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Racial and Sexual Minority Women's Receipt of Medical Assistance to Become Pregnant

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Objective: This study aimed to determine rates at which racial minority (i.e., non-White) and sexual minority (i.e., lesbian and bisexual-identified) women in the United States receive medical help to become pregnant. Income and insurance coverage discrepancies were hypothesized to mediate differences in receipt of medical help as a function of race and sexual orientation. ***Method:*** Two studies compared rates at which adult women ages 21–44 reported receiving medical help to become pregnant as a function of race and sexual orientation, using data from 2 cycles of the National Survey of Family Growth (the 2002 wave in Study 1, and the 2006–2010 wave in Study 2). Mediation analyses controlling for age and education level evaluated whether race and sexual orientation were positively associated with receipt of medical pregnancy help, as mediated by insurance coverage and income. ***Results:*** Heterosexual White women reported receiving medical fertility assistance at nearly double the rates of women who identified as non-White, sexual minority, or both. Differences in rates of help received by White and non-White groups were only partially mediated by insurance coverage and income in both studies. Insurance and income discrepancies accounted for all differences between sexual minority and heterosexual women's receipt of pregnancy help in Study 1; insurance coverage alone explained differences in Study 2. ***Conclusions:*** Researchers often indicate that economic differences are responsible for health disparities between minority and majority groups, but this may not be the case for all women pursuing medical fertility assistance. Possible origins of these disparities are discussed.

Keywords: sexual minorities, racial minorities, reproduction, fertility, assisted reproductive technology

For many people, becoming a parent is a highly desired and anticipated life goal. More than 90% of adult women in the United States either have or report intending to have children (Chandra, Martinez, Mosher, Abma, & Jones, 2005). In 2002, more than 7 million women reported ever having used infertility services (Chandra & Stephen, 2010), and data from the U.S. Assisted Reproductive Technologies (ART) Surveillance System showed a 92% increase in procedures between 2000 and 2008 (Vahratian, 2008). Despite this increase in documented ART procedures, there is evidence that the percentage of women who have ever used fertility services has been on the decline (Vahratian, 2008). Infertility rates (defined by a year of unprotected intercourse not resulting in conception), however, have remained largely consistent over time (Bitler & Schmidt, 2006). Who are the women receiving this growing number of fertility services and, perhaps more critically, who are those not receiving medical help to become pregnant?

Research on health disparities in the United States has exposed important differences in access to and use of health care across minority groups (Institute of Medicine, 2006, 2011). Investigations of reproductive disparities have focused especially on differences between White and racial minority individuals. Pooled data from the 1982–2002 United States National Surveys of Family Growth (NSFG) found rates of infertility to be nearly 3 times higher among Black women (at 20%) and Hispanic women (18%) than White women (7%; Bitler & Schmidt, 2006). Despite these differences, 16% of White women reported receiving medical aid to become pregnant compared with fewer than 12% of Black and Hispanic women (Bitler & Schmidt, 2006).

Reasons for overrepresentation of White women in the use of medical fertility assistance despite their underrepresentation among women experiencing infertility issues are not yet clear. Some investigations reported that differences in age, marital status, and socioeconomic factors explained discrepancies in receiving fertility help (Chandra & Stephen, 2010; Staniec & Webb, 2007). Other work indicated that enabling conditions such as high levels of social support were more predictive than socioeconomic differences (Bitler & Schmidt, 2006). Socioeconomic status is clearly associated with receiving fertility assistance, but the magnitude of its influence in predicting women's use of medical fertility services is uncertain.

Evidence for disparities in reproductive assistance has given rise to the concept of "stratified reproduction," a framework recognizing the political, social, and economic structures that benefit

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some—particularly White women—and disadvantage others who want to have children (Colen, 1986, as cited in Greil, McQuillan, Shreffler, Johnson, & Slauson-Blevins, 2011). Discourse pathologizing underprivileged women's family planning choices has historically been embedded in harmful ideologies of gender, race, and class (McCormack, 2005). Stratified reproductive frameworks can explain how such ideologies led to, for example, the racialized stereotype of "welfare mothers" in the late 1990s, a concept denigrating the lifestyles of poor Black and Hispanic women and perpetuating the "deservingness" of some women over others (Bell, 2009). Similarly, this explains why Medicaid (which serves low-income individuals) covers contraceptive but not infertility care (King & Meyer, 1997). Current policy debates surrounding rights of sexual minorities to marry and adopt children suggest that "deservingness" of parenthood for nonheterosexuals is contentious; sexuality may interact with gender, race, and class, contributing to reproductive care disparities. Furthermore, it is unclear whether shifting social climates may contribute to changing trends in fertility service use over time.

