Original Article

Racial Inequities in Adolescent Contraceptive Care Delivery: A Reproductive Justice Issue

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ABSTRACT

Study Objective: The objective of this study was to examine racial/ethnic disparities in contraceptive delivery for adolescent patients within an adolescent medicine subspecialty clinical system before and during the COVID-19 pandemic. Secondarily, we aimed to assess the relationship between race and contraceptive delivery by telehealth.
Design: Retrospective cohort study using electronic health record data
Setting: Three adolescent medicine subspecialty clinics in a large academic hospital system, including an urban location and 2 suburban locations
Participants: Patients assigned female sex at birth prescribed hormonal contraception between January 1st, 2018, and May 31st, 2021.
Main Outcome Measures: Method and type of contraceptive prescribed (short-acting, medium-acting, long-acting reversible contraception [LARC])
Results: There were 2453 patients in the study; 47.5% were White, 36.0% were Black, and 8.1% identified as Hispanic. After controlling for insurance and age, Black patients, compared with non-Black patients, had twofold higher odds of receiving LARC compared with a short-acting method across the study period (aOR = 2.0; 95% CI, 1.52-2.62). We identified effect modification with significant interaction between Black race and the pandemic period, with evidence of a higher marginal probability of Black patients receiving LARCs during the pandemic. Additionally, during the pandemic, patients receiving new contraceptive prescriptions via telehealth were less likely to be Black (aOR = 0.63; 95% CI, 0.41-0.94) or publicly insured (aOR = 0.56; 95% CI, 0.38-0.81).
Conclusion: Our data show significantly higher prescribing of LARCs to Black adolescents by clinicians, which could suggest differences in physician contraceptive counseling with a bias toward preferentially counseling Black patients toward LARCs. Our data also show that Black and publicly insured patients had decreased utilization of contraceptive care by telehealth during the pandemic.
Key Words: Contraception, Adolescents, Health equity

Introduction

Across every sector of the health care system, the COVID-19 pandemic disrupted clinical care for adolescents and young adults. Temporary clinic closures, scaling up of telehealth, and supply chain breakdowns led to uncertainties about the ability of adolescent and young adults to access contraceptive care services.[1] In parallel, health disparities widened for Black and Latinx individuals during the pandemic, with higher rates of Sars-CoV-2 infection, hospitalizations, and death.[2] Currently, it is unknown whether racial and ethnic disparities in contraceptive care delivery for adolescents rose or were magnified during the pandemic.

Before the pandemic, race-based differences in contraceptive care were well documented. In multiple national surveys, Black adolescents consistently reported being prescribed injectable medroxyprogesterone acetate at rates equal to or higher than White adolescents; however, they received oral contraceptive pills significantly less often than white adolescents did.[3-6] Historically, Black adolescents were also prescribed long-acting reversible contraceptives (LARCs) less often than white adolescents were. However, a recent study conducted in a single Michigan county found a slight increase in LARCs being prescribed among Black adolescents and adolescents from more disadvantaged (eg, living in poverty or having a teen or single mother) backgrounds.[7] This finding is consistent with emerging data regarding contraceptive counseling. Before the Affordable Care Act (ACA), Black women were less likely than white women to use LARCs, as well as contraceptives overall, but not after the ACA.[8,9] The ACA's Contraceptive Coverage Mandate, coupled with increased insurance coverage, helped significantly reduce cost barriers to LARCs. With cost becoming less of a barrier, emerging data suggest the presence of biased contraceptive counseling. In an experiment in which physicians were shown 1 of 18 videos of patients with varying sociodemographic characteristics, Latina and Black women of low socioeconomic status (SES)

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were 3.4 and 3.1 times more likely, respectively, to be recommended LARCs compared with low-SES white women.[10]

