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Original Research Article

Challenges accessing contraceptive care and interest in over-the-counter oral contraceptive pill use among Black, Indigenous, and people of color: An online cross-sectional survey

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ABSTRACT

Objective: To examine challenges accessing contraception in the past year and their association with interest in using an over the counter (OTC) oral contraceptive pill (OCP) among Black, Indigenous, and people of color (BIPOC) in the United States.
Study Design: From May 2021 to March 2022, a collaborative research team conducted a cross-sectional online survey using convenience sampling to recruit people who identify as Asian American, Native Hawaiian, or Pacific Islander, Black or African American, Indigenous, or Latina/Latinx and used or wanted to use a contraceptive method in the past year. Respondents were recruited through reproductive justice and community-based organizations.
Results: Among 727 respondents, 45% reported experiencing at least one challenge accessing contraception in the past year of which 37% reported a logistical challenge, and 20% reported an interpersonal challenge. Sixty-seven percent of respondents said they were likely to use an OTC OCP. Respondents who reported experiencing at least one challenge accessing contraception in the past year were more likely to say they would use an OTC OCP. Fifty-seven percent of respondents who were not using a contraceptive method in the past year reported they were likely to use an OTC OCP.
Conclusion: Among people in this study, interest in an OTC OCP is high, particularly among those who have faced challenges accessing contraception, and among those who are not currently using a contraceptive method.
Implications: Availability of an OCP OTC has the potential to address challenges accessing contraceptive care among BIPOC in the United States, who are often impacted by structural inequities and racism. Findings from this study can inform future OTC implementation strategies to ensure OTC access addresses logistical and interpersonal challenges.

1. Introduction

Access to contraception is a critical component to ensuring all people have autonomy over their lives and bodies, yet barriers to accessing contraception exist. The inability to pay for a contraceptive method, the prescription requirement, inability to take time off work or school, difficulty traveling to clinics or pharmacies, and lack of clinics offering the full range of contraceptive options have all been identified as obstacles to accessing contraception in the United States [1–6].

These barriers are often exacerbated or intensified for Black, Indigenous, and people of color (BIPOC) in part due to sys-

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temic racism and oppression, contributing to racial and ethnic disparities in contraceptive care [7–11]. Due to higher rates of unemployment, lower incomes, as well as, immigration statuses and policies, BIPOC are also more likely to be uninsured compared to their white counterparts [7,12] and while the Affordable Care Act has expanded insurance coverage of contraceptive care, the cost of contraceptive visits and methods continue to impede access to contraception [13] due to existing racial economic disparities in the United States [14]. A history of racism and historical injustice, including unethical experimental studies testing oral contraceptive pills (OCPs) on Puerto Ricans, reproductive coercion, and forced sterilization of BIPOC individuals [8,11,15,16] coupled with structural barriers, such as limited methods at clinics and limited locations to access contraception particularly in areas with higher populations of BIPOC [17], has led to a decrease in contraceptive choice and autonomy, as well as, a distrust in providers and health institutions [8,10,11,15,16]. One study examining contraceptive preferences among women in the United States found that 22% of people at risk of an unwanted pregnancy in the study would prefer to be using a different contraceptive method [18]. This preference was higher among Black and Hispanic women, as well as those of other minoritized races and ethnicities compared to white women in the study.

Lower proportions of women of color use contraception generally and OCPs specifically compared to white women [19], which is likely in part influenced by these issues of access and other structural barriers. The prescription requirement can be a barrier to accessing hormonal contraceptive methods [1], however, there are currently no hormonal contraceptive methods, other than emergency contraception, available over the counter (OTC) in the United States. OCPs are the most common reversible hormonal method in the United States [19] and studies have demonstrated interest in an OTC OCP among women in the United States, which has ranged between 29% of teens to 37 to 39% of adults and has been highest among younger, Spanish speaking, and uninsured adults [20,21]. In 2022, a pharmaceutical company submitted an application to the Food and Drug Administration for the first OTC OCP [22], which has the potential to increase access and expand use for those interested in using a hormonal contraceptive method, especially for those who face additional barriers to accessing contraception in clinical settings [23].

