Original Article

COVID-19 and Obstetricians and Gynecologist: The Indian Perspective

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Abstract

Introduction: Since its emergence, COVID 19 caused by severe acute respiratory syndrome coronavirus 2, turned out to be a health threat throughout the world. The degree of risk for the health-care workers who are dealing with the COVID-19 patients is uncertain. Questionnaire-based prospective cross-sectional study was done to assess the extent to which the Indian obstetrics and gynecology practice has been affected by the pandemic. **Materials and Methods:** From August to October 2020, 309 obstetricians (OBs) and gynecologists took part in the survey via Google forms. Impact on the present working scenario during the pandemic compared to the Pre-COVID era was evaluated. The categorical variables got illustrated through frequency (%). The association among the variables Chi-square test was utilized. Statistical significance was contemplated by the $P < 0.05$. Graphs were prepared using Google Sheets and Microsoft Excel 365. **Results:** There was drastic fall in parameters of obstetric practice. Over half of the OBs witnessed fall in outpatients over 90%. Significant association seen reduction in earnings with the sector, type of set-up, and duration of practice ($P < 0.001$) was found. Apprehension among the study group was present still majority 54.8% said that they were working voluntarily in this time of national crisis. **Conclusions:** This research indicates that the pandemic has entailed practice of obstetrics and gynecology in India. However, the smooth functioning was maintained due to the high degree of knowledge and preparedness among the doctors and the well-laid guidelines by the authorities.

Keywords: COVID-19, novel coronavirus, obstetrics and gynecology, online survey, pandemic, practice

Introduction

COVID 19, which is caused by the severe acute respiratory syndrome coronavirus 2, has been a global health issue since its emergence.[1] According to WHO, there were 23,94,37,517 actual cases of COVID-19 worldwide as of October 15, 2021, resulting in 48,79,235 deaths.[2] India recorded 3,40,37,592 confirmed cases of COVID-19, with 4,51,814 deaths.[3] Due to community transmission from asymptomatic persons, the disease burden has been growing.[4] Increased risk of infection among front-line health-care workers, leading to the disease's spread further afield.[5] As a result, the COVID-19 pandemic has imposed significant constraints on the overall health-care system, personnel, and even employees.

As a resource-poor country, there are also concerns regarding the mandatory personal protective equipment (PPEs) and its availability besides other infection deterrence and control aids. The degree of risk for the health-care workers who are dealing with the COVID-19 patients is uncertain, besides that the intentions for them along with their patients and their families. It is accordingly essential to verify the consequence of these stressors over the doctors' mental health that will lead the proper way for addressing the problems and in turn will help and support health-care workers to overcome the mental stressors effectively, it will also be enhancing the clinical execution with a successive advancement in patient outcomes at the time of forthcoming COVID-peaks.[6]

This present study will be evaluating the opinions of the obstetricians/gynecologists (OB/GYNs) working during the pandemic in INDIA. It aims at assessing the awareness and preparedness associated with Covid-19 among them. We

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evaluated the impact of the present working scenario of the OB during the pandemic and compared it to the Pre-COVID era.

Subjects and Methods

Study design

Prospective cross-sectional study.

Study setting

Questinnaire-based study among doctors practicing Obstetrics and Gynecology in the various parts of India.

Sample size

Three hundred and nine.

Time period

Three months (August–October 2020).

Data collection

A semi-structured and pre-validated online questionnaire for the survey was concocted with the help of Google forms that has been appended with every consent form of the respondent's. The investigator circulated the link of the questionnaire through emails, Whatsapp forwards, and some more social media channels to prospective respondents. After receiving the link, each respondent were motivated for rolling out the questionnaire for their references and even on to some additional online outlets and platforms. Thereafter, the link was then broadcasted to OBs and GYN besides the primary point of contact.

That questionnaire includes questions associated with the respondent's demographic characteristics, questions relevant to their working environment pre- and post-pandemic. The following section of the questionnaire deals with the personal awareness, preparedness of the respondents and also the institute they are working in during the pandemic. Google sheets® and Microsoft Excel ® were used for data collection. Reporting was done according to STROBE guidelines.

