



Published in final edited form as:

Health Psychol. 2014 January ; 33(1): 3–10. doi:10.1037/a0032502.

Discrimination and Sexual Risk Among Young Urban Pregnant Women of Color

Lisa Rosenthal,

Yale University School of Public Health

Valerie A. Earnshaw,

Yale University School of Public Health

Jessica B. Lewis,

Yale University School of Public Health

Tené T. Lewis,

Yale University School of Public Health

Allecia E. Reid,

Yale University School of Public Health

Emily C. Stasko,

Yale University School of Public Health

Jonathan N. Tobin, and

Clinical Directors' Network, New York, New York

Jeannette R. Ickovics

Yale University School of Public Health

Abstract

Objective—Discrimination predicts increased risk for many negative health outcomes, helping explain a variety of racial and socioeconomic health disparities. Recent research suggests discrimination may play a role in disparities in HIV and other sexually transmitted infections (STIs); however, this research has focused on risk behaviors and has yet to establish a link between discrimination and STI diagnosis specifically. This investigation tested whether discrimination predicted condom use, risky sexual partners, and self-reported STI diagnosis among a population disproportionately affected by HIV and STIs in the U.S.: young, pregnant, socioeconomically disadvantaged, women of color.

Method—During second and third trimesters, 885 mostly Latina and Black pregnant women, 14–21 years old, attending 14 hospitals and health centers in New York City for prenatal care, completed interviews.

Results—Greater discrimination during second trimester predicted greater odds of STI diagnosis and having a risky sexual partner during third trimester, but not condom use. Whether discrimination was attributed to race, identifying as Black, or identifying as Latina did not moderate effects.

© 2014 American Psychological Association

Correspondence concerning this article should be addressed to Lisa Rosenthal, Psychology Department, Pace University, 41 Park Row, 13th Floor, Room 1322, New York, NY 10038. lrosenthal@pace.edu.

There are no known conflicts of interest.

Conclusion—This is the first investigation establishing a link between discrimination and STI diagnosis, not just risk behavior. It does so among a sample of at-risk, young, pregnant, women of color. Findings suggest implications for sexual risk during pregnancy and across the life span, and risks for the pregnancy and fetus. It is vital to reduce discrimination to eliminate disparities in HIV and STIs. Future research should continue examining the role of discrimination in sexual risk among different populations and work to uncover potential mechanisms.

Keywords

discrimination; sexual risk; pregnancy; sexually transmitted infections; women

Many factors have been examined to understand what drives persistent racial and socioeconomic disparities in the U.S. across a wide range of health outcomes (Williams, Mohammed, Leavell, & Collins, 2010). A growing literature has identified discrimination as a key factor associated with increased risk for many negative health outcomes (for reviews see Pascoe & Smart Richman, 2009; Williams & Mohammed, 2009). As examples, greater discrimination is associated with poorer mental health (Brondolo et al., 2005), greater coronary artery calcification (Lewis et al., 2006), and greater risk of delivering lower birth-weight babies (Dominguez, Dunkel-Schetter, Glynn, Hobel, & Sandman, 2008), while controlling for a host of risk factors and potentially confounding variables. The current investigation tested the association that discrimination has with condom use, risky sexual partners, and self-reported sexually transmitted infection (STI) diagnosis among a sample of young, socioeconomically disadvantaged, mostly Black and Latina women. Before turning to the current study, research in several areas is reviewed: evidence that young women of color experience a disproportionate burden of HIV and other STIs; factors that existing health behavior models suggest drive sexual risk behavior; and recent evidence that discrimination plays a role in sexual risk.

In the U.S., young women have the highest rates of STIs, and the percentage of people living with HIV/AIDS who are women has steadily increased over the past two decades, particularly among 15–24 year olds (CDC, 2010; CDC, 2011a; CDC, 2011b). Black and Latino Americans, as well as those who are socioeconomically disadvantaged, experience a disproportionate burden of HIV and other STIs (CDC, 2010; CDC, 2011a; CDC, 2011b). Taken together, young, socioeconomically disadvantaged Black and Latina women are at disproportionate risk for HIV and other STIs. Consequently, research efforts have focused on understanding factors leading to sexual risk behavior among this group and how to reduce this risk (e.g., DePadilla, Windle, Wingood, Cooper, & DiClemente, 2011; Wyatt & Chin, 1999).

