

Assessment of the preparedness of obstetrics and gynecology healthcare systems during the COVID-19 pandemic in Libya

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Cases of COVID-19 have been reported in neonates, and although these were either asymptomatic or non-severe,¹ it is apparent that obstetricians are at increased risk of infection. As a result, safety procedures must be reinforced by ensuring the availability of personal protective equipment (PPE) and the application of infection control measures.²

Currently, there is a shortage of PPE and inadequate training for obstetricians, especially in countries with limited resources. It is therefore important to assess the preparedness of such countries and to implement screening for patients admitted to obstetric units in order to reduce risk for healthcare workers. The successful control of a pandemic depends on several factors, including the skills of healthcare practitioners and the resources allocated to hospitals. Currently, many hospitals and healthcare programs have collapsed, leading to crises inside hospitals due to a lack of personnel, fatigue, and other factors. Concerns have arisen about countries with limited resources in terms of their preparedness for managing the COVID-19 pandemic.

We conducted a cross-sectional survey in mid-April 2020 among 200 obstetricians working in Libya to assess their preparedness to manage the COVID-19 pandemic and to provide an overview of the impact of COVID-19 on the Libyan healthcare system.

The survey consisted of two parts. The first included questions pertaining to demographics and their levels of experience as obstetricians. The second consisted of five sections with questions regarding their hospital setting, infection control, changes during COVID-19, awareness and attitudes towards COVID-19, and the availability of PPE.

Statistical analysis was performed using IBM SPSS version 25 (IBM, Armonk, NY, USA). Descriptive data were reported using frequency

and percentage, while continuous data were described using mean and standard deviation. Ethical approval was obtained from the Bioethics Committee at the Biotechnology Research Center in Libya. All participants provided consent before participation.

Table 1 provides an overview of the study participants' profiles. The survey response rate was 86.5% (173 participants), 3.5% (7) of which were male. Approximately 70.5% (122) were obstetric trainees, whereas 29.5% (51) were specialist or consultant obstetricians. Approximately 67.1% (116) worked in university-affiliated hospitals and the rest in rural or private hospitals. We found that 74.6% (129) reported that COVID-19 has negatively impacted their ability to work: 19.7% (34) felt stigmatized by people around them due to their work as obstetricians during the pandemic; 22% (38) felt their work was undervalued; 10.4% (18) felt their work was not appreciated, while only 11% (19) felt that their job was recognized.

Table 2 shows the results of the survey questionnaire regarding the knowledge and preparedness of obstetricians in Libyan healthcare facilities. We found that 81% (141) of participants thought they could provide care for obstetric emergency cases, 89.1% (155) of facilities were able to perform cesarean sections, 86.8% (151) of hospitals received referral cases from other health facilities, 43.1% (75) of hospitals did not have facilities for isolating COVID-19 suspected cases, and 43.1% (75) of the healthcare facilities had screening areas specific for COVID-19 suspected cases. In 75.9% (132) of the facilities, brochures and posters were displayed to raise awareness regarding pregnant women and COVID-19. On the other hand, 59.2% (103) of physicians reported that there were no updated guidelines for the clinical care of COVID-19 patients, 43.1% (75) were not trained to manage patients with COVID-19, only 59.8%

TABLE 1 Profile of survey participants.

Variables	Count or mean (n = 174)	%
Gender		
Women	168	96.6
Men	6	3.4
Age range		
<35	127	73
35-45	37	21.3
>45	10	5.9
Marital status		
Married	127	73
Not married	47	27
Employment status		
Governmental sector only	57	32.8
Private sector only	4	2.3
Both	113	64.9
Working hours per week, (mean ± SD)	40.32 ± 16.98	N/A
Number of shifts per month (mean ± SD)	5.75 ± 5.29	N/A
Type of health institution		
Tertiary Care Center	96	
Secondary Care Center	33	55.2
Primary Care Center	45	19
		25.9
Years of experience		
<5 years	88	50.6
5-15 years	65	37.4
>15 years	21	12.1
Healthcare section		
Antenatal care	104	59.8
Postnatal care	47	27
Surgical care	86	49.4
Childbirth care	100	57.5
Stress levels during COVID-19		
No change	78 (18.7)	51 (16.6)
Slightly elevated	239 (57.3)	174 (56.5)
Significantly elevated	100 (24)	83 (26.9)

(104) reported that they could order COVID-19 testing for suspected cases, and approximately 70.1% (122) reported that there was no designated team for treating patients with COVID-19 in the maternity ward.

Approximately 63% of participants reported that they had isolation procedures and 43% of hospitals had screening areas for suspected maternal cases. Furthermore, only 29% of hospitals had a team of obstetricians qualified to manage COVID-19 cases. The availability of COVID-19 testing was 61% because most Libyan hospitals do not

TABLE 2 Survey questionnaire on preparedness and attitudes of obstetricians working in Libyan healthcare facilities during the COVID-19 pandemic.