Whereas research on disparities as a function of racial group has received substantial attention, the topic of fertility among sexual minority women has been discussed less often. Historically, sexual minority individuals have faced barriers consistent with stratified reproduction, such as social hostility and legal impediments to having children outside of traditional heterosexual marriages (Patterson, 2007). Recent changes in public policy have afforded many sexual minority individuals new options in forming families, including foster care, adoption, surrogacy, donor insemination, and/or in vitro fertilization (Golombok, 2002). The fertility industry is, however, unregulated in the United States (Arons, 2007), and clinics demonstrate considerable variability in providing access to care (Stern, Cramer, Garrod, & Green, 2001). Information regarding access to or use of ART by sexual minorities is limited; even if they do not experience infertility, many lesbian or bisexual women without ready access to sperm may still need reproductive help. More than 35% of lesbian-identified women in the United States report having given birth (Gates, 2007), but no investigation has determined the rates of ART use among these women.

Although the fertility industry provides opportunities for those who wish to pursue parenthood, discrimination against sexual minority individuals and same-sex couples may also exist. Discrimination based on origin (i.e., race/ethnicity) in health care is illegal (Civil Rights Act of 1964), but no federal law protects the health care rights of sexual minority individuals. The 2008 California Supreme Court case *Benitez v. North Coast Women's Care Medical Group* held that denial of fertility services to a lesbian woman on the grounds of her physician's religious beliefs was unconstitutional. However, this ruling does not guarantee access for sexual minority individuals to fertility services in other states. A 2001 (Stern et al.) survey of fertility centers across the United States found that fewer than 75% of clinics served sexual minorities. A study surveying sexual minority women served by Canadian fertility clinics confirmed that many women perceived physicians as unable to address their needs (Ross, Steele, & Epstein, 2006). On the other hand, policy statements from major medical organizations consistently affirm rights of sexual minority individuals, including their pursuit of biological parenthood, in statements akin to those that uphold health-related rights of racial minority individuals. The American Medical Association's bylaws include a policy "to oppose any discrimination based on an individual's sex, sexual orientation, gender identity, race [. . .] and any other such reprehensible policies"—explicitly safeguarding racial and sexual minorities in all health care (American Medical Association, 2007). Likewise, the American Society for Reproductive Medicine states that requests for assisted reproduction should be treated equally, regardless of marital status or sexual orientation (Ethics Committee of the American Society for Reproductive Medicine, 2009). Despite these policies, it is unclear to what degree sexual minority women seek reproductive help and to what degree practitioners serve them.

Race and sexual orientation represent different dimensions of identity, but individuals with either or both minority identities face some common disadvantages in health contexts. Compared with their majority counterparts, sexual minority and racial minority individuals report lower rates of insurance coverage, which are in turn associated with disparities in physical and mental health (Institute of Medicine, 2006, 2011). According to 2011 U.S. Census data, 17% of individuals of Asian origin, 20% of Black individuals, and 30% of individuals of Hispanic origin had no health insurance (DeNavas-Walt, Proctor, & Smith, 2012). These numbers contrast to the only 11% of uninsured White individuals (DeNavas-Walt et al., 2012). Similarly, in a study employing data from the nationally representative Behavioral Risk Factor Surveillance System, individuals in same-sex relationships were less likely than their peers in heterosexual relationships to have insurance coverage, and they reported more unmet medical needs (Buchmueller & Carpenter, 2010). As yet, there is no research on the reproductive health access of individuals with intersecting sexual and racial identities (i.e., non-White women who also identify as members of a sexual minority).

The current study overcomes limitations of previous work by using data from the NSFG, which present an opportunity to study sexual minority women within a large, nationally representative sample, as well as to replicate established findings among racial minority women. The central hypothesis was that sexual minority and/or non-White women would be less likely to report receiving medical help to become pregnant. Expectations were that minority women would report lower education levels and incomes and less insurance coverage and likelihood of being in legalized relationships compared with heterosexual White women. Consistent with an additive framework, it was also expected that women who endorsed two minority identities (i.e., both a sexual minority and non-White) would report the lowest rates of help receipt. Finally, it was predicted that (controlling for age, education, and marital status) income and health insurance would at least partially mediate any association between race or sexual orientation and the receipt of pregnancy help. Given that stratified reproduction reflects social climates surrounding procreation of socially and economically underprivileged people, it was considered important to investigate whether identity-based trends in health care might change over time. Expectations were that increased legal recognition of same-sex relationships in the United States might yield fewer sexual orientation-based disparities over time. Consistent with prior work, expectations were that race-related disparities would persist. All hypotheses were tested using NSFG data from 2002 (Study 1) and 2006–2010 (Study 2).

Study 1

Method

Participants and procedure. Study 1 used data from the 2002 (Cycle 6) NSFG. The 2002 NSFG included 12,571 individuals of child-bearing years, 15 to 44 years of age (7,463 females). Data were based on a nationally representative multistage area probability sample drawn from 121 strata across the United States. Survey weights, determined by oversampling reflecting the census-determined age, race, and ethnicity of residents in each stratum, were assigned to each participant. As the present studies included sexual orientation (not accounted for in the NSFG's original weighting procedure) as a subgrouping factor, weights were further trimmed to prevent inflated response rates associated with a small number of highly weighted individuals within subgroups. Any participant whose assigned weight estimate was more than 6 times its subgroup's median weight (as assigned and determined by the NSFG oversampling techniques) was excluded from analysis to prevent the skewing of results. All results include these trimmed weighted estimates, and therefore reflect a conservative balance between unweighted and weighted response rates. Reponses were collected through in-home, in-person interviews by trained female interviewers. For sensitive questions, participants used audio computer-assisted self-interviewing, ensuring participants' privacy. For more details about the overall 2002 NSFG sample and methodology, see Chandra and colleagues (2005).

