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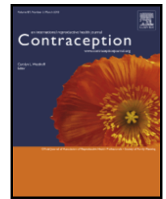

Contraception use and satisfaction among mothers with low income: Evidence from the Baby's First Years study☆,☆☆

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ABSTRACT

Objectives: Low income can lead to limited choice of and access to contraception. We examine whether an unconditional cash transfer (UCT) impacts contraceptive use, including increased satisfaction with and reduced barriers to preferred methods, for individuals with low income.
Study design: Baby's First Years is a randomized control study of a monthly UCT to families with low incomes. The study enrolled 1000 mothers at the time of childbirth across four US sites in 2018–2019; 400 were randomized to receive a UCT of $333/mo and 600 were randomized to receive $20/mo for the first years of their child's life. We use intent-to-treat analyses to estimate the impact of the cash transfer on contraception use, satisfaction with contraception method, and barriers to using methods of choice.
Results: Over 65% of mothers reported using some type of contraception, and three-quarters reported using the method of their choice. We find no impact of the UCT on mothers' choice of, satisfaction with, or barriers to contraception. However, the cash transfer was associated with trends toward using multiple methods and greater use of short-term hormonal methods.
Conclusions: We find high levels of satisfaction with current contraceptive use among mothers of young children with low income. Receipt of monthly UCTs did not impact contraception methods, perceived barriers to use, or satisfaction. Yet, 25% were not using the method of their choice, despite the provision of cash, indicating that this cash amount alone may not be sufficient to impact contraceptive use or increase satisfaction.
Implications: Satisfaction with contraception use among low-income populations may be higher than previously documented. Nevertheless, provision of modest financial resources alone may not sufficiently address access, availability, and satisfaction for individuals with low-incomes of childbearing age. This suggests the importance of exploring how other nonfinancial factors influence reproductive autonomy, including contraceptive use.
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1. Introduction

Economic well-being is widely understood to impact many aspects of health, including reproductive health. By increasing purchasing power, money shapes access to contraception and family planning resources. Indeed, previous research suggests that individuals with low- or unstable financial resources face a host of barriers accessing contraception and are less likely to use their desired method of contraception than those with higher incomes [1–3]. Given the recent US Supreme Court ruling that overturns the federal constitutional right to abortion and its implications on increasing cost and burden of receiving abortion services among women[1] with the least resources, it is more important than ever to understand how to support people's use of their preferred contraceptive methods, especially for those with limited income.

Reproductive autonomy is often defined as an individual's ability to make choices about factors related to reproduction, including contra-

[1] We use the terms "women" and "mothers" throughout to reflect our sample; however, we acknowledge that questions of reproductive autonomy are relevant to all individuals with childbearing capacity.

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Table 1
Sample characteristics of US mothers enrolled in the Baby's First Years study (data collected between 2018 and 2021)

	N	Full sample	Low-cash gift group	High-cash gift group
Baseline survey/study enrollment (2018–2019)				
Age	922	27.1	26.9	27.4
Years of education	913	11.9	12.0	11.9
Race/ethnicity	922			
Black, Non-Hispanic		41.8%	40.2%	44.0%
Hispanic		41.2%	40.6%	42.2%
White, Non-Hispanic		9.7%	10.5%	8.5%
Other		7.4%	8.8%	5.3%
Household income	922	$26,246	$26,564	$25,787
Age 2 survey (2021–2022)				
Number of individuals in household	922	2.7	2.6	2.8
Currently pregnant	921	8.0%	8.6%	7.2%
Currently trying for pregnancy	843	3.0%	2.6%	3.4%
Had sex in the last 3 mo	832	67.3%	69.0%	64.9%
Discussed family planning with health care provider in the last 12 mo	917	45.3%	44.2%	46.8%

Demographics measured at the time of enrollment in the study. Other measures taken at the age-2 interview, intended to coincide with the focal child's second birthday. Mothers were enrolled from four sites across the United States at the time of the birth of the focal child: Minnesota, Nebraska, Louisiana, and New York but may have been living outside of these areas at the time of the follow-up surveys.

