CLINICAL ARTICLE

Gynecology

GYNECOLOGY OBSTETRICS FIGO **WILEY**

Use of postpartum contraception during coronavirus disease 2019 (COVID-19): A retrospective cohort study

Kirsten J. H. Das[1] | **Megan Fuerst**[1,2] | **Ciara Brown**[1,2] | **Jennifer Lesko**[3]

[1]School of Medicine, The George Washington University, Washington, DC, USA

[2]Milken Institute School of Public Health, The George Washington University, Washington, DC, USA

[3]Department of Obstetrics and Gynecology, The George Washington Medical Faculty Associates, Washington, DC, USA

Correspondence
Kirsten J. H. Das, 2150 Pennsylvania Avenue, Department of Obstetrics and Gynecology, Washington, DC 20037, USA.
Email: kjh@gwu.edu

Abstract

Objective: To assess how use of postpartum contraception (PPC) changed during the COVID-19 public health emergency.

Methods: Billing and coding data from a single urban institution ($n = 1797$) were used to compare use of PPC in patients who delivered from March to June 2020 (COVID Cohort, $n = 927$) and from March to June 2019 (Comparison Cohort, $n = 895$). χ^2 and multivariable logistic regression models assessed relationships between cohorts, use of contraception, and interactions with postpartum visits and race/ethnicity.

Results: In the COVID Cohort, 585 women (64%) attended postpartum visits ($n = 488$, 83.4%, via telemedicine) compared to 660 (74.7%, in-person) in the Comparison Cohort ($P < 0.01$). Total use of PPC remained similar: 30.4% ($n = 261$) in the COVID Cohort and 29.6% ($n = 278$) in the Comparison Cohort ($P = 0.69$). Compared to in-person visits in the Comparison Cohort, telemedicine visits in the COVID Cohort had similar odds of insertion of long-acting reversible contraception (LARC) (adjusted odds ratio [aOR] 1.13, 95% confidence interval [CI] 0.78–1.6), but higher odds of inpatient insertion (aOR 6.4, 95% CI 1.7–24.9). Black patients compared to white patients were more likely to initiate inpatient LARC (aOR 7.29, 95% CI 1.81–29.4) compared to the Comparison Cohort (aOR 3.63, 95% CI 0.29–46.19).

Conclusion: Use of PPC remained similar during COVID-19 with a decrease of in-person postpartum visits, new adoption of postpartum telemedicine visits, and an increase in inpatient insertion of LARC with higher odds of inpatient placement among black patients.

KEYWORDS
contraception, long-acting reversible contraception, postpartum care, pregnancy planning, public health emergency, short-acting reversible contraception, telehealth, telemedicine

1 | INTRODUCTION

Postpartum contraception is essential to comprehensive postpartum care.[1] Because 57% of women are sexually active and 40% of non-breastfeeding women will ovulate within 6 weeks of delivery, contraception counseling at postpartum visits is an effective opportunity to engage patients regarding future pregnancy plans.[2] After delivery, there are typically two opportunities for counseling: (1) before discharge (immediate postpartum [IPP]); and (2) at a postpartum visit in an outpatient setting.[1] Since up to 40% of women do not attend a postpartum visit, IPP is a valuable opportunity to engage patients.[2,3]

IPP contraception counseling must be balanced with patient-centered counseling and autonomy, including the role of bias. Postpartum contraception and reproductive health in the United States has long-favored educated, white, able-bodied individuals over other groups, with the well-established role of systemic racism and implicit bias.[4,5] In addition to the historical context of reproductive coercion, healthcare providers are also more likely to recommend placement of long-acting reversible contraception (LARC) to black and Hispanic patients compared to white patients.[6]

Due to the COVID-19 pandemic, a national public health emergency (PHE) was declared,[7] and to avoid transmission, physical elective and non-urgent outpatient visits were postponed.[8,9] Thus, it was recommended to convert postpartum visits to telemedicine and insert IPP LARC.[10-15] Several studies articulated the potential impact to the utilization of contraception and telemedicine during the COVID-19 PHE.[16] One such survey found that 12% of obstetricians and gynecologists (OBGYNs) before March 2020 utilized some telemedicine versus 84% in June 2020, although in June 2020 only 9% of OBGYNs were using telemedicine for over 50% of their visits.[17] A study conducted in June 2020 found that 34% of women delayed or decreased pregnancy plans due to the COVID-19 pandemic, with the greatest change in black and Hispanic, queer, and low-income populations.[19] It is believed that there are no studies published to date evaluating the use of postpartum contraception during the COVID-19 PHE.[17-20]

Thus, the use of postpartum contraception during the COVID-19 PHE was evaluated and the role of in-person and newly implemented telemedicine postpartum visits with the use of inpatient placement of LARC was assessed.[21] In addition, the differences in the use of postpartum contraception by race and ethnicity were explored. It was hypothesized that usage of LARC would decrease in the setting of less in-person postpartum visits.

