

Original article

Impact of COVID-19 on Postgraduate research in Obstetrics and Gynaecology: Challenges, Solutions and Opportunities

Rafat, Dalia¹, Khan Tamkin²

Abstract

Objectives: COVID-19 pandemic has affected medical services and facilities throughout the world. This has resulted in unavoidable decline in postgraduate training and learning in different medical specialties. There has been reduction in all aspects of training and learning of Obstetrics and Gynaecology (OBG) residents in general and research training in particular. At the time of the study, although limited institutions have started to put some efforts to resume and endure resident research in OBG but still there are no uniform adaptive measures which can be implemented in all of the institutions. The present study was conducted with the aim to assess challenges faced by OBG residents in doing research during COVID-19 pandemic in a government medical college of India. We also assessed the helpfulness and support provided by the Thesis Mentorship Programme (TMP) of the department during pandemic. **Material and Methods:** A self developed semi structured, pre-validated questionnaire was mailed to the residents of the OBG training program of our medical college. It was completed anonymously by them after accepting an informed consent. **Results:** 21 postgraduates from the second and third year OBG residency participated in this cross-sectional study. We found that COVID-19 pandemic was associated with a significant research training impairment. There was “some” to “complete interruption” in the various research activities of the residents. The research aspect most severely affected was data collection. Also majority of residents were satisfied with the support offered by the TMP of the department in sustaining resident research during pandemic. **Conclusion:** COVID-19 has significant and critical implications for the resident research training in OBG. The TMP and similar experiences also helps residents in continuing research during untoward circumstances.

Keywords: Coronavirus; Research; Medical residency; Training; Obstetrics; Gynecology

Bangladesh Journal of Medical Science, Special Issue on COVID-19, 2021. Page : 77-84
DOI: <https://doi.org/10.3329/bjms.v20i5.55400>

Introduction

Research is an essential component of residency programs in India. It has been made mandatory component of Indian residency training by Medical Council of India¹. Resident research promotes critical thinking and evidence-based practice which eventually result in positive health outcomes. Research training is therefore indispensable for development of well-rounded physicians.

Obstetrics and Gynaecology (OBG) residency training

is one of the major and most heterogeneous training. It involves attainment of clinical, surgical and emergency management skills alongwith mandatory research. Regular acquisition of all these skills is essential and plays a fundamental role in performing proper clinical activities on one hand and their professional growth on the other. Resident research therefore should not be made the exclusive domain of academics in OBG training and all efforts should be taken to promote and maintain good quality research.

1. Rafat, Dalia, Assistant Professor. Email: drdaliarafat.16@gmail.com
2. Khan Tamkin, Professor, Email: tamkinrabbani@gmail.com

Dept of Obstetrics & Gynaecology, Jawaharlal Nehru Medical College & Hospital, Faculty of Medicine, Aligarh Muslim University, Aligarh, UP, Pin-202002

Correspondence: Dr Dalia Rafat. Assistant Professor, Dept of Obstetrics & Gynaecology, J N Medical College & Hospital, Faculty of Medicine, AMU, Aligarh, UP, Pin-202002. Email: drdaliarafat.16@gmail.com

Coronavirus Disease 2019 (COVID-19), the current virus outbreak which started from Wuhan City of China in December 2019 rapidly spread to most countries affecting millions and killing lakhs of people worldwide². World Health Organization (WHO) officially declared it a pandemic on March 11, 2020.³ India reported its first positive case of COVID-19 on January 30, 2020, in Kerala.⁴ Despite implementation of various measures to combat the spread of the disease⁵, it continues to spread in India vigorously. With no effective drugs available for treatment and prevention of the COVID-19 till now, social distancing has appeared as a logical measure to prevent the spread of the disease. Like many countries, the Indian Government ordered for a complete lockdown of the country from 25 March to 31st May 2020⁶, followed by a partial lockdown with different restriction guidelines in different states. This pandemic has affected all medical services and facilities throughout the country. There has been conversion of various health facilities into COVID dedicated hospitals. Owing to this unique situation many medical colleges and health institutions, are experiencing disturbances and disruption of undergraduate and postgraduate teaching and training. Postgraduate medical residents of different specialities are facing interruption in their clinical and research activities. Few studies done in recent past have demonstrated significant negative impact of COVID-19 epidemic on residents training in different specialities.⁷⁻⁹