Analyses for Study 1 were designed to compare adult sexual minority and heterosexual female, as well as adult racial minority and White/Caucasian subsamples of the 2002 NSFG data. For this reason, only data provided by women ages 21 and older were included here. Participants' sexual orientation was defined on two dimensions: self-reported identity and self-reported attraction. Women were included in the heterosexual subsample if they self-identified as heterosexual and also described only opposite-sex attractions. Women were included in the sexual minority subsample if they self-identified as lesbian or bisexual, and also identified attractions that were not exclusively to members of the opposite sex (i.e., varying degrees of same-gender or bigender preference). Participants who did not disclose sexual identity or described inconsistent patterns of attraction and identity (i.e., lesbian women who identified exclusively heterosexual attraction) were excluded. Women were included in the White group if they identified as White (71%) and, because of limited cell sizes once accounting for race and sexual orientation, were considered non-White if they identified as Black (22% of the total sample) or any other racial identity (7% of the total sample). The final weighted sample for Study 1 is representative of the population of 39,418,795 women. The heterosexual White population consisted of 25,109,072 (approximately 64% of the total sample) women; the heterosexual non-White population included 12,779,994 women (approximately 32%). The sexual minority White population consisted of 1,094,274 women (approximately 3% of the total population); and the sexual minority non-White population consisted of 435,454 women (approximately 1%). See Table 1 for a full factorial demographic breakdown.

Measures. Items of interest focused on demographic information as well as on the receipt of medical reproductive assistance. Demographic variables studied were age at time of interview (in

Table 1
Demographic Characteristics of Women as a Function of Race and Sexual Orientation, Study 1 (2002 National Survey of Family Growth; N = 39,418,794)

Variable	White heterosexual (n = 25,109,072)	Non-White heterosexual (n = 12,779,994)	White sexual minority (n = 1,094,274)	Non-White sexual minority (n = 435,454)	Race	Sexual orientation	Race × Sexual orientation
Mean age (years)	33.30	32.08	33.03	30.95	df = 1, 39418794**	df = 1, 39418794**	df = 1, 39418794**
Mean education (years)[a]	14.04	12.81	13.45	13.53	df = 1, 39418794**	df = 1, 39418794**	df = 1, 39418794**
Mean annual household income ($)	46,704	33,877	35,164	32,180	df = 1, 37138242**	df = 1, 37138242**	df = 1, 37138242**
Insurance coverage, %						χ^2 = 319.66**	
Private	78.5	54.5	64.9	58.3			
Public	9.9	21.7	12.8	19.6			
None	11.5	23.8	22.3	22.1			
Ever married, %	77.8	63.0	47.5	44.4		χ^2 = 188.18**	

[a] Twelve years is equivalent to completion of high school.
* $p < .05$. ** $p < .001$.

years), total years of education, annual household income (averaged across categories from <$5,000 to >$75,000), insurance coverage (no insurance, Medicare/Medicaid/other/military/public/government insurance, or private insurance), and formal marital status (never married, ever married). All participants were asked whether they had ever sought medical help to become pregnant, rephrased to be applicable to all women, reflecting whether they reported ever having zero, one, or more partners: "(During any of your relationships,) (have/did) you (or your husband/or your husband or partner at the time) ever been to a doctor or other medical care provider to talk about ways to help you become pregnant?" Participants who responded affirmatively were asked the types of help received: "Think about all of the medical help you or your partners have received to help you become pregnant. Which of the[se] services did you or your partner have to help you become pregnant?" along with a list of various possible services (advice/infertility testing/drugs to improve ovulation, surgery to correct blocked tubes, artificial insemination, other types of medical help). This item was presented as many times as participants received any such care. All participants were also asked, "(Not counting routine check-ups, prenatal care, or advice about a pregnancy,) have you ever been to a doctor or other medical care provider to talk about ways to help you prevent miscarriage or pregnancy loss?"

Analysis. Initial analyses were designed to compare demographic and socioeconomic characteristics of heterosexual White, heterosexual non-White, sexual minority White, and sexual minority non-White subsamples. Factorial analyses of variance compared the average age, annual household income, and total years of education for the heterosexual White, heterosexual non-White, sexual minority White, and sexual minority non-White groups, testing for interactions between race and sexual orientation. Chi-square tests compared all four groups of women's insurance coverage (none, Medicare/Medicaid/other military/public/government insurance, or private), marital status (0 = never married, 1 = ever married), whether or not women received pregnancy help or miscarriage prevention help (0 = no, 1 = yes), and the types of pregnancy help(s) they received. Finally, a mediation analysis tested the proposed models. Direct effects and indirect effects were calculated using the KHB method (Kohler, Karlson, & Holm, 2011). All variable coding remained the same for mediation analysis except for insurance (recoded: 0 = none/Medicare/Medicaid/other military, public, or government insurance, 1 = private insurance). Because the models were fully saturated, no fit indexes are reported. Approximately 5% of income responses were missing at random; values were estimated using full information maximum likelihood. No other values were missing. All analyses were run in Stata 13.