2 | MATERIALS AND METHODS

The present study was a retrospective cohort study investigating the use of postpartum contraception at a single urban academic medical center. All patients were included who delivered from March 1 to June 15, 2020 (COVID Cohort), when a stay-at-home order with limited reopening was in effect, compared to all women who delivered from March 1 to June 15, 2019 (Comparison Cohort). Data were included from 12 weeks after delivery (postpartum) and 9 months before (prenatal). To obtain the analysis sample, non-live births were excluded (n = 25). A power analysis was performed to determine the minimum sample size needed to detect a 15% change in overall use of contraception (alpha of 0.05, beta of 0.80).

Billing and coding data from electronic health records (EHR) were used. Because the inpatient EHR is a different software system from the outpatient EHR, the two datasets were combined using patient medical record number, name, and date of birth. A manual chart review was then conducted of 10% of the data to confirm an accuracy of 90% or greater of use of contraception, postpartum visit date, and site of care.

Covariates included sociodemographic factors including age, race/ethnicity, marital status, and insurance status. The Washington D.C. SocioNeeds Index was used to identify home zip codes into the two lowest income quintiles.[22] Common International Classification of Diseases, Tenth Revision (ICD-10) codes related to pregnancy, childbirth, and puerperium (Appendix A) were identified to adjust for common complications of pregnancy (e.g. hypertension or hemorrhage). Data of postpartum visits from the COVID Cohort were obtained from the EHR and differentiated into in-person and telemedicine visits within 12 weeks after delivery.

Contraception procedure, diagnosis, and dispensing codes were used to identify forms of postpartum contraception. LARC included implant and intrauterine devices, and short-acting reversible contraception (SARC) included pills, patches, shots, and vaginal rings. Appendix A lists the Current Procedural Terminology (CPT), ICD-10, and dispensing codes.

Frequency and percentage were used to describe patient demographics, pregnancy-related factors, and utilization of postpartum contraception. χ^2 tests and two-sided t-tests were used to compare characteristics in the COVID Cohort with those in the Comparison Cohort. Multivariable logistic regression models were used to compare the odds of using various forms of contraception. Covariates of interest were selected based on previous research[23] and for bivariate associations ($P < 0.1$).

At this institution, contraception counseling was typically performed during the prenatal visits in the third trimester, postpartum before discharge, and during the postpartum visit. All women had access to inpatient placement of LARC if desired and no policy change regarding contraception was implemented during the study period.

Postpartum telemedicine visits were not available before the COVID-19 PHE but were routinely offered to all patients during the COVID-19 PHE with in-person visits recommended based on provider discretion and patient preference. Sterilization procedures after a vaginal delivery were considered elective and postponed during the PHE but were still performed if during a cesarean delivery. It was a priori hypothesized that attendance at postpartum visits and site of care would be an effect modifier for the proposed association and tested interaction terms within the various models. Based on the bivariate analysis, showing large racial disparities in the use of contraceptive methods, a secondary analysis was conducted with a dichotomous race variable (i.e. individuals who identified as black compared to those who identified as white). Self-reported race data were extracted from the outpatient EHR system.

Trends in inpatient and outpatient placement of postpartum LARC during the PHE were evaluated using linear regression models. Statistical significance was determined by $P < 0.05$. All analyses were done on SPSS version 25 (IBM Corp., Armonk, NY, USA). Graphs and figures were created on Microsoft (Microsoft, Redmond, WA, USA) Excel and Prism. The study was approved by the institutional review board of the George Washington University.

3 | RESULTS

From March 1 to June 15, 2020, 950 patients delivered, and 927 patients had medical records in both EHR systems (COVID Cohort). From March 1 to June 15, 2019, 914 patients delivered, and 895 had medical records in both EHR systems (Comparison Cohort). Since records from both EHRs were necessary to conduct the analyses, 927 patients were included in the COVID Cohort and 895 patients were included in the Comparison Cohort. Excluding non-live births ($n = 13$ for the COVID Cohort and $n = 12$ for the Comparison Cohort), our analysis sample contained 914 and 883 patients from 2020 and 2019, respectively. Demographically, patients in both cohorts were similar with respect to age, race, ethnicity, insurance status, and socioeconomic status ($P > 0.1$); there were differences in marital status ($P < 0.001$). Clinically, patients in both cohorts had similar rates of nulliparity, low birth weight, cesarean delivery, preterm birth, and diabetes; there were differences in numbers of gestations, hypertension, and other pregnancy risk factors (Table 1).

In the COVID Cohort, 585 women (64.0%) attended postpartum visits (in-person or telemedicine) as compared to 660 (74.7%) in the Comparison Cohort ($P < 0.01$). Of the COVID Cohort postpartum visits, 83.4% were via telemedicine. All of the Comparison Cohort visits were conducted in-person. For each multivariable analysis, attendance at postpartum visits was an effect modifier ($P < 0.05$) for the use of postpartum contraception.