Health inequities are systemic differences in the distribution of health and health care between different populations. The directionality of the inequity therefore does not matter, regardless of how different groups receive differential care, which can lead to different outcomes.[11] Hence, significant differences in hormonal contraceptive method delivery between white and Black adolescents represent inequities in provision of health care, even if Black adolescents are prescribed a highly effective hormonal contraceptive method far less or far more often than their white counterparts. We conducted a cross-sectional retrospective study using electronic health record (EHR) data with the primary research objective of examining how contraceptive method delivery for adolescent patients differed by race before and during the COVID-19 pandemic within an Adolescent Medicine clinical system. Our secondary research objective was to identify racial/ethnic and socioeconomic disparities in telehealth delivery for contraceptive care during the COVID-19 pandemic.

Methods

Setting

This research utilized data from 3 Adolescent Medicine clinics serving approximately 4100 patients per year in a large academic pediatric hospital system, including an urban location that sees a higher volume of around 2900 unique patients a year and 2 suburban locations that see smaller volumes of around 425 and 725 unique patients a year.

Participants

Using data derived from the EHR (EPIC, Verona, WI), the study sample contained all visits for patients assigned female sex at birth who were prescribed any form of hormonal contraception between January 1st, 2018, and May 31st, 2021.

Measures

Our primary outcome measure was the category of hormonal contraceptive prescribed: short-acting contraceptives (pills, patches, or rings), medium-acting contraceptives (injectable medroxyprogesterone acetate), and LARCs (including implants or intrauterine devices).

Exposure variables included race/ethnicity, insurance, primary language, age, and time period (before or during the pandemic). Race and ethnicity variables in the EHR were collected through patient report or registrar assessment at visit registration and as such should be interpreted as "observed race." Race was defined as white, Black, Asian and Native Hawaiian or Other Pacific Islander, Indian, American Indian or Alaska Native, multiracial, other, or refused. Race was further dichotomized as Black and non-Black. Ethnicity was defined as Hispanic or non-Hispanic. Race/ethnicity and the dichotomization were included because there is robust evidence that a patient's race/ethnicity can impact contraceptive use and counseling.[3-7,10] Patient insurance was categorized as private, public (Medicaid), or uninsured/self-pay. Insurance was further dichotomized as private and non-private and was included as a proxy for SES. Primary language was dichotomized as English or non-English and was included because language can impact contraceptive counseling, and limited English proficiency has been associated with lower LARC knowledge.[12] Age in years was captured at the time of birth control prescription and was included as there is prior evidence that older patients are more likely to be prescribed longer-acting methods.[3] Time period was classified as pre-pandemic (before March 1, 2020) and intra-pandemic (March 1, 2020-May 31, 2021). During the COVID-19 pandemic, the clinics rapidly scaled up telehealth, particularly for visits that did not require in-person procedures such as injections and LARC placement.

Statistical Analysis

Descriptive statistics summarized encounters of patients receiving an initial prescription of hormonal contraception. The characteristics of patients who were first prescribed hormonal contraceptives before the pandemic were compared with those first prescribed hormonal contraceptives during the pandemic using a χ^2 test and a t test. For the bivariate analysis, data were analyzed at the patient level using data from *first* prescription of a contraceptive method during the study period to preserve independence of the pre- and intra-pandemic samples, as patients might have switched methods during the study period and thus received new method prescriptions across both periods.

For our primary analysis, examining associations between patient race, ethnicity, age, payer, and the outcome of *new* method prescription across the study period, we used a mixed-effects multinomial logit model. We used prescription of a new contraceptive method rather than first prescription of a contraceptive method as our outcome to account for method switches across the study period. To account for non-independence of repeated observations within patients and within clinics, we included random intercepts for these variables in the model. To examine the effect of the pandemic period (before or during the pandemic) on new contraceptive method delivery by race, we included an interaction term between Black race and pandemic period and graphed the marginal probability of receiving short-, medium-, and long-acting contraception by race between the 2 study periods.