Table 2
Age-2 contraception use in Baby's First Years, full sample (2020–2021)

	Low-cash gift group (n = 545)	High-cash gift group (n = 377)
Currently pregnant	8.6%	7.2%
No contraception and not sexually active	20.9%	20.5%
No contraception and sexually active	6.7%	6.4%
IUD/implants (longer-acting methods)	13.9%	13.3%
Tubal ligation	7.2%	8.0%
Shorter-acting methods	20.0%	20.0%
Short-term hormonal methods	4.9%	6.6%
Consistent use of single-use methods	9.5%	8.3%
Inconsistent use of single-use methods	3.1%	2.4%
Multiple method use	2.5%	2.7%
Natural family planning	1.1%	1.3%
Combination of longer- and shorter-acting methods	21.3%	23.4%

Sample size for all measures is 917. Sexually active is defined as self-report of having had vaginal sex in the last 3 months. Short-term hormonal methods include pills, patches, and Nuva Ringingle-use methods include condoms and/or withdrawal. Multiple method use indicates the use of short-term hormonal methods and single-use methods. Subcategories under short- and single-use methods should sum to short- and single-use methods total. Totals may not sum to 100% due to rounding.

ceptive use, pregnancy, and childbearing, and realize these choices [4, 5]. Measures of contraceptive use, including whether individuals are using their preferred methods and barriers to preferred methods, can offer insight into the contraceptive domain of reproductive autonomy.

Concerns about income-based disparities in reproductive health have led to policy efforts focused on reducing the cost of contraception and related family planning resources. Indeed, the high out-of-pocket cost for these services often means contraception is inaccessible to individuals with limited incomes. Evaluations of the effects of federal Title X funding, Medicaid expansions, and demonstration projects that provided low- or no-cost long-acting reversible contraception (LARC) methods find these efforts result in greater use of effective contraception [6–11]. However, initiatives promoting the use of LARCs among low income, postpartum women have raised questions about threats to reproductive autonomy [12,13]. Some women may feel pressured by health care providers to use a specific contraceptive method, particularly postpartum, including LARC and tubal ligation, and report decreased feelings of autonomy [14,15]. Dissatisfaction among low-income or lower-SES women with respect to their reproductive autonomy, and particularly regarding access to desired contraceptive methods, is high [14,16,17]. Changes to the Title X program rules in 2019 that substantially curtailed the availability of family planning services for low-income individuals made access to family planning even harder in some communities [18,19].

Parents with low incomes face additional daily challenges that can interfere with accessing low-cost or free family planning or contraception even when it is available. Many women with low income are not only cash-constrained but also do not have savings or access to low-cost sources of credit; this results in difficult choices such as cutting back on essential expenditures including health care [20,21]. Poverty-related demands on cognitive resources that direct attention to some immediate problems at the expense of others can interrupt the attendance of postpartum care appointments or securing and adhering to necessary prescriptions [22]. Transportation is a frequently cited barrier because reproductive health providers who are affordable may not be located in their community [2]. Moreover, women, especially those with low incomes, may also face challenges related to their emotional health, such as higher rates of untreated postpartum depression compared to more affluent women, which can be associated with higher rates of contraceptive nonuse, misuse, and discontinuation [23–25].

Interest in the potential of cash transfers as an effective poverty reduction strategy within the United States has increased in recent years, with over 80 current studies in progress as of November 2022 [26]. Despite this increase, studies in the United States have thus far left unexamined questions of how cash transfers could support the use of preferred contraceptive methods and overall reproductive autonomy.[2] The Baby's First Years (BFY) study is one of the first to examine these important questions within the United States.

BFY is a large-scale randomized controlled trial of the provision of a monthly unconditional cash transfer; 1000 mothers with low income in the United States enrolled within several days of giving birth. Leveraging unique data from this landmark project, this study aims to examine whether regular and reliable monthly unconditional cash impacts low-income women's reproductive autonomy, as measured through their contraceptive use and satisfaction. In doing so, we seek to broaden the conversation about reproductive health for low-income women beyond the role of cost reductions of contraception in improving women's reproductive autonomy and health. We expect that receiving the cash transfer would increase the likelihood that mothers report using their preferred method of contraception and decrease reported barriers to the use of preferred methods, particularly barriers related to cost or access to health care providers.