It is important to examine the relationship between challenges accessing contraception and interest in an OTC OCP among BIPOC to better understand how implementation of OTC OCPs may meet their needs and increase contraceptive access and choice, especially given the historical legacy of contraceptive programs that have sought to control the fertility of BIPOC people [10]. Using survey data collected from a larger community-engaged research project, this paper examines how challenges in accessing contraception intersect with interest in using an OTC OCP among a sample of people who identified as Asian American, Native Hawaiian, or Pacific Islander, Black or African American, Indigenous, or Latina/Latinx in the United States. We hypothesized that those who experienced challenges accessing contraception in the past year would be more interested in using an OTC OCP than people who had not experienced recent challenges accessing contraception.

2. Methods

We conducted a cross-sectional survey with BIPOC people, specifically those who identified with at least one of the following racial or ethnic groups: Asian American, Native Hawaiian, or Pacific Islander (AANHPI), Black or African American, Indigenous, and Latina/Latinx. The study was designed and implemented by a collaborative research team (CRT) consisting of six organizations with research and advocacy expertise, five of which are led by and represent communities included in this study. We designed recruitment to be completed by community-based organizations and therefore did not aim for our sample to be representative of these groups across the country. Eleven community-based organizations participated in recruitment using online invitations and some in-person targeted outreach. Recruitment was focused in, but not limited to, California, Georgia, Illinois, and New Mexico due to the location of the community-based organizations.

People were eligible to participate in the study if they lived in the United States; were aged 13 to 50; identified as American Indian or Alaskan Native, Asian, Black or African American, Hispanic, Latina, Latinx, or Spanish origin (referred to throughout as "Latina/Latinx"), and/or Native Hawaiian or Pacific Islander; identified as a woman, transgender, or non-binary, regardless of sex assigned at birth[1]; had used or wanted to use a contraceptive method for any reason in the past year; and had a functioning email address. We offered the survey in four languages chosen by the CRT to ensure participation in regions they serve: English, Spanish, Vietnamese, and Urdu. Using convenience sampling, participating organizations and 2 data collectors recruited respondents between May 2021 and March 2022. Due to a high volume of fraudulent surveys and online bots, we developed a multi-step process to review each survey (Appendix A).

We followed The Checklist for Reporting Results of Internet Surveys (CHERRIES) framework [24] (Appendix B). This study was approved by the Allendale Investigational Review Board.

2.1. Measures

To document challenges accessing contraception, respondents who had used a method of contraception in the past year selected challenges they had faced accessing contraception in the past year and those who had not used a method of contraception in the past year reported reasons why. Response options were presented in a similar pre-populated list of possible challenges, which we used to create variables indicating whether the participant had faced any *access* challenges and the types of challenges faced including, *logistical challenges*, such as those related to cost and transportation and *interpersonal challenges*, including those related to privacy and interactions with people within and outside the healthcare system (See Table 2 for lists of specific challenges in each category). Open ended "other" responses were reviewed and coded into the appropriate type of challenge where applicable.

We documented likelihood to use an OTC OCP if it were available based on a survey item that included an OTC OCP description and then asked how likely respondents would be to buy and use it if it were available (Appendix C). We considered respondents likely to use an OTC OCP if they selected somewhat likely or very likely (versus somewhat unlikely, very unlikely, or not sure). Respondents who indicated they were likely to use an OTC OCP selected situations or for what reasons they would consider purchasing an OTC OCP. We asked those who were not likely to use an OTC OCP why they would not buy or use an OTC OCP.

We included measures of respondent race/ethnicity, age, education, insurance status, nativity, employment status, student status, gender identity, interest in using a contraceptive method the respondent was not currently using, contraceptive method use in the past year, as well as whether the respondent had ever given birth. Respondents selected their race/ethnicity from the following options: American Indian or Alaskan Native; Asian; Black or African American; Latina/Latinx; Native Hawaiian, or Other Pacific

[1] Eligibility criteria for gender was determined based on likelihood to interface with the healthcare system for contraception or to face challenges or stigma obtaining a method. Based on our criteria, cis-gender men were not eligible to participate.

Islander (combined with Asian to create AANHPI variable in analysis); white[2]; and another race, ethnicity, or origin (please specify). Respondents could select more than one response option.