Total use of postpartum contraception remained similar between cohorts: 30.4% in the COVID Cohort and 29.6% in the Comparison Cohort ($P = 0.69$). Insertion of LARC regardless of site of care also remained the same: at 13.9% in the COVID Cohort and 15.3% in the Comparison Cohort ($P = 0.4$). However, outpatient insertions of LARC decreased from 13.7% in the Comparison Cohort to 10.6% in the COVID Cohort ($P = 0.045$), while inpatient insertions of LARC increased from 1.6% in the Comparison Cohort to 3.3% in the COVID Cohort ($P = 0.02$). The inpatient placement of postpartum LARC increased month over month from March to May in the COVID Cohort (P for trend $= 0.01$) (Figure 1), while inpatient placement of LARC in the Comparison Cohort showed no change in trend month over month (P for trend $= 1$).

Table 2 summarizes adjusted odds ratios (aOR), segmenting the COVID Cohort into those who attended a postpartum visit (regardless of telemedicine or in-person) versus those who did not against the same segmentation in the Comparison Cohort. Among those who attended their postpartum visits, the COVID Cohort was more likely to initiate outpatient contraception (aOR 3.16, 95% confidence interval [CI] 1.14–8.73), including LARC (aOR 4.47, 95% CI 1.8–20.03) and SARC (aOR 1.81, 95% CI 1.24–2.66). Among those who did not attend a postpartum visit and against the Comparison Cohort, the COVID Cohort was: (1) less likely to have outpatient placement of LARC (aOR 0.70, 95% CI 0.51–0.97); (2) more likely to have received an IPP LARC (aOR 5.68, 95% CI 1.54–20.97); and (3) more likely to be using SARC overall (aOR 1.57, 95% CI 1.12–2.20).

Table 3 also summarizes aORs, segmenting both cohorts into in-person visits, telemedicine visits, and non-attendance. All segments are compared against patients in the Comparison Cohort who attended a postpartum visit. Telemedicine visits in the COVID Cohort had similar odds of overall insertion of LARC regardless of site of care (aOR 1.13, 95% CI 0.78–1.6) and increased odds of inpatient insertion of LARC (aOR 6.40, 95% CI 1.66–24.91) (Table 4).

The secondary analysis evaluated use of postpartum contraception by race and ethnicity. Figure 2 displays the frequencies of use of postpartum contraception by race among the COVID and Comparison Cohorts. Table 5 compares use of postpartum contraception between the COVID and Comparison Cohorts by race (black patients vs white patients). Within the COVID Cohort, black patients had an increased use of postpartum contraception overall compared to white patients (aOR 1.88, 95% CI 1.23–2.87) and increased odds of utilizing inpatient SARC (aOR 7.29, 95% CI 1.81–29.4), of which both were not significant in the Comparison Cohort. Similar analyses were done for Hispanic versus Non-Hispanic patients; however, the sample of data was inadequately powered to deliver robust results.

4 | DISCUSSION

4.1 | Clinical findings and implications

Early in the COVID-19 pandemic, no difference was found in the percentage of patients who received a form of postpartum contraception and no difference in the usage of LARC and SARC. But for an increase in the prescriptions of SARC and decreased sterilizations, only the contraception site of care was changed during the PHE. Patient access to inpatient placement of LARC likely offset decreased in-person postpartum visits and outpatient placement of LARC, while telemedicine visits were sufficient for patients who wanted SARC. As noted in other studies,[6] there are differences in the use of postpartum contraception. Within the present study population during the PHE, black patients were more likely to initiate inpatient placement of LARC, but no significant difference was found in the use of LARC regardless of site of care.

The present study is one of the first analyses to look at the use of postpartum contraception during the COVID-19 PHE. Several survey studies early in the PHE suggested reduced access to contraception; however, these studies were not focused on postpartum contraception, were limited to outpatient contraception clinics,[18] and articulated inadequate inpatient placement of LARC as a barrier.[11]

Access to inpatient LARC, SARC, and telemedicine is necessary to offset decreased access to in-person visits. Immediate postpartum placement of LARC has become more prevalent after reimbursement changes have provided parity between immediate postpartum placement and office-based placement.[4,24] Because the study institution has had provider parity reimbursement for inpatient placement of LARC since 2014, inpatient LARC was available and possibly contributed to the use of LARC despite decreased

TABLE 1 Sample characteristics by COVID-19 group (n = 1797)[a]