To assess potential disparities in telehealth delivery for contraceptive care, descriptive statistics summarized initial contraceptive visits by visit mode (telehealth vs in-person) during the pandemic using a χ^2 test and a t test. Mixed-effects logistic regressions were used to compare race, ethnicity, age, and insurance type of patients engaging in video visits vs in-person visits for new contraceptive prescriptions during the COVID-19 pandemic.

All statistical analyses were done using Stata 16.1 (StataCorp LLC, College Station, TX). This research was deemed

Table 1
Characteristics of Patients First Prescribed Hormonal Contraceptives before and during the COVID-19 Pandemic ($n = 2453$)

–	Entire cohort	Pre-pandemic	Intra- pandemic	*P* value
***N* (%)**	**2453**	**1811 (73.83)**	**642 (26.17)**	
Age, years [mean (SD)]	16.26 (0.05)	16.41 (0.05)	15.86 (0.09)	< .001
English primary language (%)	–	–	–	
Yes	2395 (97.64)	1771 (97.79)	624 (97.20)	.394
No	58 (2.36)	40 (2.21)	18 (2.80)	
Race (%)	–		–	
American Indian or Alaska Native	3 (0.12)	2 (0.11)	1 (0.16)	.029
Asian and Pacific Islander	80 (3.26)	51 (2.82)	31 (4.83)	
Multiracial	60 (2.45)	39 (2.15)	21 (3.27)	
Indian	8 (0.33)	5 (0.28)	3 (0.47)	
Black or African American	883 (36.00)	682 (37.66)	201 (31.31)	
White	1165 (47.49)	852 (47.05)	313 (48.75)	
Other	245 (9.99)	172 (9.50)	73 (11.37)	
Refused	9 (0.37)	8 (0.44)	1 (0.16)	
Ethnicity (%)				
Non-Hispanic	2255 (91.93)	1668 (92.10)	587 (91.43)	.592
Hispanic	198 (8.07)	143 (7.90)	55 (8.57)	
Insurance type (%)	*		*	
Private	1512 (61.66)	1125 (62.12)	387 (60.37)	.016
Public	896 (36.54)	647 (35.73)	250 (39.00)	
Uninsured/self-pay	44 (1.79)	39 (2.15)	4 (0.62)	
Visit type attended (%)	*		*	
General adolescent	2295 (93.60)	1679 (92.71)	616 (96.10)	.03
Eating disorder	98 (4.00)	78 (4.31)	20 (3.12)	
Gender	59 (2.41)	54 (2.98)	5 (0.78)	
Telehealth visit (%)	*		*	
Yes	2297 (93.68)	1811 (100.00)	486 (75.82)	< .001
No	155 (6.32)	0 (0.00)	155 (24.18)	

χ^2 test and *t* test.
* Missing $n = 1$ (< 1%).

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Results

Across 3 and a half years, 2453 unique patients were prescribed hormonal contraceptives at the 3 adolescent medicine subspecialty clinics. The mean patient age was 16.3 years old; 47.5% of the patients were white and 36.0% were Black. Of the patients, 61.7% had private insurance, 36.5% had public insurance (ie, Medicaid), and 1.8% were uninsured. Most patients' (97.6%) primary language was English (Table 1).

Regarding contraceptive patient characteristics during the pandemic compared with the pre-pandemic period (Table 1), patients receiving an initial prescription of hormonal contraception during the pandemic were significantly younger compared with pre-pandemic patients (mean age = 15.9 vs 16.4; $P < .001$). The proportion of non-Black patients was higher during the pandemic than before the pandemic (68.7% vs 62.3 =; $P = .004$).

