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Being an obstetrics and gynaecology resident during the COVID-19: Impact of the pandemic on the residency training program

Giovanna Bitonti[a], Anna Rita Palumbo[a,*], Cinzia Gallo[a], Erika Rania[a], Gabriele Saccone[b], Valentino De Vivo[b], Fulvio Zullo[a,b], Costantino Di Carlo[a], Roberta Venturella[a]

[a] Department of Clinical and Experimental Medicine, Unit of Obstetrics and Gynecology, Magna Graecia University of Catanzaro, Catanzaro, Italy
[b] Department of Neuroscience, Reproductive Sciences and Dentistry, School of Medicine, University of Naples Federico II, Naples, Italy

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ABSTRACT

Objective: to evaluate the impact of the COVID-19 pandemic on the obstetrics and gynecology residency training program in Italy.
Study design: This was a cross-sectional survey study aimed to assess the impact of the COVID-19 pandemic on the obstetrics and gynecology residency training program in Italy. An online survey with 45 questions was sent and completed anonymously by residents after accepting an informed consent. The invitation to the online survey was sent to all the Italian residents in obstetrics and gynecology. Those on maternity leave at the time of the study were excluded. Residents were asked about their routinely activity before the COVID-19 pandemic, and to report the reduction in their clinical practice. They were also asked about psychological impact of COVID-19 on their clinical practice.
Results: 933 Italian residents in obstetrics and gynecology, were invited for this survey study. Four-hundred and seventy-six (51 %) completed the survey and were included in the study. Three-hundred and eighty-seven (81.3 %) were female, and 89 (18.7 %) were male. Residents age ranged from 25 to 42. In 71,8 % (342/476) of the cases residents work in a COVID-19 reference Hospitals. One-hundred and eighty-four out of 76 residents (38.6 %) were tested on RT-PCR assay of nasal and pharyngeal swab specimens, and of them 12/184 (6.5 %) were positive to SARS−COV-2. Regarding the use of personal protective equipment (PPE), 267 (56.1 %) reported to receive adequate device, and 379 (79.6 %) felt to be well informed about prevention and management protocols. Three-hundred and thirty-one residents (69.5 %) reported to have managed COVID-19 positive patients. For 54,7 % of respondent residents, training activity in general decreased significantly during the COVID-19 epidemic. A one-third reduction was reported in 31,4 % of the cases, whereas a total suspension of the training in 9,9 % of the cases. In 89,3 % of cases the reduction was caused by the reorganization of work. Anxiety about the professional future was reported in 84 % of the residents, and 59 % of them had the perception that their training was irreversibly compromised.
Conclusions: Among Italian residents in obstetrics and gynecology, COVID-19 pandemic was associated with a significant training impairment.

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Introduction

The novel Coronavirus 2019, or Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), is a newly emerging virus responsible for COVID-19 [1]. COVID-19 is associated with detrimental health, socio-economic, and psychologic consequences [2–4]. Among all the countries, Italy was dramatically affected, with, as of early May, more than 220,000 cases, and more than 30,000 deaths. As result of the imposed lockdown, public assembly has been banned, and most travel restricted. The Healthcare System has also been reorganized, with elective surgical procedures and most of the outpatient appointments being postponed. Many patients will experience long-term effects of the COVID-19 measures, with expected increased number of missed diagnosis, complications of conditions due to delayed treatment, and increased level of anxiety. Moreover, residency

* Corresponding author at: viale Pio X, 88100, Catanzaro, Italy.
E-mail address: a.palumbo34@gmail.com (A.R. Palumbo).

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training programs may be impacted by the COVID-19 epidemic, although limited data have been published so far [5].

Objective

The aim of this study was to evaluate the impact of the COVID-19 pandemic on the obstetrics and gynecology residency training program in Italy

Materials and methods

Study design

This was a cross-sectional survey study aimed to assess the impact of the COVID-19 pandemic on the obstetrics and gynecology residency training program in Italy.

An online survey with 45 questions was sent using an online platform through the Italian Network of Trainee in Obstetric and Gynecology and was completed anonymously by residents after accept-ing an informed consent. The local IRB exempted the study from the ethical review.

The invitation to the online survey was sent on April 28, 2020 to all the Italian residents in obstetrics and gynecology, regardless of the gender. In Italy, the duration of the obstetrics and gynecology residency training program is of five years. Residents from the first to the fifth year of the training program were invited to the survey. Those on maternity leave at the time of the study were excluded.