Results and Discussion

Our central question was whether there were differences in rates of receiving medical assistance to become pregnant as a function of racial or sexual minority group membership. As expected, heterosexual White women received the most fertility assistance; 13% reported ever having received medical help to become pregnant (see Figure 1). Sexual minority White women and heterosexual non-White women both received pregnancy assistance at the same rates, approximately 7%, and sexual minority non-White women reported receiving assistance about 1% of the time, $\chi^2 = 49.94$, $p < .001$. Sexual minority non-White women were also less likely to report receiving medical miscarriage prevention help (at a rate of 2%); approximately 5–7% of all other groups reported receiving medical miscarriage prevention assistance, $\chi^2 = 12.41$, $p < .01$ (see Figure 1).

No differences were observed as a function of race or sexual orientation in the type or number of fertility treatments received. For all women, advice was the most commonly received medical pregnancy assistance, with approximately 75% of all help-receiving women reporting having received it in Study 1. This was followed by infertility tests (50%), ovulation drugs (46%), artificial insemination (16%), tubal surgery (10%), and other (17%). Women who reported receiving any help reported receiving, on average, a total of two types of medical assistance to become pregnant ($M = 2.18$, $SD = 1.3$).

To provide proper socioeconomic context for our investigation of differences in pregnancy help between heterosexual White women and racial and/or sexual minority women, we compared

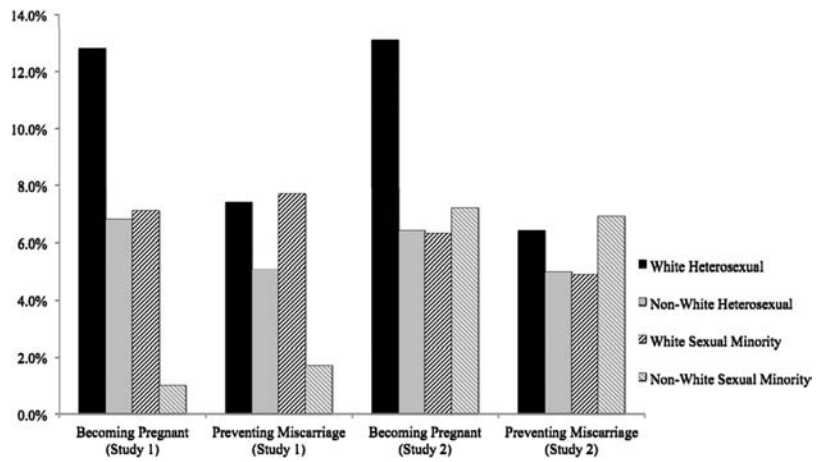

Figure 1. Percentage of women receiving types of medical help as a function of race and sexual orientation for Study 1 (2002 National Survey of Family Growth) and Study 2 (2006–2010 National Survey of Family Growth).

group-level outcomes of demographic variables that have been previously associated with receiving pregnancy help (see Table 1). Main effects and interaction effects of sexual orientation and race were significant for age, education, and income (see Table 1). As expected, significantly smaller proportions of sexual minority White women (65%), heterosexual non-White women (55%), and sexual minority non-White women (58%) reported having private health insurance coverage, as compared with heterosexual White women (79%) with private coverage, $\chi^2 = 312.66$, $p < .001$. All minority women were approximately equally likely to report no insurance coverage (22–24%), whereas half as many heterosexual White women (12%) reported not having health insurance $\chi^2 = 188.18$, $p < .001$. Finally, heterosexual White women were more likely to report ever being married (79%) compared with heterosexual non-White women (55%), sexual minority White women (65%), and sexual minority non-White women (58%), $\chi^2 = 319.66$, $p < .001$.