2. Material and methods

2.1. Baby's First Years study

BFY is a randomized controlled trial testing the impact of the provision of a regular, reliable, unconditional monthly cash gift amount to low-income mothers. The study was approved by the Institutional Review Board of Teachers College, Columbia University. Preregistration information for the larger study is available at clinicaltrials.gov, ID: NCT03593356; the analysis presented here was not preregistered. Between May 2018 and June 2019, the study enrolled 1000 low-income mothers from hospitals across four geographically diverse metropolitan areas in the United States; mothers were recruited at the time of a focal child's

[2] There are some studies from low- and middle-income countries examining whether cash transfers affect contraception use with mixed results [27,28].

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Table 3
Summary of Ordinary Least Squares (OLS) regression estimates of the impact of the Baby's First Years high-cash gift on contraceptive use, full sample (2020–2021)

	Low-cash gift group mean (%)	High-cash gift group mean (%)	Ordinary Least Squares (OLS) regression estimates	Effect size	p-value	N
Discussed family planning with health care provider (past 12 mo)	44.2	46.8	0.047 [−0.020 to 0.114]	0.09	0.18	917
Used any type of contraception regularly	64.6	67.00	0.032 [−0.035 to 0.099]	0.07	0.34	847
Does not report using any contraception	30.6	29.1	−0.028 [−0.093 to 0.037]	−0.06	0.40	844
Used multiple contraceptive methods	25.8	28.6	0.047 [−0.016 to 0.110]	0.11	0.14	844
Number of contraceptive methods reported	0.984	1.074	0.124[a] [−0.005 to 0.253]	0.14	0.06	844
Longer-acting methods						
IUD/implants	24.1	25.6	0.026 [−0.037 to 0.089]	0.06	0.40	841
Tubal ligation	11.0	12.6	0.008 [−0.035 to 0.051]	0.03	0.70	841
Shorter-acting methods used in the last 3 mo						
Shorter-acting contraceptive methods, including condoms	65.1	71.6	0.079[a] [−0.003 to 0.161]	0.17	0.06	557
Ever used condoms and/or withdrawal	56.3	59.5	0.048 [−0.038 to 0.134]	0.10	0.28	557
Consistently used condoms and/or withdrawal	45.8	48.2	0.038 [−0.048 to 0.124]	0.08	0.38	557
Pills, patches, ring	24.5	33.3	0.089[b] [0.009 to 0.169]	0.21	0.03	557
Natural family planning	16.0	21.4	0.064[a] [−0.007 to 0.135]	0.17	0.07	557
Emergency contraception	6.2	5.4	0.000 [−0.043 to 0.043]	0.00	0.99	557
Any sexual partners had a vasectomy	2.1	1.4	−0.016 [−0.041 to 0.009]	−0.11	0.20	557

Sample size for the third panel, short- and single-use methods, reflects the sample of mothers who are not pregnant and who reported having penis-in-vagina sex in the last 3 months. Mothers were enrolled from four sites across the United States at the time of the birth of the focal child: Minnesota, Nebraska, Louisiana, and New York but may have been living outside of these areas at the time of the follow-up surveys.
95% confidence intervals in brackets: $^{**}p < 0.01$.
Estimates from the ordinary least-squares regression can be interpreted as percentage point differences between groups. These estimates, the effect sizes (column 5) that measure standardized differences between groups, and the *p*-value (column 6) are taken from an ordinary least-squares model that includes baseline covariates and study site fixed effects. Covariates from the baseline survey: mother's age, completed schooling, household income, net worth, general health, mental health, race and ethnicity, marital status, number of adults in the household, number of other children born to the mother, smoked during pregnancy, drank alcohol during pregnancy, father living with the mother, child's sex, birth weight, gestational age at birth. Other covariates: child age at interview (in months).
[a] $p < 0.10$.
[b] $p < 0.05$.

birth. Women were randomized to receive a monthly cash transfer of either $333/mo (approximately $4000 annually) (referred to as the "high-cash gift" or "cash treatment") or a nominal $20/mo (referred to as the "low-cash gift") for the first several years of their children's lives. Initially, the cash gifts were set to expire when the children reached 40 months of age; this was subsequently extended twice: first to 52 months and then to 76 months of age. As of this writing, the oldest children in the sample are approximately 60 months of age. Around each of the focal child's first three birthdays, field research staff invited mothers to participate in a survey. (See Supplementary Fig. 1 for baseline balance and consort diagrams.) Implementation of the cash gifts was successful. Mothers' use of the cash gift was nearly universal [29]. See Noble et al. [30] for the full discussion of the study design.