Ours is a university affiliated government medical college, and has been categorised as Level 2 COVID facility by the State and District Administrations since day one.¹⁰ Although we are providing care to both COVID and non COVID patients but services for non-emergent health issues like outpatient department (OPD) consultations and elective surgeries remain temporarily suspended. This has resulted in unavoidable reduction in resident training and learning in different medical specialities. OBG residency program is no different and has been inevitably affected. During the pandemic, several services in OBG have been reduced, except for those considered urgent and not deferrable, such as labour and delivery and oncologic procedures. Also there have been reshuffling of routine duties and rotations of residents owing to their postings in fever clinics and COVID isolation wards. Consequently, although with different degrees, there has been reduction in all aspects of training and learning of OBG residents.

We are running a Thesis Mentorship Programme [TMP] in the department of OBG since 2017. The aim of the program is to enhance research knowledge of postgraduates and to provide timely support and guidance for their thesis work. The program is designed in such a way that every 6 months a thesis mentoring session is planned for postgraduates, besides regular mentoring and support provided by respective thesis supervisors. The mentoring sessions in the TMP included didactic lectures on topics related to postgraduate research by faculty from our department and other departments, thesis progress presentations by residents, feedback sessions and one to one mentor mentee interactions. During pandemic, activities of TMP were modified owing to the prevailing unique circumstances. Separate WhatsApp groups were created for residents in different years of residency to monitor their research activities. Zoom meetings were conducted to motivate and encourage them to continue their thesis work. Workshops with social distancing were organised to discuss the challenges faced by residents in doing research during pandemic. In workshops thesis progress and challenges faced by each resident was discussed in detail, solutions were sought and alternative plans were explored. Report was prepared summarizing the problems faced by residents in doing research and possible solutions, and communicated to higher authorities of the institute for necessary action.

There are few previous studies that have provided some insight into resident research in OBG¹¹, but the rapidly changing environment owing to virus outbreak necessitates to look for novel problems and solutions.

The present study was conducted with the aim to assess challenges faced by OBG residents in doing research during COVID-19 pandemic and offer suggestions to overcome these challenges and convert them into opportunities during these unique circumstances. We also assessed the helpfulness of the TMP of the department during pandemic.

Material and methods

Study design: A cross-sectional study

Study location: A university affiliated, tertiary medical facility.

Study population: Residents from the second and third year of the OBG training program of our medical college were invited to participate in the study. Those on maternity leave at the time of the study were excluded.

Study instrument: A self developed semi structured, pre-validated (face validity) questionnaire was used. The questionnaire included both closed and open ended questions. The questionnaire had three subdivisions. In the first part, study characteristics of residents including type and place of study, interdisciplinary involvement and amount of work done till date was collected. In the second part, residents were asked to report the degree of engagement in different research activities during pandemic and challenges they are facing in doing their thesis work. Data regarding use of pandemic time for doing other scholarly activities was also collected. In the third part of the questionnaire, residents were asked regarding support offered at the department and institute level for resident research during pandemic. It included Likert-scaled questions regarding their satisfaction with thesis mentoring and the helpfulness of the TMP of the department during pandemic. It also included open ended questions on their expectations and suggestions related to their thesis accomplishment.

The questionnaire was mailed to residents of our training program in July 2020. It was completed anonymously by residents after accepting an informed consent.

Statistical analysis :

Descriptive statistics were calculated for sociodemographic characteristics. Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) v. 21.0 (IBM Inc). Data are shown as means with standard deviation, or as number (percentage). Questionnaires responses are summarized as frequency and percentages. Chi-square test was used to compare categorical variables for determining significance. A $P < 0.05$ was considered statistically significant.

Ethical clearance: Prior submission, this study was received ethical approval from ethics committee of Jawaharlal Nehru Medical College & Hospital, Faculty of Medicine, Aligarh Muslim University, Aligarh.