Statistical analysis

The categorical variables got illustrated through frequency (%). For examining the association (that is; the comparison in proportion) among the variables like the years of their practice, the sector of practice, and kind of set-up, alongside numerous additional variables of obstetric practice along with financial characteristics, the Chi-square test got utilized (while each cell possessed a minimum of 5 anticipated frequency). Statistical significance was contemplated by the $P < 0.05$. Graphs were prepared using Google Sheets and Microsoft Excel 365.

Ethical considerations Ethical approval was obtained from the Institutional Ethics Committee of Teerthankar Mahaveer Medical College and Research Centre, Moradabad, Uttar Pradesh (TMMC/Ethics/IRB 52/2021). Before interview, informed consent was obtained from each respondent, and they were assured about the confidentiality of information. The research followed the guidelines laid down in the Declaration of Helsinki, updated in 2013.

Results

A total of 309 OBs and GYN took part in the survey with a survey response rate of 68.6%. Table 1 reveals that the majority (n = 135, 43.75%) of the participants were in the age group of <30 years of age, and most (99.0%) of them were female. The majority (n = 156, 50.5%) worked as a consultant, (n = 252) 81.6% worked in the private sector, of which (n = 180) 58.3% worked in the set-up of a Medical College. As an elementary specialty, (n = 105) 34% of participants had emergency, (n = 147) 47.6% served 42–72 h per week before the pandemic, majority of participants (n = 264, 85.4%) had no history of chronic diseases, and just (n = 9) 2.9% tested positive for COVID-19.

Where the outpatient department (OPD) is pertained, prior to the beginning of pandemic, 28.2% (n = 87) of the respondents retained the monthly digits between 50 and 100, 27.2% (n = 84) acquired between 100 and 500, and 16.5% (n = 51) retained excess than 1000. Because of the persistent spread of the disease, these data actually got terribly affected; 22.3% (n = 69) got halted from any aspect of consultations, 13.6% (n = 42) were providing only telemedicine advice, 4.9% (n = 15), 14.6% (n = 45) and 24.3% (n = 75) encountered decline in the number of out-patients issues fairer than 90%, 75% and 50%, accordingly [Figure 1a].

Most (n = 111, 35.9%) had 10–30 cases a month before the pandemic started if we consider the number of emergency cases just 2.9% (n = 9) of the OBs stopped doing them entirely during the pandemic, while 16.5% (n = 51) had a reduction of more than 90% and 17.5% (n = 54) reduced the number by approximately 75%.

The number of elective procedures during the pre-COVID period among maximum physicians was 10-30 cases every month (n = 114), it was being followed by the ones performing 5–10 each month (n = 96). Nonetheless, in comparison to emergency cases, 31.1% (n = 96) of OBs had absolutely ended performing elective cases [Figure 1b].

This decline in digits had a noticeable reciprocating impact over the financial facets even. 21.4% of the doctors, pertaining towards the private realm besides operating their individual (own) hospitals, noticed their own earnings getting reduced by >90%. Those working in the government realm had their earnings to remain the same.

However, there still existed 1% (n = 3) of the people whose earnings went up [Figure 1d]. We strived to discover if there was any substantial association amongst (a) sector (government, private, etc.), (b) the set-up variety (individual hospital, multispecialty hospital, medical college, etc.,) they were working at, (c) the years of practicing and having numerous parameters of gynecology and obstetric practice: consequence on patients, quantity of OPD patients, earnings and sustainability, emergency, and elective cases conducted. We noticed a substantial association between the difference in income around both of the sectors ($P < 0.001$) [Figure 2a]