Age and marital status were correlated, $r = .42$, $p < .01$; there were also small but significant correlations between education and marital status, $r = -.01$, $p < .01$, and education and age, $r = .01$, $p < .01$. Marital status was thus not included in further analysis. Mediation assessed whether the association between racial group membership, sexual orientation, and the receipt of pregnancy help was mediated by insurance coverage and/or annual household income. As an independent predictor, race was inversely associated with the receipt of pregnancy help ($\beta = -.09$, $p < .001$), such that non-White women were less likely to receive medical help. Likewise, sexual orientation was also independently associated with the receipt of pregnancy help ($\beta = -.03$, $p < .05$). Together, controlling for their covariance (*ns*), race ($\beta = -.02$, $p < .001$) and sexual orientation ($\beta = -.04$, $p < .05$) both remained negatively associated with receipt of pregnancy help. In the final model, with income and insurance included as mediators, race ($\beta = -.04$, $p < .01$) but not sexual orientation remained negatively associated with pregnancy help receipt when controlling for age, years of education, and covariation among all factors (see Figure 2 for an illustration of the effects of the variables of interest). In this final model, race was inversely associated with income level ($\beta = -.15$, $p < .001$). Sexual orientation was also inversely associated with income level ($\beta = -.06$, $p < .05$). Income in turn was associated with receipt of pregnancy help ($\beta = .09$, $p < .001$). Race was also inversely associated with insurance coverage ($\beta = -.17$, $p < .001$), as was sexual orientation ($\beta = -.03$, $p = .05$). Insurance coverage was associated with receipt of help ($\beta = .05$, $p < .05$). Race explained 7% of the variance in whether or not women received help. Tests of direct and indirect effects demonstrated that when controlling for age and education, race decreased log odds of receiving medical help to becoming pregnant by -0.47 ($p < .001$), and sexual orientation reduced the log odds by $-.67$ ($p < .05$). Controlling for income and insurance coverage, the effect of race reduced to $-.32$ ($p < .01$) and sexual orientation reduced to $-.56$ (*ns*), leaving significant indirect effects of $-.11$ ($p < .001$) and $-.15$ ($p < .05$), respectively. For race, insurance coverage contributed to 43% of the indirect effect, and income contributed to 57%. For sexual orientation, insurance contributed to 30% of the indirect effect, and income contributed to 69%. In sum, results indicated that, when controlling for age and education, women's income and insurance coverage fully mediated the association between sexual orientation and help receipt, but only partially mediated the association for race and help.

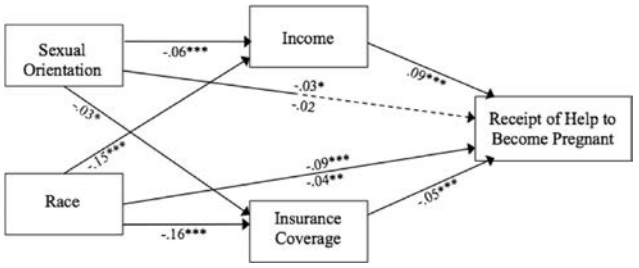

Figure 2. Race and sexual orientation predicting pregnancy help (variables of interest), Study 1 (2002 National Survey of Family Growth). Age, education, and covariances were controlled for but are not represented in the figure. Standardized coefficients appear above the line, and the independent effect of the path without controls or mediators appears below the line; dashed lines were tested but were not significant. Sexual orientation (heterosexual = 0, sexual minority = 1); race (White = 0, non-White = 1); insurance (none/public/other nonprivate = 0, private = 1); pregnancy help (no = 0, yes = 1); income (continuous). * $p < .05$. ** $p < .01$. *** $p < .001$.

Heterosexual White women were almost twice as likely as sexual and racial minority women to report receiving medical help to become pregnant. An additive effect of race and sexual orientation was observed across all measures, such that non-White sexual minority women were least likely to receive help. Women who identified as sexual minorities, racial minorities, or both reported lower incomes, lower rates of private insurance coverage, less education, and fewer legally recognized relationships than did heterosexual White women. Mediation analysis demonstrated that, when controlling for age and education, discrepancies in insurance and income fully mediated the association between sexual orientation and receipt of pregnancy help. Sexual minority women's lower incomes and lower likelihood of private insurance coverage accounted for their reduced likelihood of receiving fertility help. The same did not hold true for racial minority women. Even when controlling for demographic, insurance, and income differences, non-White women were less likely than White women to receive medical assistance to become pregnant.

Study 2

To assess whether fertility assistance trends have remained stable over time, a second study (Study 2) replicated Study 1, including hypotheses, using data from the 2006–2010 NSFG.

Method

The 2006–2010 NSFG included data from 22,682 individuals (12,279 females), aged 15 to 44 years. Data were based on a nationally representative multistage area probability sample drawn from 110 areas across the United States, using a continuous interview method over 4 years. All other methodology was identical to that described in Study 1. For more information on the 2006–2010 NSFG, see Groves, Mosher, Lepkowski, and Kirgis (2009). Selection criteria of participants for heterosexual and sexual minority subsamples were identical to those in Study 1. The total weighted

population represented 32,889,398 women (66% of the total sample White, 15% Black or African American, 11% Hispanic, or 8% other racial identity). These women were finally grouped as 20,587,768 heterosexual White women (approximately 63% of the total population), 10,174,826 heterosexual non-White women (approximately 31% of the total population), 1,677,214 sexual minority White women (approximately 5% of the population), and 449,590 sexual minority non-White women (approximately 1% of the total sample). See Table 2 for additional demographic details. Measures in Study 1 from the 2002 NSFG were identical to those employed in Study 2 from the 2006–2010 NSFG. All analyses from Study 1 were repeated.

Results and Discussion

As hypothesized, heterosexual White women reported receiving medical assistance more often than any of the minority groups, with 13% reporting that they had ever received fertility help, $\chi^2 = 92.56$, $p < .001$ (see Figure 1). This percentage was approximately double that of all remaining groups. Only 6% of heterosexual non-White women reported receiving reproductive assistance, as did 7% of White sexual minority women, and 7% of non-White sexual minority women.