2.2. Data

During the age-2 survey, interviewers asked all mothers who were not currently pregnant (843 of the 922 who completed the survey) a detailed set of questions about their reproductive health. Questions included whether they had spoken to a provider about family planning in the last 12 months, whether they had an intrauterine device (IUD) or implant, and whether they had had tubal ligation surgery. Mothers who reported that they had engaged in sex, defined as penis-in-vagina intercourse, in the last 3 months ($n = 546$) were asked additional questions about their use of shorter-acting methods of contraception. Specifically, interviewers asked mothers whether they had used: "single-use" methods "such as withdrawal or pulling out, condoms, or diaphragms" (all of the time, most of the time, some of the time, or never); "short-term hormonal methods, like injections (such as Depo-Provera), birth control pills, birth control patch (such as Ortho Evra), or Nuva Ring"; "fertility awareness methods or natural family planning"; and emergency contraceptives (see Table 1). Mothers who did not report using any contraception were asked whether they wanted to be using birth control, and mothers who were contracepting were asked whether they were currently using the type of contraception they would most like to use. Those who reported that they were not were further asked "the biggest reason" they were not using this preferred method, including cost barriers, provider-related barriers, or side effect health or safety concerns. Interviewers asked mothers about use and preferences but did not ask about where they obtained contraception or what contraceptive options they felt were available.

2.3. Measures

Our primary outcome of interest was whether mothers were using their preferred method of contraception (see Table 4). We included an indicator for this for the subsample of mothers who report contracepting as well as one for the sample that was not using contraception. To further assess the role of the cash transfer in boosting mothers' autonomy in contraceptive use, we also included measures of mothers' reported barriers to using their preferred method. We included dichotomous measures of reported barriers for mothers who were not using their preferred method and also constructed measures for the full sample (mothers who were using their reported method have a value of 0 in the full sample measures).

In addition, we used measures of overall contraceptive use to provide context for our findings. We investigated whether the cash transfer affected the type of contraception used to further understand how the provision of cash impacts the type of contraception mothers may use.

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Table 4
Summary of Ordinary Least Squares (OLS) regression estimates of the impact of the Baby's First Years high-cash gift on contraception satisfaction and barriers (2020–2021)

	Low-cash gift group mean (%)	High-cash gift group mean (%)	Ordinary Least Squares (OLS) regression estimates	Effect size	p-value	N
Would like to be using contraception and is not	27.4	34.7	0.046 [−0.085 to 0.177]	0.10	0.50	244
Would like to be using contraception	8.1	9.8	0.006 [−0.037 to 0.049]	0.02	0.77	833
Using preferred choice of contraception	75.2	76.0	−0.001 [−0.075 to 0.073]	−0.00	0.98	589
Using preferred method, including no method	74.4	73.0	−0.010 [−0.075 to 0.055]	−0.02	0.76	833
Reported barriers to using preferred contraceptive method						
Cost	1.3	11.3	0.005 [−0.009 to 0.019]	0.05	0.46	921
Health care provider-related	1.8	0.8	−0.009 [−0.025 to 0.007]	−0.07	0.27	921
Safety concerns	4.8	7.7	0.023 [−0.010 to 0.056]	0.11	0.19	921
Other problems	1.7	1.3	−0.003 [−0.019 to 0.013]	−0.03	0.69	921
Not trying to prevent pregnancy	5.3	3.4	−0.019 [−0.046 to 0.008]	−0.08	0.16	921
Cost or health care (combined)	3.1	2.1	−0.004 [−0.026 to 0.018]	−0.02	0.73	921