The questionnaire

The online survey included three different part. In the first part, demographic data such as gender, age, and residency's year were collected. Residents were also asked about their routinely activity before the COVID-19 pandemic. Specifically, they were asked about number of elective procedures per month, with major and minor surgical operations, and outpatient rotation. In the second part of the survey, residents were asked to report the reduction in their clinical practice (0 = nothing, 1/3; 2/3; 3/3=total practice suspension), and teaching activity. In the last part of the survey, residents were asked about psychological impact of COVID-19 on their clinical approach to the patients, and on their idea about the professional future. Data were collected anonymously from April 28, 2020 to May 08, 2020.

Statistical analysis

Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) v. 19.0 (IBM Inc). Data are shown as means with standard deviation, or as number (percentage). Descriptive statistics were calculated for sociodemographic characteristics. Questionnaires scores were also analyzed according to residents' gender, year of residency, COVID-19 positivity, and number of residents in the center by using logistic regression analysis.

Univariate comparisons of dichotomous data were performed with the use of the chi-square with continuity correction. Comparisons between groups to test group means with standard deviation were performed with the use of the T-test by assuming equal within-group variances or with the use of the One-way ANOVA.

A 2-sided P value less than .05 was considered significant.

Results

Study population

Nine-hundred and thirty-three Italian residents in obstetrics and gynecology, from all the 39 Italian residency training programs, were invited by email. Out of the 933 invited residents, 476 (51.0 %) completed the survey.

Three-hundred and eighty-six of the respondents (81.4 %) were female, and 88 (18.6 %) were male. Residents age ranged from 25 to 42 with an average of 29 years. In 72 % (344/476) of the cases residents worked in a COVID-19 reference Hospitals. One-hundred-eighty-four residents (38.6 %) were tested on real-time reverse-transcriptase-polymerase-chain-reaction (RT-PCR) assay of nasal and pharyngeal swab specimens, and of them 12/184 (6.5 %) were positive to SARS-COV-2. One-hundred and ninety-five out 476 residents (41.1 %) were tested for antibody against SARS-COV-2 with either chemiluminescence immunoassay analysis, or rapid IgM-IgG combined antibody test.

Regarding the use of personal protective equipment (PPE), 267 (56.1 %) reported to have received adequate device, and 379 (79.6 %) felt to be well informed about prevention and management protocols. Three-hundred and thirty-one residents (69.6 %) reported to have managed COVID-19 positive patients.

Survey results

For 54.7 % of the respondents, training activity in general decreased significantly (2/3 reduction) during the COVID-19 epidemic. Although 19 out 476 (3.9 %) responded declared no reduction in their training activity, a one-third reduction was reported in 31.4 % of the cases, whereas a total suspension of the training in 9.9 % of the cases. In 89.3 % of cases the reduction was caused by the reorganization of work shifts, while 8.2 % and 2.5 % have reduced their activity because of medical prescription or mandatory quarantine, respectively.

The areas most involved from this reduction have been those related to elective surgical procedures, with a 39.7 % and 40.4 % of Residents reporting total suspension of major and minor surgical activities, respectively (Fig. 1). On the opposite, labor and delivery training and prenatal diagnosis were less reduced, with a total suspension of the training in 8.2 % and 23.1 % of cases, respectively. Labor and delivery activity were not reduced at all for 43.3 % of cases, while a 1/3 reduction was observed in 29.6 % of respondents. Prenatal diagnosis activity was not reduced at all for 40.8 % of cases, while a 1/3 reduction was observed in 17.9 % of respondents. Invasive prenatal diagnosis was totally suspended in 29.6 % of cases while 242 out 476 respondents (50.8 %) declared that in their centers these procedures continued to be performed unchanged during the pandemic.

Benign gynecology procedures, infertility treatments, and urogynecology related activities, on the opposite, underwent a very significant reduction, with a reported total suspension in 55 %, 54 % and 60 % of the cases, respectively (Fig. 1).

An unexpected reduction was observed in oncological clinical activities. Indeed, 20 % of respondents reduced their practice by two thirds, and 36 % totally suspended this act.

Oncologic screening clinic and colposcopy were totally suspended in 41.8 % of cases, reduced by 2/3 in 19.3 % and reduced by 1/3 in 10.7 %, while 28.1 % of Residents did not reduced this activity at all.