Respondents reported all contraceptive methods they had used in the past year (Appendix D), which we categorized for analysis (Appendix E).

2.2. Analysis

We conducted univariate and bivariate descriptive analyses to describe interest in OTC OCP use and challenges faced in accessing contraception in the past year. We conducted χ^2 tests of independence and Fisher's exact tests to test the associations between demographic variables and both experience of at least one challenge accessing contraception as well as likelihood of OTC OCP use. Statistical tests assumed a significant relationship between variables at $p < 0.05$. We excluded missing data and "prefer not to answer" responses from tables and analyses as no variable had greater than 10 (1%) missing values.

We examined whether challenges experienced accessing contraceptive methods were associated with likelihood of OTC OCP use using a multivariable logistic model to control for potential factors that might jointly influence challenges to accessing contraception and interest in OTC OCP use. We controlled for the sample characteristics, except gender identity and interest in using a contraceptive method the respondent was not currently using, as well as a subset of contraceptive methods in the past year (OCP use and any method in the past year), included in Table 1. All variables were binary except age, which was measured and analyzed continuously, and insurance status, which was analyzed as a categorical variable. Racial ethnic groups were not mutually exclusive, so that anyone who identified as multiracial or mixed race were included in more than one category. Due to our analysis aims and the limited data available to interpret and contextualize any differences, the CRT decided to examine our outcomes among the entire sample and not explore differences between racial/ethnic groups.

We conducted data analyses using Stata version 15 SE.

3. Results

In total, we received 24,086 completed screening forms, of which 13,499 were eligible based on their responses to the screening form, and 12,772 completed the full survey. After removing fraudulent responses through a multi-step review process (Appendix A), our final sample included 727 people (Fig. 1).

A majority of respondents (86%) were between the ages of 18 to 34 with an average age of 26.5 years (Table 1). Thirty-four percent of respondents identified as Black or African American, 31% identified as Latina/Latinx, 29% identified as AANHPI, and 13% identified as American Indian or Alaskan Native. Fourteen percent of respondents selected more than one race/ethnicity.

3.1. Challenges accessing contraceptive methods in the past year

Forty-five percent of respondents reported they had experienced at least one challenge accessing contraception in the past year. Respondents who identified as AANHPI, younger respondents, those with lower levels of education, those with no insurance, respondents not working, students, and those who had never given birth were more likely to have experienced a challenge accessing contraception (Table 1). Fifty-seven percent of those who had not used a method in the past year reported challenges accessing a method, compared to 44% who had used a method in the past year.

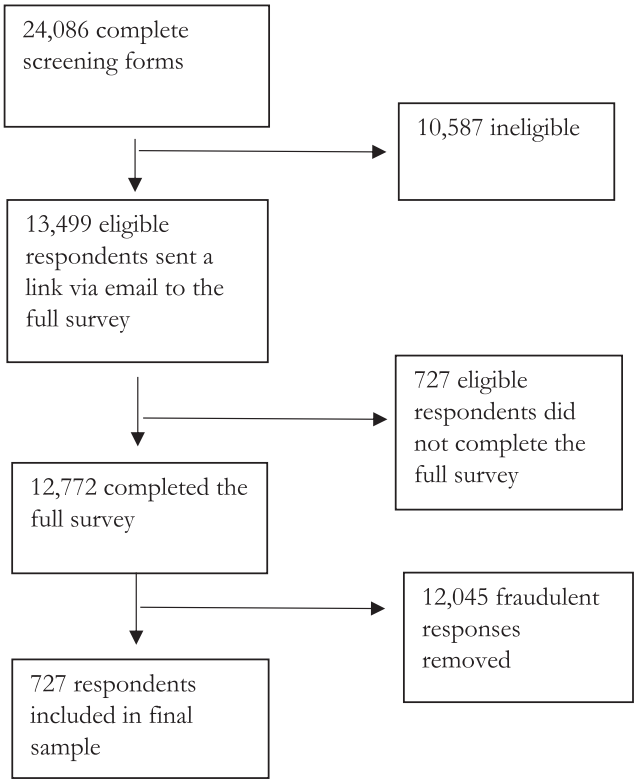

Figure 1. Study sample and removal of fraudulent responses among Qualtrics respondents from May 2021 to March 2022.