Although heterosexual White women were twice as likely to receive medical help of any kind to become pregnant as their non-White heterosexual peers, they were equally likely to receive help maintaining a pregnancy by way of medical miscarriage prevention assistance (see Figure 1). Approximately 5% of all minority women and 6% of White heterosexual women received medical miscarriage prevention aid, with no effect for sexual orientation or race. Consistent with the results of Study 1, women who sought assistance in Study 2 sought, on average, approximately two types of medical assistance in becoming pregnant, regardless of sexual orientation or race. As in Study 1, the four groups of women did not differ in the types of treatments that they reported. For all women, advice (from a doctor) was the most commonly received medical assistance (75%). This was followed by infertility tests (61%), ovulation drugs (46%), artificial insemination (16%), tubal surgery (11%), and other (17%).

Nearly all demographic and socioeconomic differences and similarities between majority (heterosexual and White) women and minority (sexual minority and non-White) women that were found in Study 1 were replicated in Study 2 (see Table 2). Interaction effects between race and sexual orientation emerged as significant across all groups (see Table 2). As expected, heterosexual White women were the most likely to report having private insurance (at 72%), $\chi^2 = 471.64$, $p < .001$ (see Table 2). This was a 20% difference from the next most likely group to have private insurance, sexual minority White women (at 52%). Non-White heterosexual women followed with 48% reporting private coverage, and finally non-White sexual minority women, 47% of whom reported having private insurance. Although this group was the least likely to have private insurance, they were the most likely (30%) to possess Medicare, Medicaid, military, other public, or other government-based insurance. Of the White heterosexual women, 11% had public insurance, as compared with 23% of non-White heterosexuals and 24% of the White sexual minority women who had Medicaid or government insurance. White and non-White sexual minority women, on the other hand, were equally likely

Table 2
Demographic Characteristics of Women as a Function of Race and Sexual Orientation, Study 2 (2006–2010 National Survey of Family Growth; $N = 32{,}889{,}398$)

Variable	White heterosexual ($n = 20{,}587{,}768$)	Non-White heterosexual ($n = 10{,}174{,}826$)	White sexual minority ($n = 1{,}677{,}214$)	Non-White sexual minority ($n = 449{,}590$)	Race	Sexual orientation	Race × Sexual orientation
Mean age (years)	33.09	32.04	28.74	29.65	$df = 1$, 32889397**	$df = 1$, 32889397**	$df = 1$, 32889397**
Mean education (years)[a]	14.10	12.89	13.30	12.76	$df = 1$, 32889397**	$df = 1$, 32889397**	$df = 1$, 32889397**
Mean annual household income ($)	49,444	37,710	42,969	29,103	$df = 1$, 30831478**	$df = 1$, 30831478**	$df = 1$, 30831478**
Insurance coverage, %						$\chi^2 = 462.07$**	
Private	71.9	47.8	51.6	46.5			
Public	11.0	23.4	24.2	30.0			
None	17.1	28.8	24.2	23.5			
Ever married, %	73.5	56.2	50.8	27.8		$\chi^2 = 54.66$**	

[a] Twelve years is equivalent to completion of high school.
* $p < .05$. ** $p < .001$.

report no insurance coverage (at 24%), although non-White heterosexual women (29%) were most likely to be uninsured. Only 17% of White sexual minority women reported being uninsured. Finally, as expected, White heterosexual women were the most likely to have ever been married at 72%, $\chi^2 = 462.07$, $p < .001$ (see Table 2). Whereas 56% of non-White heterosexual women reported ever being married, followed by 51% of White sexual minority women; only 28% of non-White sexual minority women reported ever being married.

Age and marital status were highly correlated, $r = .43$, $p < .01$; there were also small but significant correlations between education and marital status, $r = .03$, $p < .01$, and education and age, $r = .01$, $p < .01$. Marital status was thus not included in further analysis. As an independent predictor, race was inversely associated with the receipt of pregnancy help ($\beta = -.09$, $p < .001$), such that non-White women were less likely to receive medical help to become pregnant. Likewise, sexual orientation independently was negatively associated with the receipt of pregnancy help, such that sexual minority women were less likely to report receiving medical help to become pregnant ($\beta = -.05$, $p < .01$). Together, when controlling for their covariance ($r = -.06$, $p < .001$), race ($\beta = -.10$, $p < .001$) and sexual orientation ($\beta = -.04$, $p < .01$) remained negatively associated with help receipt. In the final model, when income and insurance were included as mediators, race ($\beta = -.05$, $p < .001$) but not sexual orientation remained negatively associated with pregnancy help receipt when controlling for age, years of education, and covariation among all factors (see Figure 3 for an illustration of the variables of interest). In the final model, race but not sexual orientation was inversely associated with income ($\beta = -.15$, $p < .001$). Income in turn was associated receipt of pregnancy help ($\beta = .06$, $p < .01$). Sexual orientation was inversely associated with insurance coverage ($\beta = -.04$, $p < .05$), as was race ($\beta = -.13$, $p < .001$). Income was associated with help receipt ($\beta = .04$, $p < .01$). Tests of direct and indirect effects demonstrated that race decreased log odds of receiving medical help to becoming pregnant by $-.72$ ($p < .001$), and sexual orientation reduced the log odds by $-.52$ ($p < .05$). Controlling for income and insurance coverage, the effect of race reduced to $-.44$ (*ns*) and sexual orientation reduced to $-.36$ ($p < .001$), leaving significant indirect effects of $-.27$ ($p < .001$) and $-.15$ ($p = .05$), respectively. For race, insurance coverage contributed to 45% of the indirect effect, and income contributed to 55%. For sexual orientation, insurance contributed to 49% of the indirect effect, and income contributed to 51%.