Results

A total of 21 residents of our OBG residency training programme participated in the study. All were females with mean age (\pm SD) of 26.8 ± 1.4 years. 6 (28.6%) were married and rest were unmarried. 12 (57.1%) were in second year and 9 (42.9%) were

in third year of their residency. Characteristics of resident's thesis are summarized in Table 1.

Table 1: Resident's thesis characteristics

S NO.	STUDY CHARACTERISTICS	N (%)	
1.	Thesis topic subcategory	Obstetrics	14 (66.6)
		Gynaecology	7 (33.4)
2.	Study design	Cohort	5 (23.8)
		Case control	4 (19.1)
		Cross sectional	4 (19.1)
		RCT	8 (38.0)
3.	Place of study	Out Patient Department (OPD)	6 (28.6)
		Labour room	9 (42.8)
		Both OPD and Labour room	4 (19.1)
		Operation Theatre	2 (9.5)
4.	Interdisciplinary involvement	Yes	10 (47.6)
		No	11 (52.4)
5.	Data collected till date	< 25%	12 (57.1)
		25 – 50 %	3 (14.3)
		50 – 75 %	6 (28.6)
		>75 %	0 (00.0)

Perceived barriers and opportunities to research activities during pandemic: The most commonly identified barrier to research was inability to collect data. When asked about which research activities were affected by pandemic, majority of residents felt that although there is impact on all research activities but most severely affected was data collection [Figure 1]. Data collection was affected most severely for residents with gynaecologic topics and Randomised Controlled Trials [Figure 1,2]. Other prominent barrier indicated was time constraints owing to residency duties. Only 14.3% felt that they get enough protected time for research during pandemic. 33.3 % felt that only sometimes they got the time for research while 52.4% felt that they never got the time for research

during pandemic.38.1% residents felt that they will need to do extra expenditure for completing their thesis work owing to pandemic.

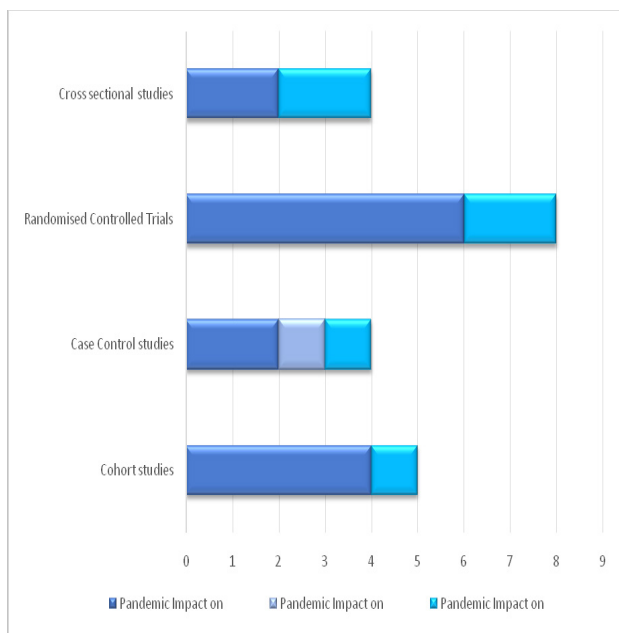


Figure 1: Impact of COVID-19 pandemic on different research activities of residents in relation with their study designs.

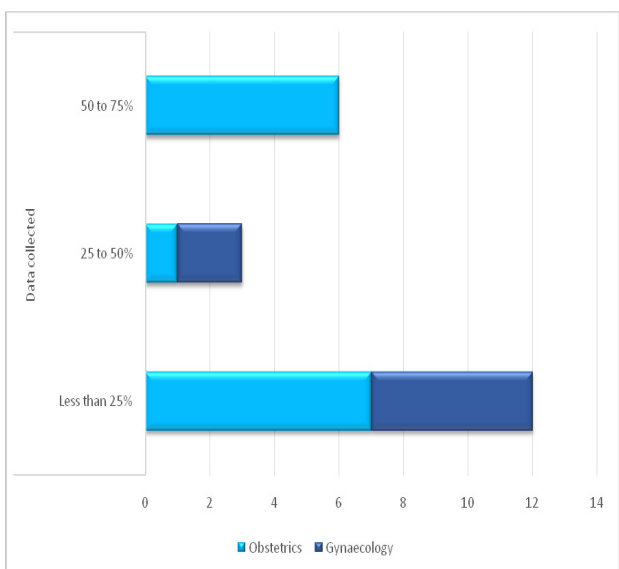


Figure 2: Data collected by residents during COVID-19 pandemic according to thesis topic subcategory

Although majority of residents felt that this pandemic time can be utilised for scholarly research activities, only few actually utilised it for the same [Table 2].