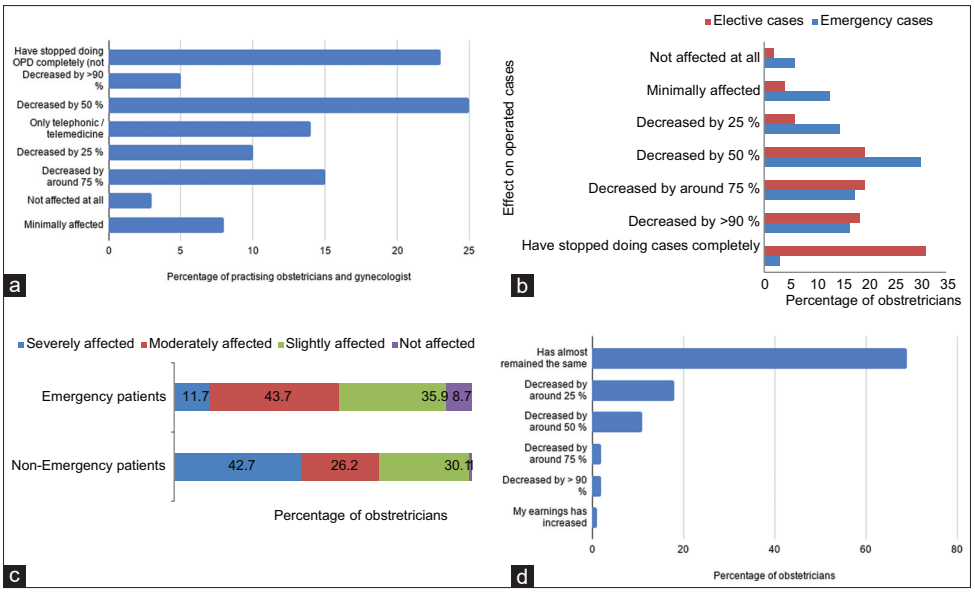

Figure 1: (a) Chang in outpatient department during COVID-19 pandemic. (b) Change in emergency and elective case operated upon. (c) Degree to which patients needed to be referred. (d) Change in earnings during this pandemic

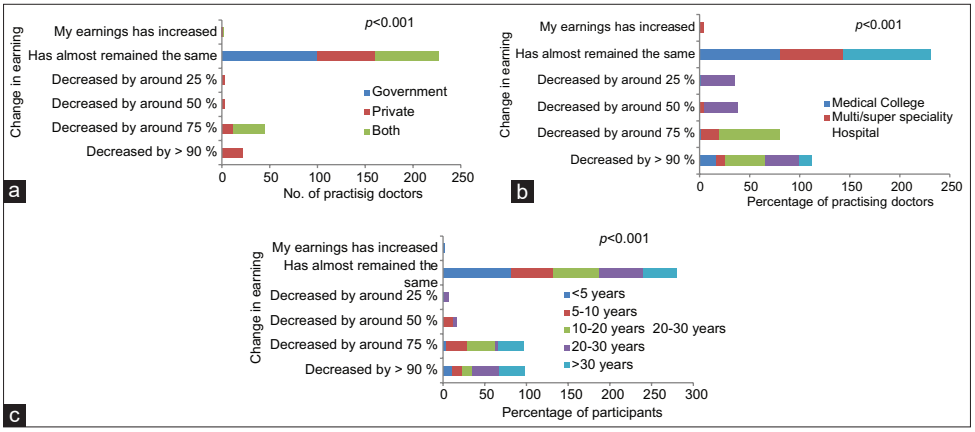

Figure 2: (a) Changes in earning in relation to the sector. (b) Changes in earning in relation to the type of working. (c) Changes in earning in relation to the duration of clinical practice

and the category of hospital/set-up an OB were operating at ($P < 0.001$) [Figure 2b].

The working scenario had altered dramatically during the pandemic, but we noticed some contributory variables that lead to smooth functioning. It was noticed that the PPE availability in health facilities was sufficient in terms of gloves (98%), Face mask (94.1%), N95 masks (83.3%), PPE kit (80.4%).

The main source of knowledge and information regarding the management of COVID 19 patients according to the majority of respondents (49.3%) was the hospital policy in which they were working while the others government regulated (37%), social media (4.1%), and scientific papers (6.8%) were also found to be significant sources of information.