3.2. Likelihood of OTC OCP use

Overall, 67% of respondents were likely to use an OTC OCP (36% were very likely and 31% somewhat likely to use). In bivariate analyses, respondents who were Latina/Latinx, younger, students, and had never given birth were more likely to indicate they would use an OTC OCP. Respondents who had used OCPs and those who indicated there was a contraceptive method they would like to use but were not currently using were also more likely to report they would use an OTC OCP (Table 1). Respondents who identified as Black or African American and those who had used non-OCP prescription-based methods in the past year were less likely to indicate they would use an OTC OCP. Most frequently, respondents reported wanting to use an OTC OCP to save time and not have to visit a doctor or nurse (65%) (Table 3). The main reasons respondents would not use an OTC OCP were that they were not interested in any kind of OCP (46%) and wanted a clinician to make sure an OCP was right for them (45%) (Table 3).

Experiencing at least one challenge accessing contraception in the past year was associated with higher likelihood of OTC OCP use. In the multivariable model, experiencing at least one challenge accessing a method in the past year was associated with 69% higher odds of interest in OTC OCP use (OR: 1.69, 95% CI: 1.19–2.40; Table 4).

4. Discussion

Our findings highlight an association between experiencing challenges in accessing contraception and the likelihood of using an OTC OCP among our convenience sample of Black, Indigenous, and people of color recruited by reproductive jus-

[2] Given the eligibility criteria, all respondents who selected "white" also selected another provided race/ethnicity option. Respondents who exclusively identified as white were not eligible to participate in the study.

Table 1
Sample characteristics among respondents in the United States from May 2021 to March 2022

	Full sample (N=727)	% who experienced at least one challenge accessing contraception^,§ (N=715)	p-value†	% likely to use an OTC OCP*,^,§ (N=722)	p-value†
	n (%)	n (%)		n (%)	
Total	727 (100)	321 (45)	-	485 (67)	-
Race/ethnicity**					
American Indian or Alaskan Native	92 (13)	43 (48)	0.56	62 (68)	0.84
Asian American, Native Hawaiian, and/or Pacific Islander	208 (29)	107 (52)	**0.02**	146 (70)	0.27
Black or African American	245 (34)	98 (41)	0.14	143 (59)	**0.001**
Hispanic, Latina, Latinx, or Spanish origin	228 (31)	96 (43)	0.42	165 (73)	**0.03**
White/other^^	70 (10)	34 (49)	0.52	48 (70)	0.66
Age (years)			**<0.001**		**0.004**
Under 18	13 (2)	7 (58)		10 (77)	
18-24	326 (45)	175 (54)		238 (74)	
25-34	300 (41)	115 (39)		189 (63)	
35-44	68 (9)	20 (30)		38 (56)	
Over 45	20 (3)	4 (20)		10 (50)	
Education			**0.001**		0.24
Incomplete high school	16 (2)	8 (57)		11 (69)	
High school graduate	250 (34)	126 (52)		172 (69)	
College graduate	340 (47)	152 (45)		232 (69)	
Professional or advanced degree	118 (16)	34 (29)		68 (58)	
Insurance status			**0.005**		0.78
Private	453 (63)	75 (51)		309 (68)	
Public	150 (21)	182 (40)		100 (67)	
None	116 (16)	61 (56)		74 (65)	
Born in United States			0.70		0.41
Yes	580 (80)	253 (44)		382 (66)	
No	144 (20)	65 (46)		100 (70)	
Working			**0.03**		0.96
Yes	508 (70)	212 (42)		339 (67)	
No	216 (30)	109 (51)		145 (67)	
Student			**0.001**		**0.003**
Yes	329 (45)	168 (52)		239 (73)	
No	395 (55)	153 (39)		245 (63)	
Gender identity**			0.93		0.15
Ciswoman or woman	685 (94)	302 (45)		463 (68)	
Gender expansive	23 (3)	11 (48)		13 (57)	
Selected more than one	19 (3)	8 (42)		9 (50)	
Ever given birth			**0.001**		**0.001**
Yes	160 (22)	53 (34)		90 (56)	
No	566 (78)	268 (48)		395 (70)	
Method of contraception in the past year**,††					
Oral contraceptive pills	307 (42)	149 (49)	0.07	234 (77)	**<0.001**
Prescription-based methods	275 (38)	107 (39)	**0.04**	169 (62)	**0.04**
Non-prescription based methods	407 (56)	204 (51)	**<0.001**	279 (69)	0.17
Permanent method	14 (2)	3 (21)	0.08	7 (50)	0.25
No method in past 12 months	73 (10)	40 (57)	**0.03**	52 (71)	0.44
Want to use method other than one currently using			**<0.001**		**<0.001**
Yes	266 (37)	152 (58)		207 (78)	
No	455 (63)	165 (37)		276 (61)	