More traditional theories or models of health behavior, such as social-cognitive theory (Bandura, 1977), the theories of reasoned action and planned behavior (Ajzen, 1985; Fishbein & Ajzen, 1975), and the information-motivation-behavioral skills model (Fisher & Fisher, 1992) have been applied to understanding sexual risk across diverse individuals. Research supports that factors identified by these models, including risk knowledge, and condom use attitudes, norms, barriers, and self-efficacy, predict sexual risk behaviors such as condom use (for reviews see Albarracín, Johnson, Fishbein, & Muellerleile, 2001; Crepaz & Marks, 2002). However, there has been criticism of these models as being de-contextualized and not paying attention to unique factors that increase women of color's sexual risk behaviors, such as inequities based on race, gender, and class (e.g., Amaro, 1995; Rosenthal & Levy, 2010; Wingood & DiClemente, 2000).

Drawing on the growing body of literature highlighting discrimination as a key determinant of health behaviors and outcomes, recent research has begun to establish a connection

between experiences with discrimination, stigma, or marginalization and sexual risk behaviors among some populations. A study of high school students in Massachusetts and Vermont found that male and female lesbian, gay, and bisexual students who reported high victimization at school in the past year also reported more substance use and sexual risk behaviors than both heterosexual students and lesbian, gay, and bisexual students reporting low victimization (Bontempo & D'Augelli, 2002). Another cross-sectional study of Latino gay men living in Los Angeles, Miami, and New York City found that more frequent experiences with homophobia and racism were associated with greater reported sexual risk behaviors (Díaz, Ayala, & Bein, 2004). These studies suggest that discrimination or victimization due to a stigmatized identity may play a role in increased sexual risk.

Some very recent work has also found a connection between the experiences of racial discrimination and sexual risk among African American youth. In a cross-sectional study of 11th and 12th Grade African American students in the Southeastern U.S., Stevens-Watkins, Brown-Wright, and Tyler (2011) found that while controlling for gender and age at first intercourse, greater reported race-related stress (i.e., cultural, institutional, and individual racism) was associated with more reported lifetime sexual partners. In a longitudinal study of African American youth in Iowa and Georgia, Roberts et al. (2012) found that more frequent experiences with racial discrimination at 10 or 11 significantly predicted greater reported sexual risk taking at 18 or 19, including number of sexual partners, frequency of sex, frequency of condom use, and substance use before sex.

This small but developing body of work suggests that discrimination could be an important factor explaining sexual risk in young, socioeconomically disadvantaged, Black and Latina women, who are experiencing a disproportionate burden of HIV and other STIs. Yet, work to date has not focused on the role of discrimination specifically in this population, and no work has actually tested the association between discrimination and STI diagnosis.

The Current Investigation

This study contributes to understandings of factors associated with sexual risk, and the breadth of the effect of experiences of discrimination on health outcomes, by examining data from a longitudinal study of socioeconomically disadvantaged, predominantly Black and Latina, pregnant teens and young women in New York City. Pregnant teens and young women are an important group in which to study sexual risk because their pregnancies indicate that they are engaging in unprotected sex at a young age, increasing risk for HIV and other STIs. Indeed, pregnant adolescents are at increased risk for HIV and other STIs postpartum and throughout their lives (e.g., Kershaw et al., 2003; for a review see Meade & Ickovics, 2005). Also, STIs in pregnancy can cause increased risks for pregnancy outcomes, including preterm birth, low birth weight, stillbirth, and infant illness, if passed during delivery (e.g., Goldenberg, Andrews, Yuan, MacKay, & St. Louis, 1997; for a review see Mullick, Watson-Jones, & Mabey, 2005).

It was hypothesized that greater experiences with everyday discrimination during second trimester would significantly predict greater odds of having any unprotected sex, having any risky partners (i.e., any partner who has other sexual partners, is/was an intravenous drug user, has HIV or AIDS, has ever had an STI, is a man who has ever had sex with another man, or has ever been in prison), and having been diagnosed with an STI during third trimester.