As seen in Table 2 it was noticed that 84.3% of the study participants thought they might deliver care for emergency obstetric cases, 79.4% of establishments were able to conduct cesarean sections, and 86.3% of setups obtained referral patients from distinct health establishments. 96.1% of the hospitals possessed capabilities for sequestering COVID-19 presumed cases, also 89.2% of the health-care establishments had screening sectors particular for the COVID-19 suspects. According to 84.3% of respondents screening protocols were present for maternity cases who were COVID-19 suspects. Appointed team for COVID-19 supervision existed according to 78.4% of respondents. Healthcare setups provided protocols to fight the COVID-19 pandemic to 97.1%. 84.3% found themselves to be well versed with updated approaches for managing laboring females, pregnant women, and postpartum women especially in the duration of the COVID-19 pandemic.

Discussion

The measures taken by the Government of India has been instrumental to some extent in flattening the curve of

Table 1: Frequency and percentage distribution of demographic characteristics of obstetricians and gynecologists

Variables	Frequency, *n* (%)
Age (years)	
<30	135 (43.7)
31-50	105 (34.0)
>50	69 (22.3)
Gender	
Male	3 (1.0)
Female	306 (99.0)
Working condition	
Resident	153 (49.5)
Consultant	156 (50.5)
Marital status	
Married with children	147 (47.6)
Married without children	69 (22.3)
Single	90 (29.1)
Widower	3 (1.0)
Years of experience (years)	
<5	165 (53.4)
5-10	24 (7.8)
10-20	27 (8.7)
20-30	63 (20.4)
>30	30 (9.7)
Sector of working	
Government	48 (15.5)
Private	252 (81.6)
Both	9 (2.9)
Working set-up type	
Medical college	180 (58.3)
Multi/super specialty hospital	66 (21.4)
Individual (own) hospital	30 (9.7)
Freelancer	9 (2.9)
Other	24 (7.8)
Primary speciality	
Emergency	105 (34.0)
Gynecologic oncology	3 (1.0)
Maternal fetal medicine	42 (13.6)
Reproductive endocrinology and infertility	51 (16.5)
Others	108 (35.0)
Working hours before pandemic	
<48	39 (12.6)
48-72	147 (47.6)
>72	123 (39.8)
Tested positive for COVID-19	
Yes	9 (2.9)
No	300 (97.1)

the pandemic.[7-9] Most of the human, infrastructural and financial resources have been directed to somehow control this pandemic. One of the downsides of these measures has been the tremendous amount of trouble it has caused to the non-COVID-positive patients. Routine OPDs were shut down in most of the states leaving them aghast with agony[10] The persistent spread of the disease, these data actually got terribly affected; 22.3% ($n = 69$) got halted from any aspect of consultations, 13.6% ($n = 42$) were providing only telemedicine advice, 4.9% ($n = 15$), 14.6% ($n = 45$) and 24.3% ($n = 75$) encountered decline in the number of out-patients issues fairer than 90%, 75% and 50%, accordingly. This is comparable to the findings established in a study performed among orthopedic surgeons that 28% of OPD patients dropped 90% more than and about 7.6% had fully ceased seeing OPD.[11]

A significant decline was seen in the number of elective and emergency cases being performed which was concurrent to other studies like the study performed among orthopedic surgeons, where the whopping 63.9% of orthopedic surgeons had completely ceased performing elective cases.[11]

As far as the hospital infrastructure was concerned it was noticed that 84.3% of study subjects thought they might deliver care for emergency obstetric cases, 79.4% of establishments were able to conduct cesarean sections, and 86.3% of set-ups obtained referral patients from distinct health establishments. About 96.1% of the hospitals possessed capabilities for sequestering COVID-19 presumed cases, also 89.2% of the healthcare establishments had screening sectors particular for the COVID-19 suspects. This was analogous to the results shown in the study by Elhadi *et al*., who stated that 81% of respondents had availability or intensive care for obstetrics emergencies, while 89.1% found that emergency C-Section was feasible.[12]

Although the patients are better to judge, our doctors underwent that the ones who suffered harshly because of the pandemic prevailed in around 11.7% and 42.7% amongst the emergency along with nonemergency groups, accordingly. Also, the digits with concern to the ones who were moderately affected was 43.7% and 26.2% ($n = 124$), respectively [Figure 1c] The challenge with our branch is that obstetric emergencies do not always possess the time to undergo COVID-reverse transcription-polymerase chain reaction testing for them to get operated as urgent treatment is compelled, which is why during the pandemic the emergency cases have shown to have suffered as they had to be referred.