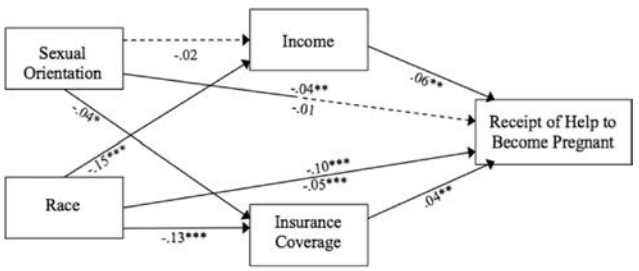

Figure 3. Race and sexual orientation predicting pregnancy help (variables of interest), Study 2 (2006–2010 National Survey of Family Growth). Age, education, and covariances were controlled for but are not represented in the figure. Standardized coefficients appear above the line, and the independent effect of the path without controls or mediators appears below the line; dashed lines were tested but were not significant. Sexual orientation (heterosexual = 0, sexual minority = 1); race (White = 0, non-White = 1); insurance (none/public/other nonprivate = 0, private = 1); pregnancy help (no = 0, yes = 1); income (continuous). * $p < .05$. ** $p < .01$. *** $p < .001$.

As in Study 1, heterosexual White women reported considerable advantage compared with all other women. Heterosexual White women were more likely than any other group to receive medical assistance to become pregnant. All other women reported receiving medical help to become pregnant at lower rates. In contrast to Study 1, there was no additive effect on help for women endorsing multiple minority identities in Study 2. Results of mediation analysis showed that, although differences in insurance coverage accounted for disparate rates in help receipt based on sexual orientation, disparities in income and insurance coverage did not fully explain differences in racial minority women's receipt of fertility assistance.

Results indicated that, when controlling for age and education, women's income and insurance coverage fully mediated the association between sexual orientation and help receipt, but only partially mediated the association between race and receipt of pregnancy help.

General Discussion

This investigation was designed to assess, with a nationally representative sample, whether, when compared with their heterosexual White counterparts, racial minority and/or sexual minority women received less reproductive medical assistance. The study also aimed to establish whether any disparities between groups in receiving medical help to become pregnant could be accounted for indirectly, at least in part, by income and health insurance type. As expected, in both Study 1 and Study 2, all groups of minority women (operationalized by sexual minority and/or non-White group membership) were less likely to report receiving medical help to become pregnant than were heterosexual White women. Indeed, the rates at which heterosexual White women sought medical assistance were almost double those of any other group. In Study 1, women who identified as members of both sexual and racial minorities were also less likely to report receiving pregnancy or miscarriage prevention help compared with women who endorsed only one minority identity. Study 1 results were consistent with an expectation for an additive effect of intersecting minority identities on help receipt. However, this additive effect did not emerge in Study 2: Non-White sexual minority women were just as likely as non-White heterosexual and White sexual minority women to receive any type of help. Given the results between studies with respect to sexual orientation and income (discussed further below), contexts may be shifting in positive ways for sexual minority women, thus mitigating the previously observed additive effects of intersecting minority identities on help receipt.

Across both studies, however, women who identified as racial minorities were less likely to receive medical pregnancy help, regardless of sexual orientation. Accounting for income and health insurance disparities did not fully explain these differences in either Study 1 or Study 2. The results on racial differences are consistent with previous findings in the use of reproductive help (Bitler & Schmidt, 2006; Greil et al., 2011). The differences

observed as a function of sexual orientation are the first of their kind. Regardless of racial group membership, sexual minority women were less likely than heterosexual women to report receiving pregnancy help. For disparities based on sexual orientation, the current results suggest that access-based economic disparities are particularly important. However, the relative associations of income and insurance coverage in women's receipt of care appear to have changed over time. Lower income and insurance coverage explained lower rates of pregnancy help receipt by sexual minority women in Study 1, but sexual minority status was not associated with lower incomes in Study 2. Only differences in insurance coverage contributed to sexual orientation-based disparities in Study 2. This shift may suggest that socioeconomic disparities have been decreasing for sexual minority individuals over time, but that they are still less likely than others to have health care coverage. Many heterosexual individuals gain access to private insurance via marriage. However, many members of sexual minority couples, even in comparable same-sex unions, do not receive equivalent coverage because of failure to recognize same-sex marriages in some jurisdictions.

