring that their video is “on always.”

Each of the above responses was converted to “top two box score” (binary measure) and analyzed with Chi-square tests and the above results were all statistically significant ( $P < 0.001$ ).

## DISCUSSION

The unprecedented COVID-19 pandemic has impact on “frontline COVID warriors” including doctors.<sup>[8-10]</sup> The unprecedented COVID-19 pandemic has impact on medical PG residents in training both in terms of psychological aspects and their education as well. A few studies have elucidated psychological impact on PG residents.<sup>[11,12]</sup> This study also shows that many PGs were stressed, anxious, and worried but nearly 69% rated their overall sleep quality as “good” (fairly good – 58.5% and very good – 10.4%) while majority reported their outlook as “positive but challenging” which shows their resilience and intact coping mechanisms in the wake of this unprecedented COVID-19 pandemic. However, some were pessimistic and nearly 26% would discourage the new generation of students who want to join MBBS, now, in the context of COVID pandemic.

PG students’ satisfaction levels with online learning differed from the previous studies.<sup>[13,14]</sup> This study focused on clinical PG students only while the previous studies have focused on UG medical students.<sup>[4-7,15]</sup> PG education in clinical subjects being basically “hands-on training” appears to be the main reason behind the perceptions of PG residents in this study. One of the chief concerns during this pandemic was to continue medical

education while maintaining the safety of all stakeholders in this process (PG residents, clinician-teachers, and patients within the ambit of social/physical distancing and avoiding potential exposure to this highly contagious virus as the basic premise).<sup>[1]</sup> Online teaching of PG residents utilizing technology during the COVID-19 pandemic was the only viable alternative.<sup>[1]</sup>

Following the COVID-19 outbreak in India, the factors affecting day-to-day PG teaching practices in clinical environment were as follows: (1) Students may transmit the virus unknowingly or contract the disease amidst lack of COVID-19 testing; (2) decreased number of admissions and hence clinical teaching material due to lockdown; (3) reduced number of other cases in especially COVID designated hospitals; (4) less number of other infections as movements was restricted, healthy eating habits among people, wearing masks, no schools, etc.; (5). no elective surgical procedures and routine appointments; (6) the transition to telehealth formats; and (7) postings of PGs in flu clinics and COVID wards and intensive care unit.

Although classical “clinical teaching” was well-nigh impossible to be replaced by online teaching, still it was the only viable alternative to continue the teaching-learning process, facilitate PG residents to acquire knowledge, and maintain-boost the morale of all the stakeholders. Hence, clinical faculty also adopted online teaching platform. However, PG students’ suggestions to improve online teaching have to be taken into consideration (example: Sessions could be made more interactive by advance sharing of the session’s content beforehand, sharing videos, other online materials, resources, etc., and ensuring active PG participation by asking questions individually while ensuring that their video is “on always”).

How many waves-peaks-lockdowns would happen in the future is unpredictable. The greatest challenge in such similar scenarios is to provide authentic patient experiences during teaching-learning process of PG students.<sup>[2]</sup> Whether to include online teaching in some form as part of PG training (under a hybrid system) in the future, post-COVID era is a moot point !

## CONCLUSION

The unprecedented COVID-19 pandemic has impact on PG residents, the “frontline COVID warriors.” The unprecedented COVID-19 pandemic has impact on medical PG residents in training both in terms of psychological aspects and their education as well. In spite of the limitations of small sample size and inherent biases associated with questionnaire-based survey, this study highlights the perceptions of PG students during the COVID-19 pandemic and hints at possible indications of resilience and intact coping mechanisms among PG students and the inevitability of online teaching during this unprecedented situation.

## Declaration of patient consent

Institutional Review Board (IRB) permission obtained for the study.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

## REFERENCES

1. Chick RC, Clifton GT, Peace KM, Propper BW, Hale DF, Alseidi AA, *et al.* Using technology to maintain the education of residents during the COVID-19 pandemic. *J Surg Educ* 2020;77:729-32.
2. Rose S. Medical student education in the time of COVID-19. *JAMA* 2020;323:2131-2.
3. Ferrel MN, Ryan JJ. The impact of COVID-19 on medical education. *Cureus* 2020;12:e7492.
4. Evans DJ, Bay BH, Wilson TD, Smith CF, Lachman N, Pawlina W. Going virtual to support anatomy education: A STOPGAP in the midst of the COVID-19 pandemic. *Anat Sci Educ* 2020;13:279-83.
5. Tempski P, Arantes-Costa FM, Kobayasi R, Siqueira MA, Torsani MB, Amaro BQ, *et al.* Medical students’ perceptions and motivations during the COVID-19 pandemic. *PLoS One* 2021;16:e0248627.
6. Dost S, Hossain A, Shehab M, Abdelwahed A, Al-Nusair L. Perceptions of medical students towards online teaching during the COVID-19 pandemic: A national cross-sectional survey of 2721 UK medical students. *BMJ Open* 2020;10:e042378.
7. Gismalla MD, Mohamed MS, Ibrahim OSO, Elhassan MM, Mohamed MN. Medical students’ perception towards E-learning during COVID 19 pandemic in a high burden developing country. *BMC Med Educ* 2021;21:377.
8. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, *et al.* Factors associated with mental health outcomes among health care workers exposed to Coronavirus disease 2019. *JAMA Netw Open* 2020;3:e203976.
9. Huang Y, Zhao N. Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: A web-based cross-sectional survey. *Psychiatry Res* 2020;288:112954.
10. Lu W, Wang H, Lin Y, Li L. Psychological status of medical workforce during the COVID-19 pandemic: A cross-sectional study. *Psychiatry Res* 2020;288:112936.
11. Khanna RC, Honavar SG, Metla AL, Bhattacharya A, Maulik PK. Psychological impact of COVID-19 on ophthalmologists-in-training and practising ophthalmologists in India. *Indian J Ophthalmol* 2020;68:994-8.
12. Imran N, Masood HM, Ayub M, Gondal KM. Psychological impact of COVID-19 pandemic on postgraduate trainees: A cross-sectional survey. *Postgrad Med J* 2021;97:632-7.
13. Scagnoli NI, Choo J, Tian J. Students’ insights on the use of video lectures in online classes. *Br J Educ Technol* 2019;50:399-414.
14. Agarwal S, Kaushik JS. Student’s perception of online learning during COqVID pandemic. *Indian J Pediatr* 2020;87:554.
15. Verma A, Verma S, Garg P, Godara R. Online teaching during COVID-19: Perception of medical undergraduate students. *Indian J Surg* 2020;82:299-300.

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