Characteristic	Comparison Cohort Delivery between 3/1/19–6/15/19 (n = 883)	COVID-19 Cohort Delivery between 3/1/20–6/15/20 (n = 914)	P value
Demographic characteristics			
Age range (years)			
<24	116 (13.1)	126 (13.8)	0.257
24–35	459 (52.0)	440 (48.1)	
>35	308 (34.9)	348 (38.1)	
Race			
Asian	50 (5.7)	50 (5.5)	0.0954
White	353 (40.0)	350 (30.8)	
Black/African American	347 (39.3)	372 (40.7)	
Other	96 (10.9)	104 (11.4)	
Unknown/declined	37 (4.2)	38 (4.2)	
Ethnicity			
Hispanic	49 (5.5)	58 (6.3)	0.375
Non-Hispanic	834 (94.6)	856 (93.6)	
Marital status			
Married	418 (47.3)	374 (40.9)	<0.001
Single	351 (39.8)	346 (37.9)	
Other	114 (12.9)	194 (21.2)	
Insurance status			
Medicaid	485 (54.9)	499 (54.6)	0.888
Other insurance	398 (45.1)	415 (45.4)	
Low Socioeconomic Zip code	207 (23.4)	220 (24.1)	0.755
Pregnancy-related factors			
Nulliparous	259 (29.3)	289 (31.6)	0.292
Infant with low birth weight (<2500 g)	118 (13.6)	102 (11.4)	0.157
Delivery via cesarean	219 (24.8)	261 (28.6)	0.199
Term birth (>37 weeks of gestation)	812 (92.0)	837 (91.6)	0.767
Diabetes in pregnancy[b]	29 (3.3)	42 (4.6)	0.154
Multiple gestation[b]	9 (1.0)	24 (2.6)	0.011
Other risk factors in pregnancy[b]	225 (25.5)	110 (12.0)	<0.001
Hypertension in pregnancy[b]	67 (7.6)	213 (23.3)	<0.001
Attendance at a postpartum visit	660 (74.7)	585 (64.0)	<0.001
Postpartum contraception[b,c]			
Overall use of postpartum contraception	261 (29.6)	278 (30.4)	0.692
Overall use of LARC	135 (15.3)	127 (13.9)	0.403
LARC initiated in the outpatient setting	121 (13.7)	97 (10.6)	0.045
Immediate postpartum LARC	14 (1.6)	30 (3.3)	0.020
Female sterilization	29 (3.3)	16 (1.8)	0.049
Overall use of SARC[d]	97 (11.0)	137 (15.0)	0.012
SARC initiated in the outpatient setting[d]	56 (6.3)	87 (9.5)	0.013
SARC initiated in the inpatient setting[d]	44 (5.0)	50 (5.5)	0.643

Abbreviations: CPT, Current Procedural Terminology; edition; ICD, International Classification of Diseases, Tenth Revision; LARC, long-acting reversible contraception; SARC, short-acting reversible contraception; SES, socioeconomic status.

[a]Values are given as number (percentage) unless otherwise specified.

[b]CPT and ICD-10 codes defining each pregnancy-related factor and contraception category are available in Appendix A.

[c]Use of postpartum contraception does not include forms of contraception that would not correlate to a diagnostic or procedural code such as condoms, abstinence, or natural family planning.

[d]The majority of SARC refers to progesterone-only forms of contraception (n = 2 for combined hormonal contraception with one prescription given in the inpatient setting and the other given in the outpatient setting)
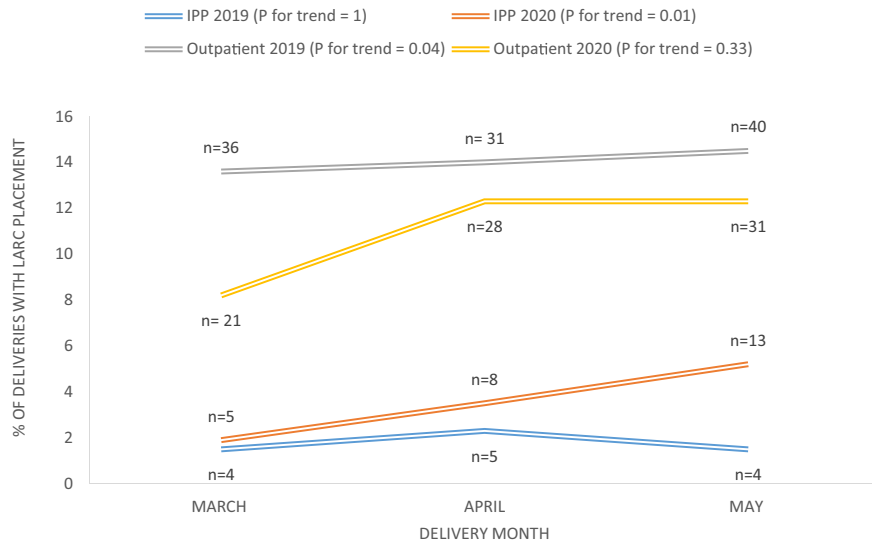
FIGURE 1 Changes in IPP placement of LARC versus outpatient insertion of LARC over time. Abbreviations: IPP, immediate postpartum; LARC, long-acting reversible contraception; SARC, short-acting reversible contraception

TABLE 2 aOR for using different forms of contraception during the pandemic (2020) compared to before the pandemic (2019), stratified by PPV attendance status (n = 1797)[a,b]