In the private sector there was a major drop in the financial earnings but not in the government sector. Although the studies performed in this regard are very few, but we noticed a comparable review documented by Shrestha RM *et al*., who reported that doctors and other health-care staff were dismissed from work in many health institutions or were not paid for months due to the economic hardship of hospital management.[13]

Functioning in both private as well as the government sectors had the terrible hit. Whereas the ones functioning in the government set up the income were noted to have continued the exact. By this category of functioning set-up, over there existed a harsh plunge amongst the ones with particular clinics and hospitals, and the ones who were functioning in the multi/Superspeciality hospitals. Distant from it, a substantial association was also being noticed amongst the income

influenced and years of their exercise. Comparatively those with 20–30 and more than 30 years of experience have been hit more than their newer counterparts, that is, ($P < 0.001$) in [Figure 2c]. Identical results were noticed in the research performed by Kumar K *et al*.[11]

We discovered in our study that the smooth functioning in these times of peril was related to adequate infrastructure in diverse health settings. This was similar to the study conducted in Libya by Elhadi *et al*., who found that the PPE and other protection equipment were adequate for 81.6% of OBs.[12] According to the study by Yalçin Bahat *et al*., 59.8% of respondents found that the hospital's PPE allowance was enough.[14] Contrasting reviews were found by Elhadi *et al*.[15] who found the PPE to be inadequate in their setup.

However, there was an air of apprehension amongst the doctors and the paramedical staff[16] still in our study we found that around 30.1% of anesthesiologists were willing to take up the cases for surgery same as before while only 1.9% of the participants had the opinion that the anesthetists were not willing at all. Para-medical staff like nurses, ward-boys, OT staff, etc., were willing to do routine work related to OBGYN similar as before according to 27.2% respondents while only 3.9% OBGYNs found them unwilling. Majority of them 54.8% said that they were working voluntarily in this time of national crisis while 38.4% were doing it under pressure from their employer. 65.7% found themselves competent enough to handle patients who were nonserious, who do not require close contacts and procedures like intubation. While 11.4% found themselves equipped enough to handle the ICU patients too. Elhadi *et al*. found that 46% of their respondents were certain with what is to be done with the Covid positive patients.[12] As stated by Elhadi *et al*.[15] around half i.e., 45% of the doctors and 37% of the nurses didn't get acclimatized to handle a case covering the signs and symptoms of COVID-19 infection. Furthermore, his data throws light upon the possibility of increased risk of hospital-acquired infections and cross-contamination. Therefore, proper education of healthcare personnel is of utmost importance to prevent the spread of infection by elaborate training and implementation of safety precautions.[17,18]

In our study, 94.2% were aware of the COVID-19 WHO recommendations, which contrasted with the Elhadi *et al*. report, which observed that only about 68.4% were aware.[12] [Table 3] 100%, 84.3% sanitization, and hygiene facilities were available for staff, patients and visitors. This was just 77% and 64.4% according to Elhadi *et al*.[12] 99% of respondents got supplies for cleaning adequately in contrast to 68.4% according to Elhadi *et al*.[12] According to 93.1%, there was a hike in regular cleaning practices after the advent of COVID-19.

Limitation

The major drawback is the small sample size due to the pressing need in the pool of lacking data. Second as majority of respondents in our current study belonged to northern India where multidisciplinary care and health infrastructure is in better shape as compared to other regions of India and also as the load of COVID-positive patients was fairly lighter than regions of southern and Western India. Thirdly online facility to participate in the current study might not be readily available in the peripheral regions so respondents from those regions could not be reached.