Logistic regression showed that degree of training reduction was not associated with residents' gender ($p = 0.48$), year of residency ($p = 0.37$), COVID-19 positivity ($p = 0.54$), or number of residents in the center ($p = 0.63$).

Residents reported a reduction in teaching activity in 51.2 % of cases, although at the same time the time dedicated to their individual study has increased in 68.1 % of respondents. Research activity continued unchanged in 39.9 % of cases during the pandemic, was reduced in 23.7 % and increased in 36.3 % of cases, respectively.

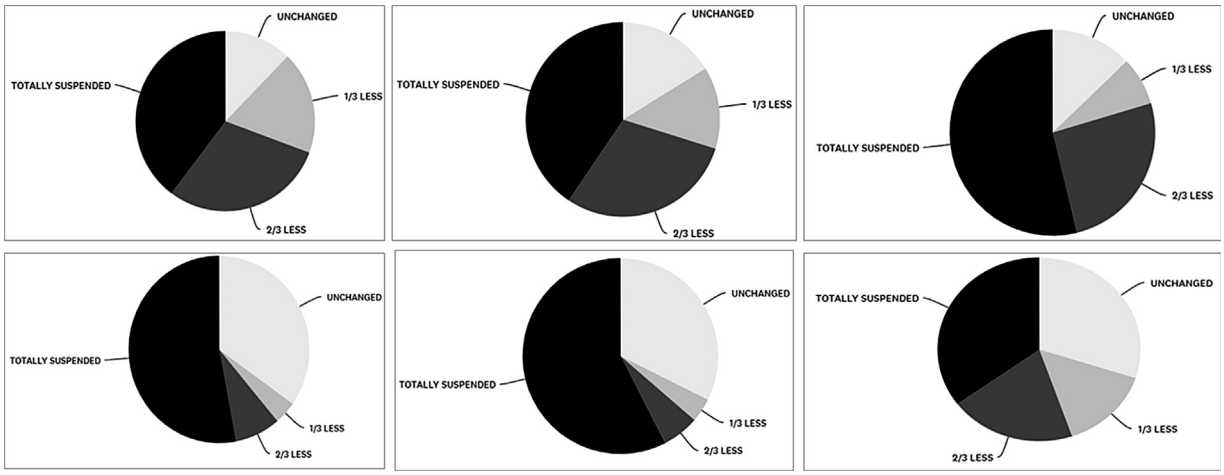

Fig. 1. Reduction in clinical activity as reported by the residents.

Effect of COVID-19 on residents' approach to the patients, was reported as unchanged in 8.8 % of respondents, considerably changed in 43.1 % of the cases, a little bit changed in 43.7 % and totally changed in 4 % of cases.

More than half of the Residents reported anxiety related to fear of contagion, during invasive and non-invasive procedure. Almost all the residents (457/476, 96 %), reported that COVID-19 had negative psychological impact in terms of changes in mood, of which 10 % had their mood totally impacted and 58 % considerably impacted by the pandemic (Fig. 2a).

Fear about the professional future was reported in 84 % of the residents, and 59 % of them had the perception that their training was irreversibly compromised (Fig. 2b).

Logistic regression showed that degree of mood impairment was not associated with residents' gender ($p = 0.56$), year of residency ($p = 0.90$), COVID-19 positivity ($p = 0.59$) or presence of infected among colleagues ($p = 0.75$). At the same time, being a Resident in a COVID center did not have any effect on the anxiety perception of respondents ($p = 0.87$), although the percentage of Resident infected was significantly higher in those working in a reference center (84.1 % vs 15.9 % infected Residents in COVID center and in not-COVID center, respectively; $p < 0.001$) (Fig. 3).

Discussion

Main findings

This cross-sectional survey study aimed to evaluate the impact of the COVID-19 pandemic on the obstetrics and gynecology residency training program in Italy. To the best of our knowledge, this may be the first study evaluating the impact of COVID-19 on residents training in obstetrics and gynecology. Findings from the survey showed that among Italian residents in obstetrics and gynecology, COVID-19 pandemic was associated with a significant training impairment. This study was limited by the cross-sectional study design. We included only Italian residents, therefore data from this study may not be applicable to other countries.