	Attended PPV (n = 1245)	Did not attend PPV (n = 552)
Using any form of postpartum contraception	1.36 (0.87–2.11)	1.07 (0.83–1.37)
Using LARC	1.77 (0.87–1.94)	0.83 (0.61–1.121)
Using LARC, initiated at the outpatient visit	4.47 (1.83–20.30)	0.70 (0.51–0.97)
Using IPP LARC, initiated at the hospital	1.12 (0.50–2.25)	5.68 (1.54–20.97)
Using SARC	1.40 (0.78–2.51)	1.57 (1.12–2.20)
Using SARC, initiated at the outpatient visit	1.81 (1.24–2.66)	1.71 (0.41–7.18)
Using SARC, initiated at the hospital	1.33 (0.70–2.52)	0.93 (0.48–1.80)
Using female sterilization	0.35 (0.11–1.19)	0.62 (0.28–1.37)
Initiating contraception in the outpatient setting	3.16 (1.14–8.73)	1.01 (0.78–1.32)
Initiating contraception in the inpatient setting	1.27 (0.75–2.16)	1.50 (0.94–2.66)
Using LARC vs SARC (n = 447)[c]	9.49 (2.54–35.50)	0.65 (0.415–1.02)

Abbreviations: aOR, adjusted odds ratio; CI, confidence interval; IPP, immediate postpartum; LARC, long-acting reversible contraception; PPV, postpartum visit; SARC, short-acting reversible contraception.

[a]Values are given as aOR (95% CI).

[b]OR adjusted for age category, low-income ZIP, Medicaid status, marital status, ethnicity, race, multiple gestation, hypertension in pregnancy, other risk factors in pregnancy.

[c]In all other cases, odds of falling into the stated category of contraception are compared to using another form of contraception or no contraception.

in-person outpatient visits. Similarly, telemedicine capabilities for postpartum visits that went live in March 2020 allowed patients who likely wanted SARC to attend their postpartum visit virtually.

The present study found racial disparities in the use of postpartum contraception among black patients, specifically with an increased use of inpatient placement of LARC during the COVID-19 PHE. A survey conducted during the COVID-19 PHE noted increased interest in delaying pregnancy, especially among black patients[19] and this likely contributed to increased inpatient placement; however, similar increases with outpatient placement of LARC and prescriptions for SARC would also be anticipated. Given this disparity, further investigation on both patient preferences and practices of inpatient contraception counseling is needed.

4.2 | Limitations and strengths

Given the retrospective design of the present study, data were limited to those available in the medical record and it was not possible to assess patient reasoning regarding the use of contraception. Another limitation was that it was not possible to evaluate contraception not billed by postpartum providers, including awareness of fertility, condoms, lactational amenorrhea method (LAM), spermicides, or vasectomy, and contraception dispensing codes were evaluated, which may be different from the prescriptions filled and utilized by the patient. Within the single institution, the majority of patients identify as white or black with a smaller Hispanic population, and the present study was not powered to identify differences in the use of contraception by other races or Hispanic ethnicity. Additionally, the present study was limited by type of data available and thus was it was not possible to evaluate the differences in sexual and gender minorities and other minority populations. Finally, these data represent the contraception practices of a single non-governmental, urban

TABLE 3 aOR for using various forms of contraception compared to individuals who attended the PPV in the pre-pandemic period[a,b]

	Comparison Cohort Delivery between 3/1/19–6/5/19 (n = 883)		COVID–19 Cohort Delivery between 3/1/20–6/15/20 (n = 914)		
	Attended PPV (n = 660)	Did not attend PPV (n = 223)	Attended PPV in-person (n = 97)	Attended PPV via telemedicine (n = 488)	Did not attend any form of PPV (n = 585)
Using any form of postpartum contraception	1.00 (ref)	0.41 (0.28–0.61)	1.00 (0.74–1.45)	1.18 (0.87–1.61)	0.54 (0.39–0.74)
Using LARC	1.00 (ref)	0.30 (0.16–0.56)	0.63 (0.42–0.94)	1.13 (0.78–1.63)	0.54 (0.35–0.82)
Using LARC, initiated at the outpatient visit	1.00 (ref)	0.05 (0.01–0.22)	0.96 (0.66–1.42)	0.54 (0.35–0.83)	0.29 (0.17–0.50)
Using LARC, initiated at the hospital	1.00 (ref)	6.84 (1.61–25.91)	3.96 (0.93–16.70)	6.40 (1.66–24.91)	8.67 (2.42–31.05)
Using SARC	1.00 (ref)	0.59 (0.35–0.99)	1.76 (1.20–2.60)	1.28 (0.84–1.95)	0.76 (0.49–1.19)
Using SARC, initiated at the outpatient visit	1.00 (ref)	1.30 (0.67–2.54)	0.89 (0.41–1.95)	0.80 (0.35–1.81)	1.79 (0.97–3.30)
Using SARC, initiated at the hospital	1.00 (ref)	0.14 (0.04–0.46)	2.07 (1.34–3.19)	1.51 (0.99–2.43)	0.24 (0.10–0.54)
Using female sterilization	1.00 (ref)	1.13 (0.47–2.73)	0.69 (0.26–1.82)	0.63 (0.22–1.78)	0.42 (0.15–1.21)
Initiating contraception in the outpatient setting	1.00 (ref)	0.073 (0.03–0.18)	0.95 (0.69–1.31)	0.14 (0.83–1.58)	0.24 (0.15–0.38)
Initiating contraception in the inpatient setting	1.00 (ref)	1.99 (1.10–3.58)	1.26 (0.64–2.49)	1.45 (0.75–2.81)	2.74 (1.59–4.71)
Using LARC vs SARC (n = 447)[c]	1.00 (ref)	0.46 (0.21–1.00)	0.47 (0.27–0.81)	1.00 (0.58–1.56)	2.60 (1.14–5.93)

