



Original research article

## Racial and ethnic differences in patterns of long-acting reversible contraceptive use in the United States, 2011–2015

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### ABSTRACT

**Objective:** To investigate whether demographic, socioeconomic, and reproductive health characteristics affect long-acting reversible contraceptive (LARC) use differently by race-ethnicity. Results may inform the dialogue on racial pressure and bias in LARC promotion.

**Study design:** Data derived from the 2011–2013 and 2013–2015 National Surveys of Family Growth (NSFG). Our study sample included 9321 women aged 15–44. Logistic regression analyses predicted current LARC use (yes vs. no). We tested interaction terms between race-ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic) and covariates (for example, education, parity, poverty level) to explore whether their effects on LARC use vary by race-ethnicity.

**Results:** In the race-interactions model, data did *not* show that low income and education predict LARC use more strongly among Black and Hispanic women than among White women. There was just one statistically significant race-interaction: experience of unintended pregnancy ( $p=.014$ ). Among Whites and Hispanics, women who reported ever experiencing an unintended pregnancy had a higher predicted probability of LARC use than those who did not. On the other hand, among Black women, the experience of unintended pregnancy was not associated with a higher predicted probability of LARC use.

**Conclusions:** With the exception of the experience of unintended pregnancy, findings from this large, nationally representative sample of women suggest similar patterns in LARC use by race-ethnicity.

**Implications:** Results from this analysis of NSFG data do not provide evidence that observed differences in LARC use by race-ethnicity represent socioeconomic disparities, and may assuage some concerns about reproductive coercion among women of color. Nevertheless, it is absolutely critical that providers use patient-centered approaches for contraceptive counseling that promote women's autonomy in their reproductive health care decision-making.

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### 1. Introduction

Although the unintended pregnancy rate in the United States has fallen markedly in the last several years, racial and ethnic disparities persist [1]. Black and Hispanic women are about twice as likely as White women to experience an unintended pregnancy each year: 79 and 58, respectively, vs. 33 per 1000 women of reproductive age [1]. For many women who wish to delay or prevent pregnancy, long-acting reversible contraceptives (LARC) are an attractive option. LARC devices – the intrauterine device [IUD] and hormonal subdermal implant – are the most effective non-permanent methods on the market

today [2]. They are safe for nearly all patients and are cost-effective if in place for at least 1–2 years [3,4]. Importantly, women tend to think highly of them: both devices exhibit high satisfaction and continuation rates [5]. LARC devices have surged in popularity in the last several years [6]. In 2008, only 6.5% of contraceptive users used a LARC device, compared to 15% in 2014 [6].

Recent rates of LARC use are similar by race: among current contraceptive users, 18% of Hispanic women, 13% of White women, and 15% of Black women reported using LARC [6]. While women of color may be statistically as likely to use LARC as White women [6], advocates of reproductive justice remain deservedly vigilant about preventing LARC-related coercion among poor women of color [7,8], given the complex and often coercive U.S. history of contraception and sterilization for these women [9,10]. Indeed, a recent analysis of young women ages 18–19 showed that although White contraceptive users

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spent more time than Black women using some of the more effective methods (oral contraceptive pill, transdermal patch, and vaginal ring), Black women spent more time than White women using LARC [11]. This pattern may indicate a unique racial profile for LARC use. Qualitative research suggests that compared to White women, women of color may perceive more provider pressure to use LARC [12]. Further, a randomized controlled trial found that providers were more likely to recommend IUDs to poor African American women than to poor White women [13].

Given these concerns about inappropriate LARC promotion among women of color, our first and primary study aim was to use a nationally representative dataset to investigate whether measured demographic, socioeconomic, and reproductive health characteristics affect LARC use differently by race and ethnicity. In contrast to the prior literature, which tends to treat race as a control variable, in the present study we use race-interaction terms to explore whether individual characteristics affect LARC use differently by race and ethnicity. Such an approach could identify important intersectional effects and inform our understanding of observed racial-ethnic differences in LARC use. For example, if the association between socioeconomic factors and LARC use differs by race, it may indicate that observed racial differences in LARC use are associated with structural inequities (i.e., disparities). On the other hand, race-interactions between reproductive health factors and LARC use may suggest differences in patient needs and preferences (i.e., differences).

## 2. Materials and methods

### 2.1. Data source

We pooled the 2011–2013 and 2013–2015 waves of the NSFG, and used this combined dataset covering 2011–2015 in our analyses. The NSFG collects data on an extensive array of topics related to sexual and reproductive health and employs multi-stage probability-based sampling to achieve a nationally representative sample of the U.S. household population between the ages of 15 and 44 [14]. The University of Wisconsin–Madison's Institutional Review Board includes NSFG as a publicly available de-identified dataset that is exempt from review.