*Respondents were considered likely to use an OTC OCP if they reported being very likely or somewhat likely (vs. somewhat unlikely, very unlikely, not sure) Respondents who selected "Prefer not to answer" were considered missing.
^Columns may not sum to 100 as missing values were not reported. No variable had more than 10 (1%) missing values.
†By Chi-square and Fisher's Exact Tests, which excluded "Missing" and "Prefer not to answer". Bolded p-values indicate significance of $p<0.05$.
§Row percentages.
**Respondents could select more than one response option.
^^Eleven respondents who wrote in "another race or ethnicity" were reviewed and coded into racial ethnic groups as appropriate. Six respondents who wrote in "Middle Eastern" and "Palestinian" were included in the white/other group with people who selected "white".
††Methods included in each group: prescription-based methods including copper intrauterine device (IUD), hormonal IUD, implant, patch, ring, shots or injections, and female/internal condoms [41] non-prescription based methods, including male/ external condoms, withdrawal, fertility awareness methods, and emergency contraception (although we recognize that some emergency contraception is prescription based); and permanent methods including tubal ligation and partner's vasectomy.

tice and community-based organizations in the United States. The results support that obtaining OCPs without a prescription may be attractive to people who experience barriers such as getting to a clinic appointment and negative interactions with providers [3,25]. The needs of these communities should be centered in the implementation of an OTC OCP should it be approved by the FDA and to avoid perpetuating systemic inequities, oppression, and harm emphasized in other previous work [26,27].

Close to half of the respondents in this study reported experiencing at least one challenge accessing contraception in the past year. Given the data collection occurred during the COVID-19 pandemic, we can hypothesize that the types and intensity of challenges were impacted by the pandemic [28,29], and perhaps somewhat mitigated by telehealth and online service delivery [30]. Research conducted both during and pre-pandemic has demonstrated how access-related challenges reflect the existing and intersecting systems of structural racism, economic injustice,

Table 2
Types of challenges experienced in the past year when accessing contraception, by interest in use of an over-the-counter (OTC) oral contraceptive pill (OCP)[^ ††] among respondents in the United States from May 2021 to March 2022

	Total n (%)	% likely to use an OTC OCP[*§] (N = 711) n (%)	p-value[†]
Total	715 (100)	476 (67)	
Experienced a challenge accessing a contraceptive method in the past year	321 (45)	240 (76)	**<0.001**
No challenge accessing contraception	394 (55)	236 (60)	
Challenge related to logistics	261 (37)	192 (74)	**0.002**
Challenges making an appointment (limited time slots, inconvenient times)	125 (18)	95 (76)	
Too expensive and/or don't have insurance	100 (14)	77 (77)	
Don't have a regular doctor or clinic	91 (13)	73 (81)	
Challenges with transportation or getting to an appointment	66 (9)	56 (86)	
Other logistics-related challenges[**]	9 (1)	7 (78)	
Citizenship or documentation status[^^]	2 (0)	1 (50)	
Challenge related to interpersonal experiences	140 (20)	111 (81)	**<0.001**
Feared being judged	65 (9)	48 (75)	
Privacy concerns	47 (6)	38 (82)	
Treated unfairly by a staff person at the doctor's office, clinic or pharm	28 (4)	20 (77)	
Did not feel comfortable or safe getting my method	27 (4)	23 (89)	
Partner won't let me or doesn't want me to	12 (2)	11 (92)	
Unable able to use my preferred language when talking to a provider	3 (0)	3 (100)	
Other interpersonal related challenges[**]	3 (0)	3 (100)	
Other	18 (3)	15 (83)	-