Abbreviations: aOR, adjusted odds ratio; CI, confidence interval; LARC, long-acting reversible contraception; PPV, postpartum visit; SARC, short-acting reversible contraception.

[a]Values are given as aOR (95% CI).

[b]OR adjusted for age category, low-income ZIP, Medicaid status, marital status, ethnicity, race, multiple gestation, hypertension in pregnancy, other risk factors in pregnancy.

[c]In all other cases, odds of falling into the stated contraception category are compared to using another form of contraception or no contraception.

TABLE 4 aOR for using different forms of contraception during the COVID-19 pandemic depending on form of PPV (n = 914)[a,b]

	Did not attend any PPV (n = 329)	Attended PPV via telemedicine (n = 488)	Attended PPV in-person (n = 97)
Using any form of postpartum contraception	1.00 (ref)	0.881 (0.349–2.225)	1.119 (0.786–1.593)
Using LARC overall	1.00 (ref)	1.177 (0.651–2.126)	0.684 (0.434–1.076)
LARC initiated in OP	1.00 (ref)	1.550 (0.400–6.002)	1.913 (0.829–4.419)
LARC initiated in IP	1.00 (ref)	0.443 (0.249–0.787)	0.697 (0.578–2.082)
Using SARC overall	1.00 (ref)	1.765 (0.904–3.445)	1.243 (1.031–1.924)
SARC initiated in IP	1.00 (ref)	0.476 (0.305–0.745)	0.542 (0.272–1.083)
SARC initiated in OP	1.00 ref	1.130 (1.058–1.294)	1.661 (1.322–1.356)
Using sterilization	1.00 (ref)	0.806 (0.239–2.717)	2.006 (0.524–7.686)
Using IP contraception	1.00 (ref)	0.241 (0.150–0.387)	0.860 (0.514–1.437)
Using OP contraception	1.00 (ref)	1.880 (1.110–3.212)	1.680 (1.223–2.076)
Using LARC vs SARC (n = 214)[c]	1.00 (ref)	1.288 (0.527–3.150)	3.831 (1.623–9.043)

Abbreviations: aOR, adjusted odds ratio; CI, confidence interval; IP, inpatient setting; LARC, long-acting reversible contraception; OP, outpatient setting; PPV, postpartum visit; SARC, short-acting reversible contraception.

[a]Values are given as aOR (95% CI).

[b]OR adjusted for age category, low-income ZIP, Medicaid status, marital status, ethnicity, race, multiple gestation, hypertension in pregnancy, other risk factors in pregnancy.

[c]In all other cases, odds of falling into the stated contraception category are compared to using another form of contraception or no contraception.

TABLE 5 aOR for using different forms of contraception during the COVID-19 pandemic depending on race (n = 1422)[a,b]

	Comparison Cohort Delivery between 3/1/19–6/5/19 (n = 703)		COVID−19 Cohort Delivery between 3/1/20–6/15/20 (n = 719)	
	White (n = 353)	Black (n = 347)	White (n = 350)	Black (n = 372)
Using any form of postpartum contraception	1.00 (ref)	1.61 (1.0–2.59)	1.00 (ref)	1.88 (1.23–2.87)
Using LARC overall	1.00 (ref)	2.07 (1.15–3.75)	1.00 (ref)	1.09 (0.63–1.89)
LARC initiated in OP	1.00 (ref)	0.55 (0.28–1.06)	1.00 (ref)	0.64 (0.32–1.26)
LARC initiated in IP	1.00 (ref)	3.63 (0.29–46.19)	1.00 (ref)	7.29 (1.81–29.40)
Using SARC overall	1.00 (ref)	3.60 (1.74–7.46)	1.00 (ref)	2.08 (1.25–3.46)
SARC initiated in OP**	1.00 (ref)	2.47 (0.99–6.15)	1.00 (ref)	1.26 (0.66–2.41)
Using sterilization	1.00 (ref)	15.86 (2.99–84.27)	1.00 (ref)	5.67 (0.95–33.90)
Using IP contraception**	1.00 (ref)	35.84 (4.50–282.24)	1.00 (ref)	14.58 (5.00–42.46)
Using OP contraception	1.00 (ref)	0.56 (0.33–0.95)	1.00 (ref)	0.69 (0.43–1.10)
LARC vs SARC (n = 159)	1.00 (ref)	7.02 (2.71–18.17)	1.00 (ref)	1.05 (0.48–2.28)

Abbreviations: aOR, adjusted odds ratio; CI, confidence interval; IP, inpatient setting; LARC, long-acting reversible contraception; OP, outpatient setting; PPV, postpartum visit; SARC, short-acting reversible contraception.