Table 2: Preparedness of the obstetricians during COVID-19 pandemic

Variable	*n* (%)
Availability of ICU for obstetric crisis	
Yes	261 (84.5)
No	48 (15.5)
Availability of cesarean section facility in your setup	
Yes	246 (79.6)
No	63 (20.4)
Is your center a referral center	
Yes	264 (85.4)
No	45 (14.6)
Hygiene and sanitization, are water and soap accessible for staff	
Yes	309 (100)
No	0
Are water and soap accessible for both patients and visitors	
Yes	261 (84.5)
No	48 (15.5)
Are disinfectants and water ready for cleaning grounds and floors	
Yes	306 (99.0)
No	3 (10)
Was systematic cleaning up of each ward improved in acknowledgment to COVID-19	
Yes	288 (93.2)
No	21 (6)
Healthcare faculty gave information regarding protocols to combat this COVID-19 pandemic?	
Yes	300 (97.1)
No	9 (2.9)
Is the healthcare establishment of your furnished with training courses, encompassing procedures or simulations, for preparing against COVID-19?	
Yes	261 (84.5)
No	48 (15.5)
Designated screening area for COVID-19 suspects	
Yes	297 (96.1)
No	12 (3.9)
Are there isolation areas for COVID-19 suspects	
Yes	270 (87.4)
No	39 (12.6)
Is the COVID-19 examination accessible for maternity COVID-19 suspects?	
Yes	282 (91.3)
No	27 (9.7)
Is there a particular team for combating COVID-19	
Yes	243 (78.6)
No	66 (21.4)

ICU: Intensive care unit

Table 3: Working scenario during COVID-19

Variable	*n* (%)
PPE availability in health facilities gloves	
Sufficient	303 (98.1)
Insufficient	6 (1.9)
Face masks	
Sufficient	291 (94.2)
Insufficient	18 (5.8)
N95	
Sufficient	258 (83.5)
Insufficient	51 (16.5)
PPE	
Sufficient	249 (80.6)
Insufficient	60 (19.4)
Main reason for you to be involved with the management of COVID-19 patients?	
I want to be involved voluntarily in this time of national crisis	123 (39.8)
Mode of employment/pressure from the employer	81 (26.2)
Others	105 (34.0)
How much are anesthesiologists willing to take up the cases for surgery	
Not willing at all	6 (1.9)
Somewhat not willing	39 (12.6)
Neutral	90 (29.1)
Somewhat willing	81 (26.2)
Same as before	93 (30.1)
How much are para-medical staffs like nurses, ward-boys, OT staffs, etc., willing to do the routine work related to obgyn	
Not willing at all	12 (3.9)
Somewhat not willing	33 (10.7)
Neutral	81 (26.2)
Somewhat willing	99 (32.0)
Same as before	84 (27.2)
Do you think yourself competent enough to handle COVID-19 patients?	
No	12 (3.9)
Yes, but only up to triage part which does not involve physical contact with patients	24 (7.8)
Yes, but only nonserious patients who do not require close contacts and procedures like intubation, etc.	138 (44.7)
Yes, even patients in ICU	24 (7.8)
Yes, with expert advice from faculties	105 (34.0)
Yes patient related to my specialty	6 (1.9)
Source of knowledge	
Your own hospital advisory/webinars	108 (35.0)
Government-regulated websites like MOHFW/ ICMR/AIIMS	84 (27.2)
Social media	9 (2.9)
Scientific papers/literature	15 (4.9)
Others	93 (30.1)
Awareness on WHO recommendations	
Yes	291 (94.2)
No	18 (5.8)

PPE: Personal Protective Equipment, ICU: Intensive care unit, MOHFW: Ministry of Health and Family Welfare, AIIMS: All India Institute of Medical Sciences, ICMR: Indian Council of Medical Research

Conclusions

This current research indicates that the pandemic has significantly entailed practice of obstetrics and gynecology in India. It has been in terms of their outpatient and operative numbers, GYN employed in all fields across numerous types of set-ups that got impacted at some level or the other. In terms of income, practitioners employed in the sectors run by private ones and the ones carrying out their own hospitals as well as clinics had been more severely implicated, when compared to the ones practicing in the government sectors besides the medical colleges. In this time of difficulties, however, the smooth functioning was maintained due to the high degree of knowledge and preparedness among the doctors and the well-laid guidelines by the hospitals and different obstetric and gynecological societies. Further research is needed for creating a better working atmosphere for future unpredicted peaks of the pandemic.

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Conflicts of interest

There are no conflicts of interest.

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