[*] Respondents were considered likely to use an OTC OCP if they reported being very likely or somewhat likely (vs somewhat unlikely, very unlikely, not sure). Respondents who selected "Prefer not to answer" were considered missing and not reported.
[^] Respondents who did not answer any challenge-related questions were considered missing and not reported.
[†] By Chi-square and Fisher's Exact Tests, which excluded "Missing" and "Prefer not to answer" to test relationship between experiencing any logistical challenge (yes/no) or interpersonal challenge (yes/no) and interest in an OTC OCP. Bolded *p*-values indicate significance of $p < 0.05$.
[§] Row percentages.
[††] More than one response possible.
[**] Recoded from "Other (please specify)" response option.
[^^] We recognize that "Citizenship or documentation status" could also be categorized as a challenge related to interpersonal experience, but based on open text responses for these respondents, we categorized this response option as a challenge related to logistics.

Table 3
Reasons why respondents would and would not consider using an over-the-counter (OTC) oral contraceptive pill (OCP)[a] among all respondents in the United States from May 2021 to March 2022

	Total n (%)
Reasons would consider using an OTC OCP (among those likely to use an OTC OCP (n = 485))[b]	
To save time to not have to visit a doctor or nurse	316 (65)
I could easily and quickly start a pill when I need it	309 (64)
When I run out of my birth control method	264 (54)
To save money to not have to visit a doctor or nurse	257 (53)
I could send someone else to get my birth control method when I needed it	181 (37)
I wouldn't need to get a physical or pelvic exam	156 (32)
I could get it without telling my parents	120 (25)
I could get it without telling my partner	40 (8)
Other	3 (1)
Reasons would not consider using an OTC OCP (among those unlikely to use an OTC OCP (n = 237))[b]	
I am not interested in any kind of OCP	84 (46)
I would want a doctor or nurse to make sure the pill is right for me	83 (45)
I am satisfied with what I am using now	62 (34)
I need more information	39 (21)
Insurance might not cover the OTC pills	35 (19)
The cost of this OTC pill may be higher than the prescription-only pill	24 (13)
I might not use the pill correctly if I don't talk to a doctor or nurse	23 (13)
Other	2 (1)

[a] Respondents were considered likely to use an OTC OCP if they reported being very likely or somewhat likely (vs. somewhat unlikely, very unlikely, not sure). Respondents who selected "Prefer not to answer" were considered missing and not reported.
[b] More than one response possible.

and a history of reproductive coercion that continues to negatively impact the experiences of BIPOC accessing contraception in the United States [3,4,10,25,31]. For those interested in using a hormonal contraceptive method, the advantages to an OTC OCP, like other OTC methods, are convenience and increased privacy. These factors could help people overcome some access challenges [5]. To further address interpersonal challenges raised in this study, all contraceptive services, including OTC provision, should be assessed and improved based on quality and person-centered care measures including respect, confidentiality, lack of judgment, and adequate information, among others [32,33].

Our study also helps identify particular groups of people who may be interested in an OTC OCP. Similar to previous research [20,21], young people in our study are among groups most

Table 4
Association between experiencing challenges accessing contraception and interest in over-the-counter (OTC) oral contraceptive pill (OCP) use among respondents in the United States from May 2021 to March 2022 (n = 698)[†]

	aOR (95% CI)
Experienced a challenge accessing a contraceptive method in the past year	1.69** (1.19–2.40)
Age (continuous)	0.97 (0.94–1.01)
Student	1.35 (0.90–2.04)
Ever given birth	0.83 (0.50–1.36)
Born in US	0.75 (0.47–1.20)
Race/ethnicity	
American Indian or Alaskan Native	1.20 (0.57–2.54)
Asian American, Native Hawaiian, and/or Pacific Islander	0.92 (0.43–1.97)
Black or African American	0.66 (0.32–1.34)
Hispanic, Latina, Latinx, or Spanish origin	1.40 (0.70–2.80)
White/other	0.92 (0.51–1.65)
Contraceptive use in past 12 months	0.71 (0.39–1.27)
Used OCPs in past year	2.38*** (1.64–3.45)
Insurance	
Private insurance	[Ref]
Public insurance	1.00 (0.65–1.55)
None	0.89 (0.55–1.45)
Working full or part time	1.37 (0.90–2.08)