### 2.2. Study population

The study population included non-Hispanic White, non-Hispanic Black, and Hispanic women of reproductive age (15–45). We excluded women of other races and those who were multiracial ( $n=1081$ ) due to small sample sizes for the specific groups. We excluded women who were currently pregnant ( $n=446$ ) or trying to conceive ( $n=452$ ), as these women would not be potential current contraceptive users. We did not exclude women based on lack of sexual activity because IUDs and implants are long-acting and used continuously; thus, women may use these methods even if they are not currently sexually active. The final analytic sample included 9321 women (4655 White, 2070 Black, and 2596 Hispanic).<sup>1</sup>

### 2.3. Study variables

The outcome variable was current LARC use (yes vs. no). Given the small number of implant users ( $n=140$ ), we combined IUD and implant users into one LARC category. Our primary covariate was race-ethnicity (non-Hispanic White, non-Hispanic Black, or Hispanic). Covariates were similar to those used in prior literature on patterns in use of LARC and other contraceptives, including work focused on racial and ethnic

differences [11,15–18]. These covariates included demographic characteristics (age, religion, and marital status), socioeconomic characteristics (poverty level, education, and current health insurance) and reproductive health characteristics (parity, intent for [future] children, number of partners in the past year, and experience of unintended pregnancy (mistimed or unwanted)). We also adjusted for 2011–2013 vs. 2013–2015 wave of the NSFG.

### 2.4. Statistical analysis

First, chi-squared tests assessed differences in the distribution of demographic, socioeconomic, and reproductive health characteristics by race and LARC use. Then unadjusted logistic regression analyses predicted current LARC use with each covariate individually. Covariates were then entered into an adjusted logistic regression model predicting current LARC use. We entered covariates in three blocks: Model 1 included demographic characteristics, Model 2 added socioeconomic characteristics, and Model 3 added reproductive health characteristics.

We then moved to modeling LARC use with race-interaction terms. We chose to examine interaction effects – when the effect of one variable on the outcome varies by level of another variable – because they allow us to examine whether variables have different effects on LARC use by race. In moving to the race-interaction terms model, we collapsed levels of a few variables – age, religion, and number of partners in the past year – to accommodate small cell sizes ( $n<15$ ). We entered all variables into the adjusted model as both main effects and race-interaction terms. To ensure that any significant interaction terms were robust, we ran the model twice; first removing race-interaction terms with  $p$ -values less than .1, and then again removing those less than .05. Using this final iteration of the race-interaction model, we then calculated predicted probabilities of current LARC use, estimated at the mean values of the covariates for each racial/ethnic group. This type of estimation facilitates interpretation of findings as the likelihood that the “average” White, Black, or Hispanic woman will be using LARC.

To adjust for the complex sampling framework of the NSFG, all analyses used the “svy” commands in Stata SE software (version 15.0, StataCorp, College Station, TX). We also used the “subpop” option for subgroup analyses. All estimates we report are weighted to reflect the household population of women aged 15–44 in the U.S. [14].

## 3. Results

### 3.1. Sample characteristics

LARC use differed significantly by race and ethnicity: 9% of White women, 11% of Hispanic women, and 7% of Black women reported currently using LARC ( $p=.03$ ). Table 1 presents descriptive statistics of LARC users. Overall, LARC users were more likely than non-LARC users to be older, married or cohabiting, and parous; to not intend (future) children; and to have experienced an unintended pregnancy (all  $p<.01$ ). Among LARC users, White women had higher income and education than Black and Hispanic women and were also more likely to be married and privately insured (all  $p<.0001$ ). Black LARC users – and Hispanic users, to a lesser extent – tended to be younger than White users ( $p=.0002$ ).

### 3.2. Logistic regression models

Table A.1 shows unadjusted odds and adjusted odds (Models 1–3) from logistic regression models predicting current LARC use. Adjusted odds were substantively similar to unadjusted odds. In the final model, the associations between measured demographic, socioeconomic, and reproductive health factors largely did not differ by race and ethnicity (see Table 2). There was just one statistically significant race-interaction term: experience of unintended pregnancy ( $p=.014$ ). To

<sup>1</sup> We also ran our analyses using the subsample of women who are current contraceptive users ( $n=6438$ ) and found similar results, but we report on results using the full sample because we were interested in LARC use among the broader population of women of reproductive age.

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