Questions	Yes	No
1. Occupational background and hospital setting		
1.1 Are intensive care units available for obstetric emergencies?	141 (81)	33 (19)
1.2 Are caesarean sections available at your health facility during COVID-19?	155 (89.1)	19 (10.9)
1.3 Are obstetric cases referred to your health facility from other centers?	151 (86.8)	23 (13.2)
2. Sanitization and hygiene		
2.1 Are soap and water available for staff?	134 (77)	40 (23)
2.2 Are soap and water available for patients and visitors?	112 (64.4)	62 (35.6)
2.3 Are water and disinfectants available for cleaning surfaces and floors?	122 (70.1)	52 (29.9)
2.4 Was routine cleaning of the ward increased in response to COVID-19?	119 (68.4)	55 (31.6)
3. Changes related to the COVID-19 pandemic		
3.1 Has your healthcare facility provided information about procedures to fight the COVID-19 pandemic?	132 (75.9)	42 (24.1)
3.2 Has your healthcare facility provided training courses, including practices or simulations, in preparation for COVID-19?	99 (56.9)	75 (43.1)
3.3 Does your department have updated guidelines for the clinical care of pregnant, laboring, and postpartum women during the COVID-19 pandemic?	103 (59.2)	71 (40.8)
3.4 Are there specific screening areas for COVID-19 suspected cases?	75 (43.1)	99 (56.9)
3.5 Are there isolation rooms for COVID-19 suspected cases?	111 (63.8)	63 (36.2)
3.6 Are there screening procedures for maternity patients with COVID-19 symptoms?	107 (61.5)	67 (38.5)
3.7 Is COVID-19 testing available for maternity patients suspected with COVID-19?	104 (59.8)	70 (40.2)
3.8 Is there a designated team for COVID-19 management?	52 (29.9)	122 (70.1)
4. Availability of personal protective equipment in health facilities		
4.1 Gloves	156 (89.7)	18 (10.3)
4.2 Face masks, including N95, FFP2, FFP3	142 (81.6)	32 (18.4)

(Continues)

TABLE 2 (Continued)

Questions	Yes	No
4.3 Apron	110 (63.2)	64 (36.8)
5. Personal awareness and attitudes toward COVID-19		
5.1 Are you familiar with the testing criteria to order a screening test for COVID-19?	141 (81)	33 (19)
5.2 Do you know the World Health Organization recommendations for reporting COVID-19 cases?	119 (68.4)	55 (31.6)
5.3 Have you received information regarding how to handle COVID-19 cases in your healthcare facility?	101 (58)	73 (42)
5.4 Do you feel stigmatized for being a medical practitioner during the COVID-19 pandemic?	35 (20.1)	139 (79.9)
5.5 Have your stress levels changed during the COVID-19 Pandemic?		
1. No change	30 (17.2)	N/A
2. Slight increase	112 (64.4)	
3. Significant increase	32 (18.4)	
5.6 Do you feel protected against SARS-CoV-2 infection at your workplace?		
1. Not protected	68 (39.1)	N/A
2. Some level of protection	40 (23)	
3. Satisfactory level of protection	66 (37.9)	
5.7 Do you know which measures should be applied to a patient with COVID-19 symptoms?		
1. No idea	46 (26.4)	N/A
2. Not certain, but I have some idea	31 (17.8)	
3. I am almost certain but have some concerns	51 (29.3)	
4. I am certain	46 (26.4)	
5.8 Has your healthcare facility addressed a response regarding the COVID-19 pandemic?		
1. No	7 (4)	N/A
2. Minimum response	100 (57.5)	
3. Good response	48 (27.6)	
4. Full response	19 (10.9)	
5.9 Do you fear that contracting COVID-19 would impede your ability to provide good quality healthcare?		
1. I strongly agree	39 (22.4)	
2. I agree	77 (44.3)	
3. Neutral	36 (20.7)	
4. I disagree	13 (7.5)	
5. I strongly disagree	9 (5.2)	

have laboratory facilities for COVID-19 testing and rely on RT-PCR from one of the two central laboratories, which take several hours to provide results.

More than half of the obstetricians reported increased levels of stress due to COVID-19, mainly related to unpreparedness, since only 56% have received on-site training on management of COVID-19 cases, while only 59% reported that their healthcare facilities had provided guidelines for managing pregnant patients and newborns during the COVID-19 pandemic. Shortage of PPE is common in Libyan hospitals—many reported unavailability of gloves, face masks, and aprons, in 10.3%, 18.4%, and 36.8% of cases, respectively. It should be noted that our findings were limited by our study design and the fact that this was a single country setting.

Gynecological and obstetric societies should provide support for physicians working in limited-resource settings. As the number of pregnant women with COVID-19 increases, obstetricians must be prepared with adequate training, sufficient PPE, and action plans. Although there is no evidence of vertical transmission, asymptomatic patients can infect others before symptoms manifest. Furthermore, well-prepared physicians can play a role in the management of SARS-CoV-2 cross-infection of pregnant women, newborns, and other healthcare workers. An adequate strategy is urgently required in Libya for screening of pregnant women and newborns, increasing infection control measures, providing adequate supply of PPE and hospital equipment, implementing rapid testing in hospitals, and providing training for healthcare workers to decrease the risk of cross-infection.

AUTHOR CONTRIBUTIONS

ME conceptualized and designed the study, analyzed the data, drafted the initial manuscript and revised the manuscript. AM, ME, AA, FE, AB, MB collected data, and reviewed and revised the manuscript. All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

CONFLICTS OF INTEREST

The authors have no conflicts of interest.

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