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Nausica Trivellizzi, MD
Division of Gynecologic Oncology
Department of Woman, Child and Public Health
Fondazione Policlinico Universitario Agostino Gemelli
Istituto di Ricovero e Cura a Carattere Scientifico
Rome, Italy

Gianfranco Zannoni, MD
Division of Surgical Pathology
Department of Woman, Child and Public Health
Fondazione Policlinico Universitario Agostino Gemelli
Istituto di Ricovero e Cura a Carattere Scientifico
Università Cattolica del Sacro Cuore
Rome, Italy

Ursula Catena, MD
Division of Gynecologic Surgery
Department of Woman, Child and Public Health
Fondazione Policlinico Universitario Agostino Gemelli
Istituto di Ricovero e Cura a Carattere Scientifico
Rome, Italy

Rossana Moroni, PhD
Biostatistics
Fondazione Policlinico Universitario Agostino Gemelli
Istituto di Ricovero e Cura a Carattere Scientifico
Rome, Italy

Francesco Fanfani, MD, PhD
Giovanni Scambia, MD
Division of Gynecologic Oncology
Department of Woman, Child and Public Health
Fondazione Policlinico Universitario Agostino Gemelli
Istituto di Ricovero e Cura a Carattere Scientifico
Università Cattolica del Sacro Cuore
Rome, Italy

The authors report no conflict of interest.

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 https://doi.org/10.1016/j.ajog.2020.12.1210

High frequency of posttraumatic stress symptoms among US obstetrical and gynecologic providers during the coronavirus disease 2019 pandemic

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OBJECTIVE: Healthcare workers (HCWs) during infectious disease outbreaks experience high levels of posttraumatic stress (PTS) symptoms.[1,2] During the 2003 severe acute respiratory syndrome (SARS) epidemic, factors associated with PTS symptoms included a high perception of risk, whereas a perception of altruism was protective.[1] Emerging data during the coronavirus disease 2019 (COVID-19) pandemic demonstrate a high frequency of symptoms consistent with mental health disorders in HCWs.[3] Obstetrics and gynecology (OB/GYN) providers are at an increased risk of COVID-19 exposure and likely resultant PTS symptoms.[4] Our aim was to determine the frequency of PTS symptoms among OB/GYN providers during the COVID-19 pandemic and identify demographic and COVID-19 exposure characteristics associated with PTS in this setting.

STUDY DESIGN: An online survey was distributed via OB/GYN provider Facebook groups and by email in 12 US tertiary care hospital systems between September 27, 2020, and October 9, 2020. Institutional review board exemption was obtained, and participants provided anonymous consent. Eligible participants were US OB/GYN providers inclusive of physicians, certified nurse midwives, and nurse practitioners. We collected demographic information and data on COVID-19 exposure. We assessed PTS symptoms using the Impact of Event Scale—Revised (IES-R; scale, 0−88), and the primary outcome was a high level of PTS symptoms, defined as a score of $\geq$24.[5] Briefly, we adapted question items from a survey of HCWs during the 2003 SARS outbreak.[1] Participants completed 9 questions to determine their perceived COVID-19−related risk score and 3 questions to determine their fear of COVID-19 score. Participants were positive for COVID-19−related altruism if they agreed with the statement "because I want to help COVID-19 patients, I am willing to accept the risks involved." The association between participant

TABLE
Characteristics of individuals overall and by high and low PTS symptoms

Characteristic	Frequency overall and by PTS symptoms n (%) (row percentage)			Unadjusted and adjusted analysis	
	Total (N = 558)	Low PTS (n = 353)	High PTS (n = 211)	OR (95% CI)	aOR (95% CI)[a]
United States region					
Northeast	117	64 (54.70)	53 (45.30)	1.00	1.00
Southeast	130	86 (66.20)	44 (33.80)	0.61 (0.36–1.03)	0.65 (0.37–1.16)
Southwest	61	37 (60.70)	24 (39.30)	0.78 (0.41–1.47)	0.90 (0.44–1.80)
Midwest	199	133 (66.80)	66 (33.20)	0.59 (0.37–0.95)	0.63 (0.37–1.06)
West Coast	51	29 (56.90)	22 (43.10)	0.91 (0.47–1.77)	1.04 (0.51–2.13)
Hospital type					
Academic	171	114 (66.70)	57 (33.30)	1.00	
Community	249	146 (58.60)	103 (41.40)	1.41 (0.94–2.11)	
Other	82	53 (64.60)	29 (35.40)	1.09 (0.62–1.90)	
Level of training					
Resident	41	30 (73.20)	11 (26.80)	1.00	
Fellow	23	17 (73.90)	6 (26.10)	0.96 (0.30–3.06)	
Attending	422	253 (60.00)	169 (40.00)	1.82 (0.88–3.73)	
CNM or NP	15	11 (73.30)	4 (26.70)	0.99 (0.26–3.77)	
Sex					
Male	39	33 (84.60)	6 (15.40)	1.00	1.00
Female	463	279 (60.30)	184 (39.70)	3.62 (1.49–8.82)	3.60 (1.44–9.02)
Age, y					
<35	153	94 (61.40)	59 (38.60)	1.00	1.00
36–50	303	186 (61.40)	117 (38.60)	1.00 (0.67–1.49)	0.84 (0.55–1.29)
>51	46	32 (69.60)	14 (30.40)	0.69 (0.34–1.41)	0.70 (0.33–1.48)
Marital status					
Single	56	35 (62.50)	21 (37.50)	1.00	
Divorced or separated	16	8 (50.00)	8 (50.00)	1.66 (0.54–5.10)	
Married	427	267 (62.50)	160 (37.50)	0.99 (0.56–1.77)	
High-risk clinical setting[b]					
No	370	238 (64.30)	132 (35.70)	1.00	1.00
Yes	194	115 (59.30)	79 (40.70)	1.23 (0.86–1.76)	1.05 (0.70–1.58)
Any quarantining					
No	456	285 (62.50)	171 (37.50)	1.00	
Yes	100	62 (62.00)	38 (38.00)	1.02 (0.65–1.59)	
Personal diagnosis of COVID-19					
No	502	314 (62.50)	188 (37.50)	1.00	
Yes	53	32 (60.40)	21 (39.60)	1.09 (0.61–1.95)	
Friend or family with COVID-19					
No	197	127 (64.50)	70 (35.50)	1.00	
Yes	358	219 (61.20)	139 (38.80)	1.15 (0.80–1.65)	