In our multivariable analysis exploring associations between race and contraceptive method delivered across the study period, after adjusting for ethnicity, age, and insurance type, clinicians were 2 times more likely to prescribe LARCs, compared with a short-acting method, to Black patients compared to non-Black patients (95% CI, 1.52-2.62) (Table 2). In exploring potential pandemic effects, we found a significant effect modification by the pandemic period on the probability of receiving LARCs for Black adolescents ($P = .002$), with the strength of the association between LARC prescription and race increasing during the pandemic (Fig. 1). The association between Black race and injectable medroxyprogesterone prescription was not significant and not significantly modified by the pandemic period.

Among 692 new visits where new contraceptives were prescribed during the pandemic period (larger than the $n = 642$ in Table 1 as patients could have been prescribed more than 1 new type of contraceptive), 25.6% were by telehealth, and 23.2% of telehealth visits were for Black patients (Table 3). Telehealth visits were more common for privately insured patients (70.4%) than publicly insured, self-pay, and uninsured patients (29.6%). In a multivariable analysis adjusting for age and ethnicity, both race and insurance type were independently associated with receipt of contraceptive services by telehealth as patients were less likely to be Black (aOR = 0.63; 95% CI, 0.41-0.94), as well as less likely to be publicly insured (aOR = 0.56; 95% CI, 0.38-0.81) (Table 4).

Discussion

Our data demonstrated substantially higher LARC prescribing by clinicians to Black adolescents throughout the study period. During the pandemic, Black adolescents remained more likely than white adolescents to be prescribed a LARC method, with an increasing probability of LARC prescription compared with the pre-pandemic period. This finding is consistent with emerging data on contraceptive delivery and counseling for adult women. The ACA's Contraceptive Coverage Mandate and the increase in insurance coverage have significantly reduced cost barriers to LARCs, and as a result, biased counseling might now be contributing to differences in contraceptive counseling and prescrib-

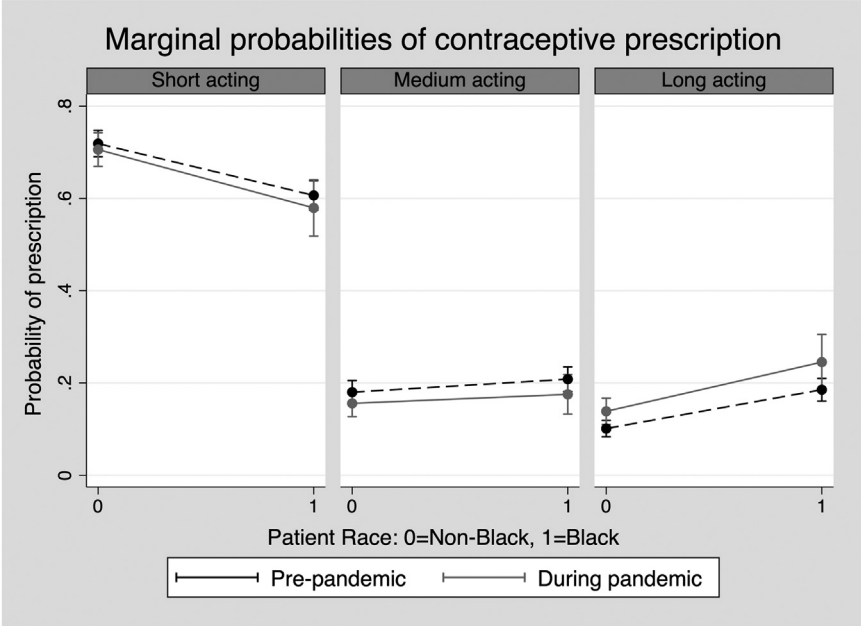

Fig. 1. Marginal probabilities of contraceptive prescription.