Table 2: Scholarly research activities of residents during COVID-19 pandemic

S NO.	SCHOLARLY RESEARCH ACTIVITIES	N (%)
1.	Research Methodology Course	
	• Did not Register	3 (14.3)
	• Registered only	3 (14.3)
	• Doing but not completed	7 (33.3)
	• Completed	8 (38.1)
2.	Publications	
	• Yes	2 (9.5)
	• No	19 (90.5)
3.	Paper/poster presentations in online conferences/ workshops	
	• Yes	1 (4.8)
	• No	20 (95.2)

Departmental preparedness to support research activities during pandemic: 76 % residents were satisfied with the support offered by the department for resident research during pandemic but lesser proportion (24%) was dissatisfied also[Figure 3a]. Overall 62% of residents felt that whatsApp groups created to support research during pandemic, helped them in keeping track of their thesis work[Figure 3b].Majority [88%] felt that it helped them most in doing review of literature.81% felt that workshops conducted during pandemic, helped them in sustaining their research work during pandemic [Figure 3c].62.5% felt that they helped them most in dealing with challenges of data collectionwhile 37.5%felt that they helped them most in completing review of literature.

Residents expectations and suggestions regarding research endeavours during pandemic: Residents expressed the desire to have regular thesis supervision meetings with their guides during pandemic.Almost half of them wants them to be monthly, 24% wants them to be fortnightly and 28% wants these meeting

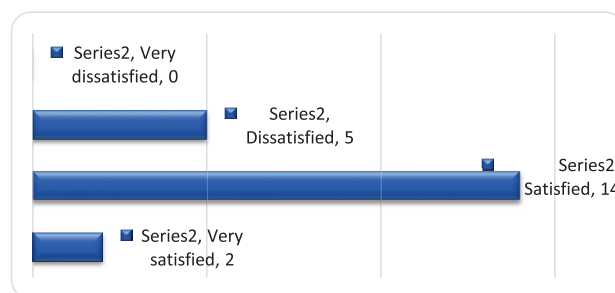


Figure 3a: Satisfaction with support offered by the department for resident research during COVID-19 pandemic

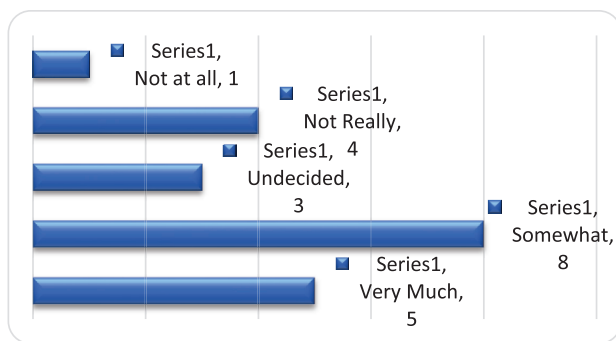


Figure 3b: Satisfaction with Watsap group created for supporting resident research during COVID-19 pandemic

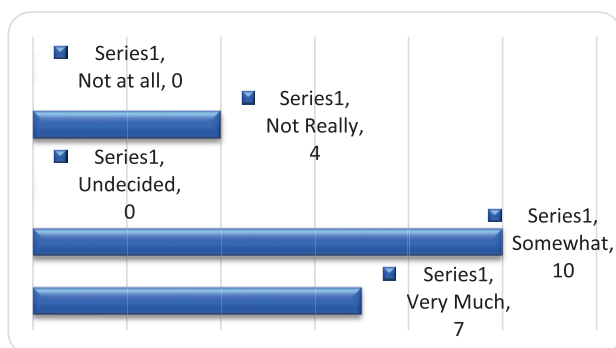


Figure 3c: Satisfaction with Workshop conducted for resident research during COVID-19 pandemic

to be weekly. When asked about the means by which they want to keep their guides updated about their research progress during pandemic, all preferred emails, chats and online research consultations instead of meeting in person. Residents also suggested few measures which the department and institute can take to facilitate research during pandemic [Table 3].