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TABLE
Characteristics of individuals overall and by high and low PTS symptoms *(continued)*

Characteristic	Frequency overall and by PTS symptoms n (%) (row percentage)			Unadjusted and adjusted analysis	
	Total (N=558)	Low PTS (n=353)	High PTS (n=211)	OR (95% CI)	aOR (95% CI)[a]
Prior trauma experience[c]					
No	356	244 (68.50)	112 (31.50)	1.00	1.00
Yes	198	101 (51.00)	97 (49.00)	2.09 (1.46–2.99)	2.14 (1.44–3.17)
High altruism					
No	91	52 (57.10)	39 (42.90)	1.00	1.00
Yes	464	293 (63.10)	171 (36.90)	0.77 (0.49–1.22)	0.76 (0.46–1.26)
Perceived risk[d]	5.57 (1.74)	5.04 (1.75)	6.44 (1.31)	1.82 (1.58–2.09)	1.81 (1.56–2.11)
Fear of COVID-19[e]	2.74 (1.06)	2.25 (0.79)	3.58 (0.94)	5.22 (3.95–6.88)	5.22 (3.85–7.09)

Data are expressed as number (percentage) unless otherwise specified; there are missing demographic data and totals vary by category.

aOR, adjusted odds ratio; *CI*, confidence interval; *CNM*, certified nurse midwife; *COVID-19*, coronavirus disease 2019; *NP*, nurse practitioner; *OR*, odds ratio; *PTS*, posttraumatic stress.

[a] Model adjusted for US region, prior trauma experience, high-risk clinical setting, sex, and age; [b] High-risk clinical setting defined by working in COVID-19 unit, emergency department, intensive care unit, or lapse in personal protective equipment; [c] Prior trauma experience defined as having a prior emotional or physical injury because of abuse circumstances, witnessing a death or an injury, or a major disaster; [d] Data in mean (±standard deviation); continuous scale from 0 to 9 and total "yes" responses to 9 question items, 9=high perceived risk; [e] Data in mean (±standard deviation); continuous scale from 1 to 5 and mean of 3 question items with Likert scale for response, 5=high fear of COVID-19.

Kiefer. High frequency of posttraumatic stress symptoms among US obstetrical and gynecologic providers. Am J Obstet Gynecol 2021.

characteristics, including demographics, perceived risk (continuous scale from 0 to 9), altruism, and fear of COVID-19 (continuous scale from 1 to 5), and PTS symptoms was assessed using logistic regression adjusting for US region, prior trauma experience, working in a high-risk clinical setting, sex, and age. Participants with incomplete responses to the IES-R were excluded.

RESULTS: Of the 682 total respondents, 558 (81.8%) completed the IES-R and were included. A total of 211 participants (37.8%) reported high PTS symptoms, 53 (9.5%) reported a personal diagnosis of COVID-19, and 358 (64.5%) reported knowing a friend or family member diagnosed with COVID-19. Female sex (39.7% vs 15.4%; adjusted odds ratio [aOR], 3.60; 95% confidence interval [CI], 1.44–9.02) and prior trauma experience (49.0% vs 31.5%; aOR, 2.14; 95% CI, 1.44–3.17) were associated with increased odds of high PTS symptoms. Higher mean perceived COVID-19 risk on a scale from 0 to 9 (6.44 vs 5.04; aOR, 1.81; 95% CI, 1.56–2.11) and higher mean fear of COVID-19 on a scale from 1 to 5 (3.58 vs 2.25; aOR, 5.22; 95% CI, 3.85–7.09) were also associated with increased odds of high PTS symptoms. Perception of altruism and remaining demographic characteristics were similar between the groups (Table).

CONCLUSION: We found high rates of PTS symptoms among OB/GYN providers. Although the IES-R is not used to diagnose PTS disorder, this finding is concerning that HCWs may experience lifelong trauma because of the COVID-19 pandemic. Despite nearly 1 in 10 providers reporting a personal diagnosis of COVID-19, this finding was not associated with PTS symptoms. Furthermore, although fear and perceived risk of COVID-19 increased the likelihood of PTS symptoms, altruism did not. As the COVID-19 pandemic progresses, it is important to assess OB/GYN providers' mental health. These results may inform interventions aimed at providing education and resources to this high-risk HCW population. This study is limited by its open survey design and is susceptible to selection bias, because those with increased PTS may be more likely to participate. ■

Miranda K. Kiefer, DO
Rebecca R. Mehl, MD
Kartik K. Venkatesh, MD, PhD
Maged M. Costantine, MD
Kara M. Rood, MD
Division of Maternal Fetal Medicine
Department of Obstetrics and Gynecology
The Ohio State University College of Medicine
395 West 12th Ave., 5th Floor
Columbus, OH 43214
Miranda.Kiefer@osumc.edu

The authors report no conflict of interest.

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 https://doi.org/10.1016/j.ajog.2020.12.1211