The results concerning miscarriage prevention have further implications for understanding the point at which discrepancies in the receipt of fertility services emerge. In Study 1, sexual minority non-White women reported receiving miscarriage prevention help at lower rates compared with all other women, replicating the additive effect observed in respect to pregnancy help receipt. In Study 2, as with pregnancy help, this additive effect was not maintained for receiving miscarriage prevention help. If already pregnant, all women reported receiving comparable medical assistance to maintain their pregnancies. The disparity in receiving any kind of fertility help apparently lies at the initial effort to become pregnant.

As investigations of stratified reproduction emphasize how systemic disparities in economics and policy can disadvantage the reproductive choices of underprivileged women, this study focused on how income and health care coverage disparities might contribute to sexual minority and racial minority women's receipt of medical assistance to become pregnant. However, previous research on racial disparities in seeking medical fertility assistance has indicated that factors such as social support may also be important in the association of race and help seeking in reproductive contexts (Greil et al., 2011). Social support networks can be limited for minority group members, especially those who claim more than one minority identity, such as non-White sexual minority women (Dewaele, Cox, Van den Berghe, & Vincke, 2011). A supportive social network might have a substantial impact on whether minority women seek medical assistance in forming families. For example, lesbian and gay individuals who report interacting regularly with same-sex couples that have children are more likely to express desires and capacity-driven intentions to one day have children, as compared with their sexual minority counterparts who do not have a similar social network (Riskind, Patterson, & Nosek, 2013).

It is possible that accounting for other social climate factors might more fully explain the relationship between race and help seeking. The results of the current study have implications for contemporary public policies concerning same-sex families that may disincline some individuals from pursuing reproductive assistance in the United States. Although the *Benitez v. North Coast Women's Care Medical Group* (2008) case ensured that sexual minority women in California can receive reproductive care equivalent to that available to their heterosexual counterparts, the lack of comparable legal protection in most states may be a factor influencing whether women have access to care or feel secure in pursuing medical help to become pregnant. Even in regions with supportive state-level policies, lack of regulation within the fertility industry may allow for discrimination against sexual and/or racial minority individuals through screening procedures or other processes that favor majority women (Gurmankin, Caplan, & Braverman, 2005). For example, qualitative analyses of U.S. fertility service providers' Websites have exposed disproportionate representation of White infants in Website photos (Hawkins, 2013), as well as other implicit "gate-keeping" messages (Johnson, 2012). Care providers should be mindful of how even such seemingly benign practices might contribute to disparities in reproductive care.

Similarly, a history of medical negligence and malpractice against racial minority groups in the United States has contributed to increased mistrust of medical systems and practitioners among many non-White individuals (Institute of Medicine, 2006). It is possible that such mistrust extends to sexual minority individuals as well and may contribute to differences among minorities that are not accounted for in this study. Also, given that many sexual minority individuals have formed families even during periods of political persecution, it is possible that sexual minority women in this study are also more knowledgeable about alternative resources to family planning outside traditional medicine. A variety of contextual factors may contribute to the observed disparities in receipt of care in this investigation. Future research may help establish whether medical providers who proactively encourage minority women to consider a wide range of reproductive options may reduce observed disparities.

The large-scale, nationally representative nature of the NSFG data from which the current findings are drawn is a substantial strength in this study. The consistency of measurement in the NSFG over time allowed for a novel, systematic investigation of largely understudied minority women. The data do, however, have limitations. Given the structure of items in the NSFG, it was impossible to determine the partner sex (or if participants had a partner) when they received the reported assistance. The current investigation accounted for two dimensions of sexual orientation (i.e., attraction and identification), but no information on partner sex could be linked to timing of fertility assistance. Similarly, the NSFG's oversampling of racial but not sexual orientation subgroups inhibited a more nuanced understanding of interactions of race and sexual orientation in help receipt. Previously reported variations among non-White subgroups on help receipt (Greil et al., 2011) suggest varied trends even within the minority groups studied. Finally, although the central item examined women's interactions with medical providers to obtain pregnancy help, it did not account for potentially disparate desires in family formation. It is thus important to remember the variation of experience within the diverse sample of women studied here.

Despite the increase in assisted reproductive procedures recorded over the past decade, results of the current investigation suggest that access to medical help is not equal across groups of women. Heterosexual White women have evidently been the prime beneficiaries of the surge in medical fertility assistance. These

results stand in stark contrast to historically higher rates of infertility experienced by racial minority women (Bitler & Schmidt, 2006). The current results are consistent with the concept of stratified reproduction (Colen, 1986, as cited in Greil et al., 2010), and expand it to include sexual orientation. The results also reveal the import of social and economic factors including, but not limited to, income and insurance coverage. Although socioeconomic factors did not explain all differences based on racial group membership, the current results showed clearly that lack of insurance coverage limits access to reproductive health care among sexual minority women in the United States.

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