[†] Results from a multivariable logistic regression controlling for age, student status, working full or part time, ever given birth, born in United States., identified as Black or African American, identified as Latina/Latinx, identified as American Indian or Alaskan Native, identified as AANHPI, identified as white/other, use of contraceptive method in past year, use of OCPs in past year, and insurance status.
* $p < 0.05$, ** $p < 0.01$ ***$p < 0.001$.

interested in using an OTC OCP and among groups most likely to report challenges accessing care. Such findings underscore the need for an OTC OCP to be available without an age restriction and to center young BIPOC in advocacy efforts to implement equitable access without a prescription. Our study also indicates high interest in OTC OCP use among people who identify as Latina/Latinx—corroborating findings in a 2010 study of Latinas in El Paso, Texas [34]. Given interest in an OTC OCP among people in our sample who want to use a contraceptive method but are not currently using a method (71%), an OTC OCP may help meet the needs of people not currently using contraception but who want to be doing so [21]. Conversely, our results indicate lower interest in OTC OCP use among those who identified as Black or African American in our sample, although additional research is needed to better contextualize this finding. Those who were unlikely to use an OTC OCP commonly said that they would want a clinician to ensure an OCP was right for them, which would still be an option for people regardless of the availability of OCPs OTC. This finding indicates, however, a need for more widespread information about contraindications and potential side effects to help potential users determine if an OCP is right, especially as research has indicated that people, including young people, can accurately self-screen for contraindications to OCP use [35–37].

This study has several limitations. Given this is a convenience sample with people connected to community-based organizations, it is not generalizable nor representative of racial/ethnic groups across the country. Some experiences may be context specific and may vary by location/region in the United States. Additionally, we lack information on previous contraceptive methods used, beyond those used in the past year. Those who ever used an OCP may have unique perspectives on OTC OCP use that we were not able to capture. While our multivariable analysis controlled for factors we hypothesized could jointly affect challenges in accessing contraception and interest in OTC OCP use, this analysis should not be interpreted causally. Additionally, we experienced a high volume of fraudulent responses to the survey. Multiple studies have had challenges with high volumes of fraudulent activity when using online recruitment methods, but employing rigorous, multistep review systems mitigates the impact on the quality of data [38–40,42,43].

Interest in potentially using an OTC OCP is high and may address challenges faced by Black, Indigenous, and people of color in accessing hormonal contraceptive methods, particularly OCPs. Future implementation of an OTC OCP should center the perspectives and needs of populations that face inequities due to systemic oppression to ensure implementation overcomes and addresses the challenges identified in this study.

Disclosures and funding

Declaration of Competing Interest: Ibis Reproductive Health, where some study authors have an affiliation, has a partnership with HRA Pharma in which Ibis provided financial support for some of the research that will be part of an over-the-counter switch application for the United States Food and Drug Administration for a progestin-only pill. Ibis receives no monetary compensation nor ownership of any rights to the product. Ibis raised the funding for this partnership from a private foundation and selected HRA Pharma as its partner through an open process overseen by the Oral Contraceptives Over-the-Counter Working Group steering committee in an effort to incentivize a pharmaceutical company to complete the work to make a birth control pill available over the counter.

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Appendix A. Process for identifying fraudulent responses

First, we identified entries with duplicate IP addresses and emails. We included the first surveys and removed subsequent surveys with duplicate IP addresses (with the exception of those with university- or school-based email addresses) or emails. Second, we removed all surveys with a location outside the United States. Third, we reviewed open-ended responses and removed all incomprehensible responses or those that appeared copied and pasted from the internet. Fourth, we flagged suspicious open-ended responses and removed surveys that failed any one of the following additional checks: 1) consistency of responses to age-related items on the eligibility form and survey; 2) a "test" question that asked the participant not to select a response; and 3) short surveys which took less than 15 minutes to complete. All open-ended responses were reviewed by two research team members. The research team identified and removed 12,045 fraudulent surveys (Fig. 1).