[a]Adjusted for age category, low income ZIP, Medicaid status, marital status, ethnicity, race, multiple gestation, hypertension in pregnancy, other risk factors in pregnancy.

[b]Values are given as aOR (95% CI).

[c]Outcomes for SARC initiated in the inpatient setting not presented due to insufficient sample size; 0 patients who identified as white were provided SARC in the inpatient setting.
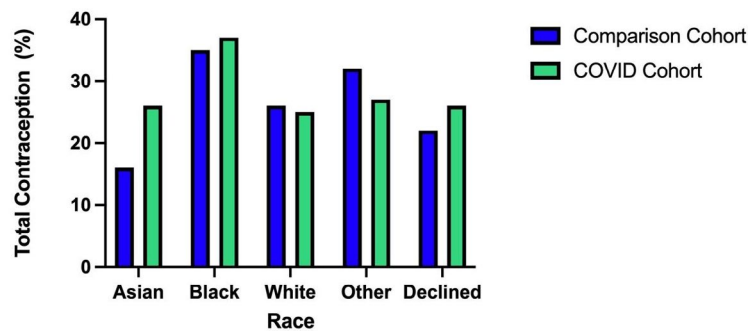

FIGURE 2 Use of postpartum contraception in the Comparison and COVID Cohorts by race shows no significant difference

academic institution and may be limited in their generalizability to other settings or outside of the COVID-19 pandemic.

The strengths of the present study include a large sample size and the utilization of billing and coding data confirmed by manual chart review. The study also attempted to represent multiple factors that have been shown to influence the use of postpartum contraception including race/ethnicity and postpartum visit status. Given that the study institution did not implement postpartum telemedicine visits until the COVID-19 PHE,[25] the present study was able to evaluate differences between telemedicine and in-person visits during the COVID-19 PHE.

4.3 | Conclusions and research implications

The COVID-19 PHE changed the location of postpartum visits and thus site of care for the use of contraception; however, overall, patients were still able to obtain placement of LARC, and prescriptions for SARC comparatively increased. Future research should focus on the role of telemedicine for the use of postpartum contraception and counseling outside of the COVID-19 pandemic as there is an opportunity to increase patient access, convenience, and satisfaction. Additionally, research should further evaluate the role of inpatient contraception counseling to increase access and promote reproductive equity.

CONFLICTS OF INTEREST

The authors have no conflicts of interest.

AUTHOR CONTRIBUTIONS

KJHD: Creation of project idea, submission to institutional review board, design of study, planning of data analysis, review of data analysis, conducted preliminary data analysis, wrote first and final draft of manuscript. MF: Design of initial study plan and subsequent changes, planning of data analysis, conducted data analysis, contributed to multiple drafts of the manuscript. CB: Conducted data analysis and contributed to multiple drafts of the manuscript. JL: Principal investigator, contributed to the initial design and planning phases, reviewed data analysis, and contributed feedback to multiple drafts of the manuscript.