Implications

Since December 2019, the outbreak of COVID-19 has become a major epidemic worldwide [3]. COVID-19 dramatically impacted patient care [6] and had far-reaching effects on training in surgical programs [7–10]. Prior studies showed that COVID-19 epidemic is associated with significant reduction in residents training and reduction in medical education in different specialties [7,8]. The impairment may be more severe in surgical specialties, where hands-on training cannot be replaced by distance education [8]. A survey among Italian urology residents, showed a severe reduction or complete training suppression in up to 80 % of the residents [5].

Our study also showed that more than half of the residents experienced some degree of anxiety related to fear of contagion. Prior studies have been shown that COVID-19 outbreak had severe phycological impact on different population, including patients and healthcare providers [4,11,12].

The years spent during medical training programs have a crucial role in Healthcare professional growth. According to the European Congress of Obstetrics and Gynaecology (EBCOG), an optimal training, should ensure an active participation in clinical practice,

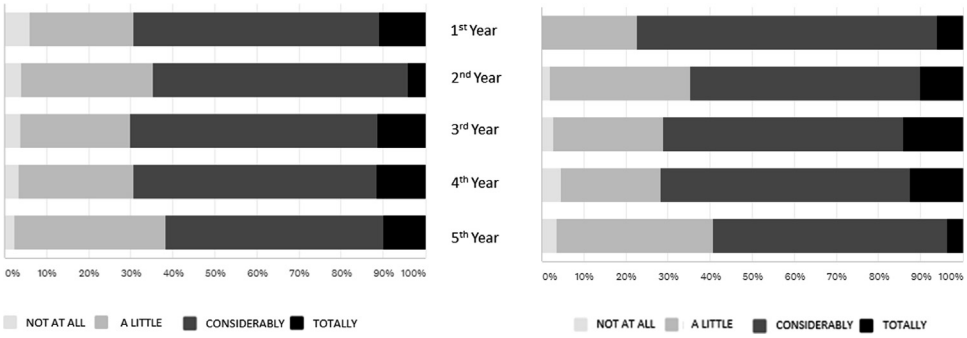

Fig. 2. a. Pandemic impact on Residents' mood and anxiety perception, evaluated by year of residency; 2b Residents' perception of training impairment due to the lockdown, evaluated by year of residency.

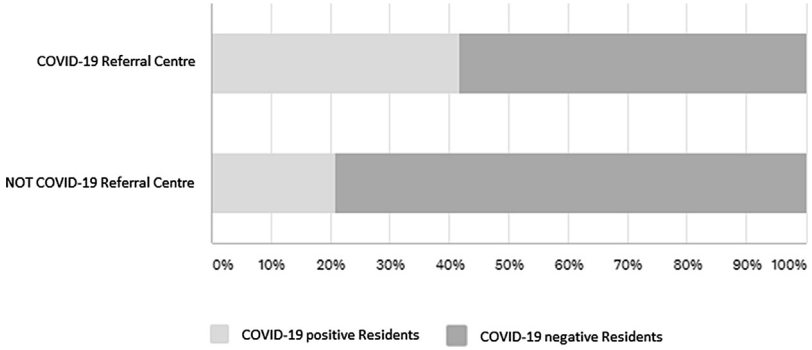

Fig. 3. Percentage of Resident infected working in a COVID and in not-COVID centers.

laying the foundations for the achievement of specific skills and a minimum number of procedures to be performed [13].

During the SARS-CoV-2 public health emergency, several medical services have been reduced, except for those considered urgent and not deferrable, such as labor and delivery and oncologic procedures. Consequently, although with different degrees in the specialties, doctors in training have also decreased their daily activities. This is inevitably leading to a slowdown in training.

Obstetrics and gynecology residency training program has one of the largest and most heterogeneous programs, in which the acquisition of clinical, surgical and emergency management skills is mandatory. Daily practice, together with an adequate theoretical preparation, plays a fundamental role in achieving autonomy in carrying out the clinical activities.

Conclusions

In summary, among Italian residents COVID-19 pandemic had a considerable negative impact on obstetrics and gynecology residency training program. Our findings can be used to formulate new solution to limit the impact of the COVID-19 on the quality of residency training programs. New organizational strategies are necessary to minimize training deficiencies. Although not comparable to practical activity, there may be different innovative solutions available, as online practice questions, teleconferencing, involving residents in telemedicine clinics, use of simulators, and the use of surgical videos.

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Declaration of Competing Interest

None.

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