Table 2
Association of Patient Characteristics and the Type of Hormonal Contraceptive Prescribed ($n = 2854$)

—	aOR (95% CI)	*P* value
Shorting-acting method	Reference	
Medium-acting method	—	—
Age	0.98 (0.94-1.03)	.409
Race		
Non-Black	Reference	
Black	1.23 (0.97-1.57)	.093
Ethnicity		
Non-Hispanic	Reference	
Hispanic	0.76 (0.51-1.13)	.184
Insurance		
Private	Reference	
Public/Self-pay/Uninsured	1.42 (1.16-1.75)	.001
Period		
Pre-pandemic	Reference	
Intra-pandemic	0.93 (0.70-1.25)	.633
Black*Period	1.10 (0.71-1.74)	.658
Long-acting method	—	—
Age	1.23 (1.17-1.29)	< .001
Race		
Non-Black	Reference	
Black	2.00 (1.52-2.62)	< .001
Ethnicity		
Non-Hispanic	Reference	
Hispanic	1.21 (0.80-1.83)	.376
Insurance		
Private	Reference	
Public/Self-pay/Uninsured	1.41 (1.12-1.78)	.003
Period		
Pre-pandemic	Reference	
Intra-pandemic	1.47 (1.06-2.04)	.020
Black*Period	0.43 (0.26-0.73)	.002

Mixed-effects multinomial logistic regression model.

ing.[8-10] Additionally, our data showed disparities in contraceptive care delivery during the COVID-19 pandemic, as patients who received telehealth services for new hormonal contraceptive methods were less likely to be Black.

Although our retrospective study could not identify the causal source for differential rates of LARC prescription by race, the higher rates of LARC prescription for Black adolescents compared with white adolescents might suggest differences in clinician counseling. Further research is needed to assess whether clinicians are engaging in reproductive coercion by either implicitly or explicitly steering Black patients toward long-acting and highly efficacious methods. It is possible that other factors are contributing to the disparity we identified, such as individual or cultural differences, familial or peer social norms, or differences in media consumption and LARC knowledge. However, among all these factors, clinician coercion and differential contraceptive counseling by race is a clinical care delivery issue that can and should be proactively addressed by health systems. In multiple qualitative studies, Black and Latina people have reported experiencing coercion during contraceptive counseling.[13-15] Although clinicians may feel as if they are well intentioned in using efficacy-first counseling as a means to decrease unwanted pregnancies in key populations, differential counseling that places pressure on Black patients is reminiscent of the historical reproductive oppression and injustices toward Black women due to discriminatory and racist beliefs. Taking a paternalistic approach to counseling that focuses on perceived risk of unintended pregnancy, rather than a shared decision-making approach to counseling, can be harmful to adolescents as it takes away their reproductive and bodily autonomy.

We also identified disparities in telehealth delivery for contraceptive care during the COVID-19 pandemic. These findings are consistent with emerging literature from the pandemic highlighting racial and socioeconomic disparities in telehealth delivery as a result of decreased access to reliable broadband Internet and video-capable devices within racial minority and lower-income populations.[1,16] Patients who received telehealth services for new hormonal contraceptive methods were less likely to be Black and publicly insured. With the likely long-term integration of telehealth into the medical infrastructure, efforts to increase equitable access to telehealth are essential.

Table 3
Comparing Patient Characteristics in In-Person vs Telehealth Contraceptive Visits during the COVID-19 Pandemic (n = 692*)

	In-person N = 515 (74.4%)	Telehealth N = 177 (25.6%)	P value
Age [mean (SD)]	16.3 (0.10)	15.8 (0.17)	.005
Race (%)			
Non-Black	321 (62.33)	136 (76.84)	<
Black	194 (37.67)	41 (23.16)	.001
Ethnicity (%)			
Non-Hispanic/Latinx	466 (90.49)	159 (89.83)	.799
Hispanic/Latinx	49 (9.51)	18 (10.17)	
Insurance type (%)†			
Private	285 (55.34)	124 (70.45)	<
Public/Self-pay/Uninsured	230 (44.66)	52 (29.55)	.001

χ^2 test and t-test.
*The sample is larger than the n = 642 in Table 1 as patients could have been prescribed more than one new type of birth control during the intra-pandemic period.
†Missing n = 1 (< 1%).