Table 3: Measures suggested by residents for facilitating research during COVID-19 pandemic

S NO	SUGGESTED MEASURES	N (%)
1.	Better hygiene and adequate supply of PPEs	13 (61.9)
2.	Online counselling and support	16 (76.2)
3.	Support for resident mental health and wellbeing	17 (80.9)
4.	Extension of the thesis submission deadline	18 (85.7)
5.	Acceptance of relevant changes in thesis protocol (decrease in sample size and secondary outcomes, reduction in follow up visits, etc)	14 (66.6)
6.	Off campus access to library resources and services	16 (76.2)
7.	Arrangement of spaces (with social distancing norms) where residents can study and access printing facilities	16 (76.2)

Discussion

During disease outbreaks, the primary focus of healthcare systems is to manage the pandemic and inevitably, residency training is not the main priority. Residents’ research is likely to be affected during this period. Owing to lack of preparedness, institutions worldwide took very limited adaptive measures to sustain resident research during pandemic. Except few residency programs which were using some adaptive means of sustaining research endeavours, majority have failed to accomplish their mandate. In India, till now most of the training facilities and programs are not able to institute proper measures to support resident research activities during COVID–19 pandemic.¹²⁻¹⁵

This cross-sectional study aimed to evaluate the impact of the COVID-19 pandemic on the research in OBG residency training program in a government medical college of India. Findings from the study showed that among OBG residents, COVID-19 pandemic was associated with a significant research training impairment. We found that there was “some” to “complete interruption” in the various research learning experiences of the majority of the residents. The research aspect most severely affected was data collection as patient recruitment and follow up became difficult owing to pandemic. Residents who have to recruit patients from Out Patient Department (OPD) or those with non emergent gynaecological problems, faced more difficulties in data collection owing to closure of routine OPDs and cancellation of elective operations. Follow up of those recruited also became difficult and at times impossible. Data collection was also hampered for those who have to recruit obstetric patients from labour room and delivery wards but to a lesser degree as emergency and obstetric services continued during pandemic. The affection in these cases is due to frequent reshuffling of resident duties, postings in COVID isolation wards and some unavoidable circumstances like residents themselves or their guides or family members got infected.

Regarding satisfaction with the facilities offered by the department and institute for supporting resident research during pandemic, most of the residents were satisfied. We believe that TMP of the department helped us in taking few timely steps like creation of whatsapp groups, conduction of zoom meetings,

discussion of challenges faced by residents and seeking solutions for them and communication of the problems faced by the residents in doing research to higher authorities of the institute for necessary action. These activities of the TMP kept residents motivated during these difficult times and helped them in overcoming the challenges to some extent.

Though our TMP received positive feedback from residents, we believe that there are many areas for improvement. There should be prior construction of a plan B for resident research, which can be implemented in case of any emergency like pandemic or any other disaster. Plan B should be made with due

emphasis on both clinical and research activities and should have reformed timelines and targets. It should have formal approval from higher institutional authorities. Also there should be better delineation of impactful strategies for both mentors and mentees to help ensure a beneficial outcome

Based on our experience of the impact of COVID-19 pandemic on resident research training and review of residency programs facing similar problems overseas, we have opined some solutions for the challenges faced in pursuing research activities during pandemic.