The first panel measures whether participants are using their preferred method of contraception using different samples. The sample for the first item is limited to participants who are not currently using contraception ($N = 244$); the second item is the same measure, including all nonpregnant age-2 sample members. The third item includes participants who report currently using contraception of any type ($N = 589$), and the sample size for the following item includes all nonpregnant age-2 sample measures ($N = 833$).
Mothers were enrolled from four sites across the United States at the time of the birth of the focal child: Minnesota, Nebraska, Louisiana, and New York but may have been living outside of these areas at the time of the follow-up surveys. 95% confidence intervals in brackets.Estimates from the ordinary least-squares regression can be interpreted as percentage point differences between groups. These estimates, the effect sizes (column 5) that measure standardized differences between groups, and the *p*-value (column 6) are taken from an ordinary least-squares model that includes baseline covariates and study site-fixed effects. Covariates from baseline survey: mother's age, completed schooling, household income, net worth, general health, mental health, race and ethnicity, marital status, number of adults in the household, number of other children born to the mother, smoked during pregnancy, drank alcohol during pregnancy, father living with the mother, child's sex, birth weight, gestational age at birth. Other covariates: child age at interview (in months)

Our measures were not mutually exclusive; a participant could report using more than one method. We included an indicator for mothers who reported using multiple methods and a continuous measure of the number of methods reported.

2.4. Sample

The mothers in our sample (i.e., those who completed the age-2 survey, $n = 922$) identified from diverse racial and ethnic backgrounds: 42% identified as Black, 41% identified as Hispanic, and 10% identified as White. On average, women had 12 years of education and a household income of $22,000 at the time of enrollment into the survey.

2.5. Analysis

We used an intent-to-treat approach, using linear regressions. The outcomes are predicted by an indicator of whether the respondent was in the high-cash gift group as well as measures of demographic and health outcomes measured by survey at the time of enrollment. The covariates are preregistered and intended to improve the precision of our estimates and adjust for any differences that may exist at baseline between groups, despite the random assignment, or may result from survey attrition. Balance on baseline covariates was achieved, and, as noted in Supplementary Table 1, remained balanced for our age-2 sample (i.e., this study sample), suggesting little attrition based on observable characteristics. Regression models also included site fixed effects to account for randomization within study site as well as unmeasured differences by site. Results from multinomial or logistic regression models (not shown) did not substantively differ from the linear regression results presented below. We present our estimates as percentage point differences between groups, as estimated by a linear probability model.

3. Results

At the time of the age-2 survey, approximately 10% of mothers were pregnant or trying to become pregnant; analyses indicated no significant differences by treatment status for this measure at the time of the age-2 interview, assuaging concerns of selection into this study sample. Over 65% of mothers reported having sex in the past 3 months and about 60% of mothers were in a relationship at the time of the age-2 interview. Almost half of mothers reported talking with their health care provider about family planning or contraception in the last 12 months.

Most mothers reported using some type of contraception (65%). As indicated in Figure 1,14% percent reported use of an IUD or implant, and 8% reported use of tubal ligation. Among those mothers who reported having sex in the last 3 months, just 7% reported not using any type of contraception; 20% reported using short-term or single-use contraception, either alone or in combination. In addition, 22% of mothers reported using multiple methods of contraception, combining either long-term contraception (such as IUDs) and short-term or single-use methods, or natural family planning and short-term or single-use methods. Considering only mothers who reported having sex, 88% reported some contraceptive use.

3.1. What are the impacts of the cash transfer on reported contraceptive use?

Overall, receiving the high-cash gift did not increase the likelihood that mothers reported using contraception (Table 3). However, receiving the high-cash gift was associated with an 8.9% point increase in the probability of using short-term hormonal contraception use (e.g., pills, patches, and rings) ($p < 0.03$). In addition, although not significant at conventional levels, for those in the high-cash group, there is a trend toward a higher number of methods used ($p < 0.06$), a 6.4% point increase in the use of natural family planning ($p < 0.07$), and a 7.9% point increase in the probability of using short-term or single-use methods ($p < 0.06$). The cash transfer did not affect the use of other types of contraception.