REFERENCES

1. American College of Obstetricians and Gynecologists. Committee opinion number 736. Optimizing postpartum care. *Obstet Gynecol*. 2018;131(5):11.
2. The LARC Program and The American College of Obstetricians and Gynecologists. Immediate Postpartum LARC for Clinicians Doing Deliveries. Presented at the: 2017; 409 12th Street SW, PO Box 96920, Washington, DC 20090-6920. https://pcainitiative.acog.org/wp-content/uploads/IPP-LARC_Clinical-1.pdf. Accessed January 31, 2021.
3. Lopez LM, Bernholc A, Hubacher D, Stuart G, Vliet HAV. Immediate postpartum insertion of intrauterine device for contraception. *Cochrane Database of Systematic Reviews*. 2015;(6):CD003036. https://doi.org/10.1002/14651858.CD003036.pub3.
4. Moniz MH, Spector-Bagdady K, Heisler M, Harris LH. Inpatient postpartum long-acting reversible contraception: care that promotes reproductive justice. *Obstet Gynecol*. 2017;130(4):783-787. https://doi.org/10.1097/AOG.0000000000002262.
5. Huff CW, Potter J, Hopkins K. Patients' experiences with an immediate postpartum long-acting reversible contraception program. *Women's Health Issues*. 2021;31:164-170. https://doi.org/10.1016/j.whi.2020.11.004
6. Kathawa CA, Arora KS. Implicit bias in counseling for permanent contraception: historical context and recommendations for counseling. *Health Equity*. 2020;4:326-329. https://doi.org/10.1089/heq.2020.0025
7. Division N. Secretary Azar Declares Public Health Emergency for United States for 2019 Novel Coronavirus. HHS.gov. 2020. https://www.hhs.gov/about/news/2020/01/31/secretary-azar-declares-public-health-emergency-us-2019-novel-coronavirus.html. Accessed January 31, 2021.
8. DC Health Regulation and Licensing Administration. Recommendations on Limitations of Elective and Non-urgent Medical and Dental Procedure. 2020. https://dchealth.dc.gov/sites/default/files/dc/sites/doh/page_content/attachments/Letter%20-%20Elective%20Procedures.FINAL_.pdf. Accessed January 31, 2021.
9. Bowser M. Mayor Bowser Issues Stay-At-Home Order. 2020. Accessed January 31, 2021. https://mayor.dc.gov/release/mayor-bowser-issues-stay-home-order
10. Boelig RC, Manuck T, Oliver EA, et al. Labor and delivery guidance for COVID-19. *Am J Obstet Gynecol MFM*. 2020;2(2):100110. https://doi.org/10.1016/j.ajogmf.2020.100110
11. Long-Acting Reversible Contraception Availability After Childbirth During The COVID-19 Pandemic | Health Affairs Blog. https://www.healthaffairs.org/do/10.1377/hblog20201119.685340/full/. Accessed December 6, 2020.
12. Gross MS, Harrington BJ, Sufrin CB, Faden RR. Rethinking "Elective" procedures for women's reproduction during Covid-19. *Hastings Cent Rep*. 2020;50(3):40-43. https://doi.org/10.1002/hast.1130
13. COVID-19 FAQs for Obstetrician–Gynecologists, Gynecology. 2021. https://www.acog.org/en/Clinical-Information/Physician-FAQs/COVID19-FAQs-for-Ob-Gyns- Gynecology. Accessed January 31, 2021.
14. What Family Planning Providers Can Do to Meet Client Needs During COVID-19 | Reproductive Health National Training Center. https://rhntc.org/resources/what-family-planning-providers-can-do-meet-client-needs-during-covid-19. Accessed January 31, 2021.
15. Sharma KA, Zangmo R, Kumari A, Roy KK, Bharti J. Family planning and abortion services in COVID 19 pandemic. *Taiwan J Obstet Gynecol*. 2020;59(6):808-811. https://doi.org/10.1016/j.tjog.2020.09.005
16. Robeznieks A. Key changes made to telehealth guidelines to boost COVID-19 care. American Medical Association. 2020. https://www.ama-assn.org/practice-management/digital/key-changes-made-telehealth-guidelines-boost-covid-19-care. Accessed January 31, 2021.
17. Weigel G, Frederiksen B, Ranji U. How OBGYNs Adapted Provision of Sexual and Reproductive Health Care During the COVID-19 Pandemic. KFF. 2020. https://www.kff.org/womens-health-policy/issue-brief/how-obgyns-adapted-provision-of-sexual-and-reproductive-health-care-during-the-covid-19-pandemic/. Accessed January 31, 2021.
18. *Family Planning Visits During the COVID-19 Pandemic: Phase 1 Results*. Society of Family Planning; 2020. https://doi.org/10.46621/ZYDR8499
19. Early Impacts of the COVID-19 Pandemic: Findings from the 2020 Guttmacher Survey of Reproductive Health Experiences. Guttmacher Institute. 2020. https://www.guttmacher.org/report/early-impacts-covid-19-pandemic-findings-2020-guttmacher-survey-reproductive-health. Accessed September 24, 2020.
20. Li G, Tang D, Song B, et al. Impact of the COVID-19 pandemic on partner relationships and sexual and reproductive health: cross-sectional, online survey study. *J Med Internet Res*. 2020;22(8):e20961. https://doi.org/10.2196/20961
21. DeNicola N, Grossman D, Marko K, et al. Telehealth interventions to improve obstetric and gynecologic health outcomes. *Obstet Gynecol*. 2020;135(2):371-382. https://doi.org/10.1097/AOG.0000000000003646
22. Matters DH. DC Health Matters :: Indicators :: 2021 SocioNeeds Index. https://www.dchealthmatters.org/index.php?module=indicators&controller=index&action=socioneeds. Accessed February 4, 2021.
23. Oduyebo T, Zapata LB, Boutot ME, et al. Factors associated with postpartum use of long-acting reversible contraception. *Am J Obstet Gynecol*. 2019;221(1):43.e1-43.e11. https://doi.org/10.1016/j.ajog.2019.03.005
24. Moniz MH, Dalton VK, Davis MM, et al. Characterization of Medicaid policy for immediate postpartum contraception. *Contraception*. 2015;92(6):523-531. https://doi.org/10.1016/j.contraception.2015.09.014.
25. Fryer K, Delgado A, Foti T, Reid CN, Marshall J. Implementation of obstetric telehealth during COVID-19 and beyond. *Matern Child Health J*. 2020;24(9):1104-1110. https://doi.org/10.1007/s10995-020-02967-7