Research Activity	Challenges	Solutions
Data Collection	<ul style="list-style-type: none"> Collection of Data is hampered Fresh recruitment of subjects is limited. Follow up of those recruited is also difficult and at times impossible. Insufficient caseload from cancellation of elective cases Collection, transfer and processing of samples in laboratories is hindered. Potential study subjects now shun researchers in the name of safety and health concerns. 	<ul style="list-style-type: none"> Reliance on Secondary data collection Inclusion of data from other centres, hospitals and private setups, with due permissions and approvals E counselling and communication with patients to relieve their anxiety and rectify myths related to pandemic, may decrease attrition. An extended written thesis may include one or a combination of an extended literature review, systematic reviews and meta analysis, which are important tools in research practice but not commonly covered in the residency curriculum.
Time management	<ul style="list-style-type: none"> Clinical work has become more stressful and tiring Frequent change in clinical duties Cancellations of routine rotations Lack of protected time for research Extraordinary circumstances owing to ill health or ill family members 	<ul style="list-style-type: none"> Supervisors should recognise these difficulties and deal with sympathetically, on a case by case situation. Focusing more on 'quality' than 'quantity' Timely discussion of these issues with supervisors and communication to higher authorities can help in better and timely search of solutions
Interdisciplinary work	<ul style="list-style-type: none"> Partial or complete suspension of interdisciplinary and cross-department works Few para clinical and nonclinical departments are not functioning fully owing to redistribution of staff in COVID duties Few clinical departments and labs are so overburdened with extra work that they are not entertaining any research related activities 	<ul style="list-style-type: none"> Individual departments, centres, and divisions should each designate one individual to look after cross departmental and interdisciplinary activities. In case of any hindrance he should timely communicate it to responsible authorities, so that alternative strategies can be sought and implemented. If possible equipments from other departments can be shifted to respective departments
Resident supervisor interactions	<ul style="list-style-type: none"> Limited interaction with thesis supervisors Meetings with supervisors have more time constraints owing to their increased clinical work, stress and extraordinary family circumstances 	<ul style="list-style-type: none"> Establishment of a clear agenda prior to meetings can enhance efficiency and productivity. Clearly establish your supervisor's communication preference (e-mail, whatsapp, zoom, text, etc) and desired frequency
Thesis mentoring opportunities	<ul style="list-style-type: none"> Live seminars and conferences are totally stalled where exchange of ideas on research was of great benefit. Insufficient thesis mentoring workshops Limited access to library and limited internet availability 	<ul style="list-style-type: none"> Leverage your knowledge of newer technologies Creation of whatsapp groups and organisation of zoom meetings for thesis mentorship Use of videoconferencing platforms that are accessible from home and different areas at work Remote accessibility of library resources and services

As the outbreak continues to evolve repeatedly, the training programmes needs to be reviewed continuously to adjust to any new changes and limitations¹⁶.

Strengths and limitations:

We recognize strengths and limitations of this study. To the best of our knowledge, this may be the first study evaluating the impact of COVID-19 pandemic on research training of OBG residents in India. The study was conducted when the residents were still facing the problems owing to ongoing pandemic, so no issues of recall bias. We used a comprehensive questionnaire regarding challenges faced, opportunities utilised, suggestions and expectations of residents regarding their research endeavours, thereby providing insight into potential targets for future improvement. We also assessed institutional and departmental support offered and benefit of TMP of the department. The TMP of our department is still in its nascent state; therefore, there has not been prior plan and provisions to sustain thesis mentoring during untoward and emergent circumstances but existence of TMP helped us to take few beneficial and timely steps to support resident research during pandemic.

The limitations of our study include small sample size and inclusion of only residents of OBG program of our centre, thus our results may not be generalizable to other types of programs. The self-reported nature of the data regarding amount of thesis work done, publications and presentations etc is a potential for responder bias but we believe that residents would have given true responses as they were asked not to disclose their identity. Different practices and varying severity of the pandemic at various places might limit the transferability of our experiences and can limit generalised acceptance. But our description of the challenges faced and solutions and opportunities

sought can help others to adapt our experience to their local context and will be useful to the readership in times of current and future disease outbreaks.

Conclusion

COVID-19 has significant and critical implications for the resident research training in OBG. We assessed challenges faced by the residents in doing research during the pandemic. We opined some solutions to mitigate the effects of pandemic on resident research and how the challenges faced can be converted into opportunities. It is need of the hour that residency programs should address these challenges through coordinated efforts at institutional and national level and plan, develop and implement possible, practical and adaptive opportunities for resident research activities. We also believe that the TMP and similar experiences which provides regular research track will not only help in reversing the downward trend in research engagement of residents in hectic subspecialties like OBG but may also encourage them to continue research during untoward and emergent circumstances.