3.2. What are the impacts of the cash transfer on satisfaction with and barriers to contraceptive use?

As shown in Table 4, nearly three out of four mothers (74%) reported using their preferred method of contraception, regardless of

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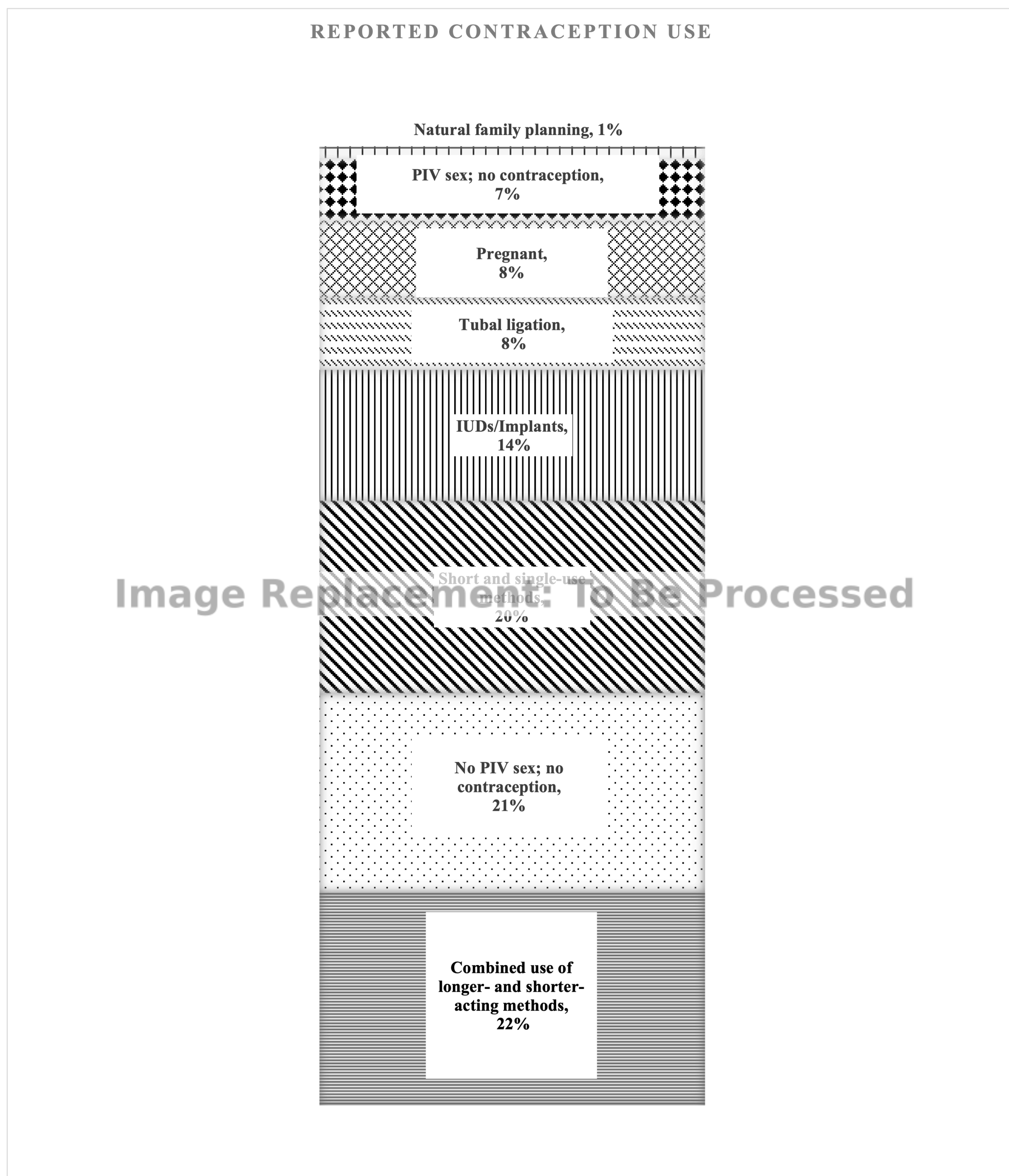

Fig. 1. Contraception use—full sample of Baby's First Years mothers who completed the age-2 survey (2020–2021). Figure displays the percentage of the full sample by their contraception use status. We combine short and single-use methods here. See Table 2 for a full break-out of these methods. PIV, penis-in-vagina.

the receipt of the cash transfer. Of the mothers who were not currently using contraception (some of whom reported no contraceptive use because they had not had sex in the last 3 months), a slightly higher proportion in the high-cash gift group reported that they would like to be contracepting (35% vs 27%), though this difference is not significant when we control for baseline covariates. Receiving the high-cash gift was not associated with any of the reported barriers to using preferred methods, including provider-related barriers, cost-related barriers, and barriers related to safety concerns.