Table 4
Association of Patient Characteristics and the Odds of Telehealth Contraceptive Visits during the COVID-19 Pandemic (n = 691*)

	aOR (95% CI)	P value
Age	0.91 (0.84-0.99)	.024
Race		
Non-Black	Reference	
Black	0.63 (0.41-0.94)	.026
Ethnicity		
Non-Hispanic/Latinx	Reference	
Hispanic/Latinx	0.99 (0.97-1.01)	.327
Insurance type		
Private	Reference	
Public/Self-pay/Uninsured	0.56 (0.38-0.81)	.002

Mixed-effects logistic regression model.
* One patient not included due to missing insurance type.

The differences in contraceptive rates in our data underline the importance of integrating concepts of reproductive justice into clinical training. Reproductive justice is defined as the human right to maintain personal bodily autonomy, have children, not have children, and parent the children one has in safe and sustainable communities.[17] Reproductive justice places an emphasis on understanding historical reproductive oppression and how this history shapes and influences patient care presently.[18-20] Additionally, for health care practitioners, it emphasizes the importance of presenting all hormonal contraceptive options in a balanced, nonjudgmental, noncoercive manner that allows the patient to choose what is best for them and their bodies.[21] However, much work is needed in this area as there is a lack of reproductive justice included in medical education curricula. The University of Michigan conducted research with reproductive justice advocates to understand what should be included in medical education and how these recommendations align with current undergraduate medical education, graduate medical education, and professional medical education.[22] Expansions of these efforts are critical to ensuring that all patients receive equitable and ethical reproductive health care.

There are limitations to our study. Generalizability of the results is limited because the patient population was mostly urban and suburban and from a single health system. However, our patient population was relatively diverse in terms of race (Black vs non-Black) and insurance payer type and had a large sample size that included patients from 3 different clinics, 2 of which are in non-urban areas. Additionally, this was a retrospective cohort study, and thus, we cannot draw causal inferences. Future studies should be conducted to identify whether clinician bias or other sociocultural factors contribute to racial disparities in contraceptive delivery. We used EHR data as our source, and there is no reliable or direct way to measure what occurred in contraceptive counseling sessions given the variability in clinical documenting practices. Another limitation for our sample is that we only included patients who received prescriptions for hormonal contraceptives, and thus, our analysis does not include those patients who might have been counseled on hormonal contraceptives and declined. Additionally, race and ethnicity are entered into the EHR through patient self-identification or registrar assessment, which is based on phenotypical assumptions. Clinicians did not choose the race entered into the EHR, so the assumption is that clinicians would agree with the registrar assessment. However, for the purposes of the study, provider perception of race rather than self-described race is what would lead to bias in contraceptive counseling. Lastly, for the race dichotomization, we must acknowledge that it is not possible to determine what races those who are multiracial self-identify as, including if Black is one of the races, as well as those who refused, and the resulting phenotypic assumptions and perceptions clinicians have of these patients. Given that these patients make up a small portion of the overall study population, it is unlikely this discrepancy would change the findings.

Conclusion

Our data suggest the importance of finding an equitable balance in contraceptive care, particularly given recent disruptions in care during the COVID-19 pandemic. Black patients had decreased utilization of telehealth for new prescriptions of hormonal contraceptives. At the same time, Black patients had an increased likelihood of being prescribed LARCs by clinicians. This disparity persisted during the pandemic, underscoring how contraceptive care

can be inequitable regardless of whether Black adolescents are prescribed highly effective hormonal contraceptive methods far less or far more than white adolescents. Although at different ends of a disparity spectrum, both findings are important and, moving forward, should be addressed to ensure all patients receive quality care. Irrespective of the causality for our findings, the differences in contraceptive rates in our data underline the importance of integrating concepts of reproductive justice into clinical training.

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Conflicts of Interest

None of the authors have conflicts of interests to disclose.

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