Appendix B. CHERRIES framework

Potential respondents were directed to a study website for additional information about the survey. All interested respondents completed an eligibility screening form. Eligible respondents received a one-time use, personal link to the self-administered survey on Qualtrics, an online survey platform. Research staff were available to answer questions and to support with survey administration in each study language as necessary. Respondents gave written informed consent (adults) or assent (minors) electronically prior to starting the survey. Minors did not need parental consent. Respondents were emailed a $25 gift card after participating. Participant emails were stored separately from survey responses on password-protected devices. Four eligible respondents piloted the survey in each language.

There were 78 questions in the core survey with an additional 15 questions specific to OCPs for respondents who indicated they had used an OCP in the past year. Respondents saw an average of two questions per screen and surveys had an average of forty-four pages. Respondents could not review or change previous responses in the survey and all respondents received questions in the same order. To prevent multiple submissions from the same respondent, Qualtrics placed cookies on each browser at the start of the survey and the study team reviewed individual responses to identify and remove additional fraudulent responses. Because we recruited online, we have no measure of how many people interacted with or viewed the study invitation, making it impossible to calculate a response rate.

Surveys took a median duration of 22.5 minutes (IQR 16–34) to complete after removing respondents who took more than one day to complete the survey.

Appendix C. Survey question to determine likelihood of OTC OCP use

Right now, you need a prescription to get birth control pills. But it could be possible someday soon for people to get birth control pills "over the counter" without a prescription. With "over-the-counter" (OTC) access, birth control pills would be available on the shelf at a pharmacy or grocery store just like cough medicine or some allergy pills. You would not need a prescription from a doctor or nurse. You would not need to talk to anyone about buying birth control pills (not a doctor, pharmacist, or parent) unless you wanted to.

Appendix D
Contraceptive methods used in the past year

	Total
	n (%)
	727 (100)
Male condoms or external condoms	322 (44.3)
Oral contraceptive pills	307 (42.2)
Withdrawal (pulling out)	219 (30.1)
Emergency contraception	128 (17.6)
Hormonal IUD (Mirena, Skyla, Liletta, Kyleena)	115 (15.8)
No method in past 12 months	73 (10.0)
Implant (Implanon/Nexplanon)	67 (9.2)
Fertility awareness methods (rhythm method, cycle beads, periodic abstinence)	53 (7.3)
Cooper IUD (Paragard)	49 (6.7)
Shots or injections (Depo-Provera or Depo)	31 (4.3)
Vaginal ring (NuvaRing, Annovera)	16 (2.2)
Female condoms, F2C, internal condoms	16 (2.2)
Patch (OrthoEvra patch, Xulane)	12 (1.7)
Tubal ligation	11 (1.5)
Partner's vasectomy	3 (0.4)

Appendix E
Contraceptive method categories

Oral contraceptive Pills*
Prescription-based methods
Hormonal IUD (Mirena, Skyla, Liletta, Kyleena)
Implant (Implanon/Nexplanon)
Cooper IUD (Paragard)
Shots or injections (Depo-Provera or Depo)
Vaginal ring (NuvaRing, Annovera)
Female condoms, F2C, internal condoms
Patch (OrthoEvra patch, Xulane)
Non-prescription based methods
Male condoms or external condoms
Withdrawal (pulling out)
Emergency contraception[1]
Fertility awareness methods (rhythm method, cycle beads, periodic abstinence)
Permanent methods
Tubal ligation
Partner's vasectomy
No method in past 12 months†

* Given our interest in analyzing interest in an OTC OCP, we kept OCPs as its own category.

† We categorized those who had not used a method in the past year and those who had never used a contraceptive method as "No method in the past year".

[1] We recognize that some emergency contraception is prescription-based, however, we categorize emergency contraception as a non-prescription method due to availability of some brands without a prescription. Results hold if emergency contraception is categorized as prescription based.

Based on the description of an over-the-counter birth control pill, how likely are you to buy and use it if it were available? If you are currently using a different method, think about how likely you would be to buy and use this over-the-counter birth control pill the next time you need to change your method.

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