Participants were also able to select "other" as an option for barriers to using preferred contraceptive methods and provide open-ended descriptions. These responses indicate some participants had difficulties obtaining their preferred method of contraception due to limited access to a health care provider during the pandemic, resulting in difficulty refilling prescriptions or a reduced supply of some short-term methods of contraception. Nevertheless, less than 3% of our sample reported health care access or cost as a barrier to accessing the contraception of their choice.

4. Discussion

We find little evidence that 2 years of a modest but reliable, unconditional cash transfer to low-income mothers with young children resulted in major changes to their contraception methods or satisfaction. Results suggest higher use of some specific types of contraception in the high-cash gift group, including increased natural family planning, increased likelihood of reporting short-term hormonal contraception use, and increased likelihood of reporting a combination of contraception methods. Most of these estimates, with the exception of short-term hormonal contraception, are at the margin of significance.

We find no impact of the cash gift on mothers' reported satisfaction with their current contraception method or on reported barriers to ac-

cessing preferred methods. That we do not find high-cash and low-cash mothers reporting cost or access to health care as barriers at differential rates, despite the provision of additional cash to the high-cash gift group, may be indicative that barriers to satisfaction with contraception methods may extend beyond an additional modest amount of cash support.

This study provides important new descriptive information about contraceptive autonomy for a substantively important sample of low-income mothers with young children. Recent studies with women with similar sociodemographic profiles have found constrained access to family planning health care and high levels of dissatisfaction with their current contraceptive method [1,3]. Yet, we find high levels of contraceptive use and, importantly, the use of preferred methods. Almost three-quarters of mothers (74%) reported use of their preferred contraception method, including those using no method. Two-thirds of the mothers reported using regular contraception, and a majority of the remaining third reported not being currently sexually active. Following recent work noting increasing use of multiple methods [31,32], we find that nearly one-quarter of mothers in this sample report using multiple contraception methods.

Data collection for the measures used here occurred during the COVID-19 pandemic. Previous work indicates that women with low incomes and Hispanic and Non-Hispanic Black women had limited access to health care providers and contraception during this time [33]. Approximately 5% of the mothers in this study reported not using their contraceptive method of choice due to a pandemic-related reason (e.g., delayed health care appointments including insertions of IUDs or inability to refill birth control prescriptions). A larger proportion of mothers may have had access to their preferred contraception methods in the absence of a global health emergency.

Data collection occurred during a period in which access to Title X services was severely curtailed [19]. In November 2021, funding and services were restored. This context is important in considering how these study findings may generalize to a time in which more funding available for clinics in low-income communities.

The mothers in this study all had low income, and all were enrolled from Medicaid expansion states. Indeed, approximately 70% reported receiving Medicaid. Given the association between Medicaid expansion and increased use of contraceptives, our findings—both the lack of impact of a cash transfer and increased use and satisfaction compared to previous studies of women with low incomes—may reflect the increased access to contraception for all participants via the ACA [6,34].

We are limited in understanding the full picture of reproductive autonomy as measured through contraceptive use because we lack information about where participants received contraceptives and the extent to which participants were informed about all contraceptive choices. In addition, our study is limited by the sample size, which hinders our ability to detect small impacts of the BFY cash gift. Specifically, we have the power to detect differences of 0.11–0.12, which corresponds to effect sizes of 0.14 for using preferred methods to 0.18 to types of contraceptive use. Therefore, though some of our estimates are suggestive of possible differences, we are limited in our ability to detect statistical significance. Future research should include a comprehensive set of reproductive health measures in large-scale data collection efforts.

In summary, the findings from this study suggest that a modest monthly unconditional cash transfer alone is not sufficient to boost reproductive autonomy through contraceptive autonomy. The cash transfer had no statistically significant impact on mothers reporting the use of their preferred method. Further, though we find a relatively high proportion of our sample reports using their preferred contraceptive method, 25% of mothers were *not* using the method of their choice, despite the provision of cash. Exploration of other factors that influence reproductive autonomy broadly and support the use of preferred contraceptive methods is warranted in furthering contraceptive use and satisfaction, particularly among women with limited incomes. Figure 1.

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[34].

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Appendix A. Supplementary material

Supplementary material associated with this article can be found in the online version at doi:10.1016/j.contraception.2023.110297.

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