Source of Funding: None

Conflict of Interest: None

Data Gathering and idea owner of this study: Dalia Rafat, Tamkin Khan

Study Design: Dalia Rafat, Tamkin Khan

Data gathering: Dalia Rafat

Writing and submitting manuscript: Dalia Rafat

Editing and approval of final draft: Dalia Rafat, Tamkin Khan

References

1. <https://www.nmc.org.in/rules-regulations/p-g-medical-education-regulations-2000> Retrieved on 8th July 2021
2. Munster VJ, Koopmans M, van Doremalen N, Van Riel D, de Wit E. A novel Corona virus emerging in China - Key Questions for impact assessment. *N Engl J Med* 2020; **382**:692-694.
3. Cucinotta D, Vanelli M. WHO Declares COVID-19 a Pandemic. *Acta Biomedica* 2020; **91**(1):157-160.
4. Update on Novel Coronavirus: One Positive Case Reported in Kerala. Retrieved on 5th July 2021 from: <https://pib.gov.in/newsite/PrintRelease.aspx?relid=197858>.
5. Khan MG, Yezdani U, Chakravorty A, Shukla, T. Efforts and Challenges paved by India to confront of Corona Virus (COVID-19). *Bangladesh Journal of Medical Science* 2020; **19**:S 88-S 92. <https://doi.org/10.3329/bjms.v19i0.48198>
6. Ministry of Health and Family Welfare. GOI RSS. Retrieved on 5th December 2020 from: <https://www.mohfw.gov.in/>.
7. MHA issues Consolidated Revised Guidelines for the Containment of COVID-19 epidemic in the Country. Retrieved on 5th December 2020 from: <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1614620>
8. Warhadpande S, Khaja MS, Sabri SS. The impact of COVID-19 on interventional radiology training programs: what you need to know. *Acad Radiol* 2020; **27**(6):868-871.
9. He K, Stolarski A, Whang E, Kristo G. Addressing General Surgery Residents' Concerns in the Early Phase of the COVID-19 Pandemic. *J Surg Educ.* 2020 Jul-Aug; **77**(4):735-738.
10. Bitonti G, Anna Rita Palumbo AR, Gallo C, Rania E, Saccone G, De Vivo V et al. Being an obstetrics and gynaecology resident during the COVID-19: Impact of the pandemic on the residency training program. *Eur J Obstet Gynecol Reprod Biol* 2020; **253**:48-51.
11. Rahman SZ, Khan S. Patients' case scenario as well as approaches and strategies adopted to manage COVID-19 pandemic at Aligarh Muslim University, Aligarh, India. *Bangladesh Journal of Medical Science* 2020; **19**: S28-S35. DOI: <https://doi.org/10.3329/bjms.v19i0.47832>
12. Kassem GA. Scientific research in obstetrics and gynecology: changes in the trends over three decades. *Int J Womens Health.* 2014 ; **7**:1-5.
13. Schwartz AM, Wilson JM, Boden SD, Moore Jr TJ, Bradbury Jr TL, Fletcher ND. Managing Resident Workforce and Education During the COVID-19 Pandemic: Evolving Strategies and Lessons Learned. *JBJS Open Access.* 2020; **5**(2):e0045.
14. Chong A, Kagetsu NJ, Yen A, Cooke EA. Radiology Residency Preparedness and Response to the COVID-19 Pandemic. *Acad Radiol* 2020; **27**(6): 856-861.
15. Crosby DL, Sharma A. Insights on Otolaryngology Residency Training during the COVID-19 Pandemic. *Otolaryngol Head Neck Surg.* 2020 ; **163**(1):38-41.
16. Haque M. Combating COVID-19: A Coordinated Efforts of Healthcare Providers and Policy Makers with Global Participation Are Needed to Achieve the Desired Goals. *Bangladesh Journal of Medical Science* 2020; **19**:1-5. . <https://doi.org/10.3329/bjms.v19i0.47610>