Method

Data for the current investigation were taken from a randomized controlled trial (RCT) of an innovative model of group prenatal care (Centering Pregnancy Plus) aimed at improving the

reproductive health of pregnant young women. The Centering Pregnancy Plus model involves group prenatal care led by a prenatal care provider, self-care activities, and group discussions across a variety of topics, including prenatal and postpartum care, childbirth preparation, HIV prevention, and mental health (see Ickovics et al., 2007; Kershaw, Magriples, Westdahl, Rising, & Ickovics, 2009). Study sites were randomized to deliver the group prenatal care intervention or standard individual prenatal care. Because the current investigation is not a test of the RCT, data were used from participants, surveyed at two time points during pregnancy, who were receiving care at one of 14 sites delivering either form of prenatal care, while controlling for which type of care participants received and site clustering. Sites were community hospitals and health centers across New York City (except Staten Island).

Procedure

Young women (14–21 years old) attending an early prenatal care visit at a study site were referred by a health care provider or approached directly by research staff for participation in the study between 2008 and 2011. Inclusion criteria were pregnancy less than 24 weeks gestation, no medical problems indicating high-risk pregnancy (e.g., HIV positive), ability to speak English or Spanish, and willingness to participate in study procedures. Research staff explained the study to eligible participants, answered questions, and obtained informed consent. Baseline interviews occurred during second trimester between 14 and 24 weeks gestation at an average gestational age of 19.35 weeks ($SD = 3.20$). Second interviews were completed during third trimester between 32 and 42 weeks gestation at an average gestational age of 34.74 weeks ($SD = 2.70$).

Structured interviews were completed in English or Spanish using Audio-Handheld Assisted Personal Interview technology, allowing participants to listen to spoken questions digitally stored on a computer and displayed on the computer screen. Participants were paid \$20 for each interview. All procedures were approved by the Yale University and Clinical Directors Network Institutional Review Boards and by Institutional Review Boards for each study site.

Participants

There were 1,240 women who enrolled in the study, and analyses for this paper included 885 women (59.5% reporting it as their first ever pregnancy) who completed both second and third trimester interviews and answered all questions for predictor variables. Women were excluded from analyses if they had not completed the third trimester interview ($n = 305$) or were missing data on variables included in analyses ($n = 50$). Women included were compared to those excluded on all variables from the second trimester interview using analyses controlling for clustering. The only significant difference was that women excluded reported lower condom use self-efficacy than women included in analyses ($B = 1.98$, $SE = 0.90$, $p = .046$). Some women did not answer (refused or did not know) questions about condom use and risk categories of partners. Thus, 841 women were included in analyses for any unprotected sex, 873 were included for any risky partners, and 885 were included for any STI diagnosis. Descriptive statistics of the full analytic sample are in Table 1.

Then analyses were conducted, controlling for site clustering, comparing women in the control ($n = 457$) and intervention ($n = 428$) conditions on all variables from both second and third trimester interviews. The only significant difference was that women in the intervention condition were less likely to be in a relationship at second trimester interview ($OR = .71$, 95% $CI .53-.95$, $p = .021$). Thus, participants from both the control and intervention conditions of the study were included in analyses, and condition was controlled for in all analyses.

Measures

The main predictor variable (everyday discrimination), and all control variables (participant characteristics; sexual risk knowledge; and condom use norms, attitudes, barriers, and self-efficacy) included in analyses were collected during the second trimester (baseline) interview. The three sexual risk outcome variables (unprotected sex, risky partners, STI diagnosis) included in analyses were collected during both second and third trimester interviews.

Main predictor variable: Everyday discrimination—Participants reported experiences with discrimination using a modified, 10-item version (Lewis et al., 2006) of the established Everyday Discrimination scale (Williams, Yu, Jackson, & Anderson, 1997) on a 1 (*never*) to 4 (*often*) scale (e.g., “In your day-today life, how often are you treated with less respect than other people?”). A mean score was created, with higher scores indicating more frequent experiences with discrimination ($\alpha = .84$). Participants also reported what they perceived to be the main reason for these experiences, and could attribute to race/ethnicity, gender, age, income level, language, physical appearance, sexual orientation, or other.

Control variables: Participant characteristics—Participants reported whether they experienced food insecurity and were employed (proxies for socioeconomic status). Participants reported whether they were in a romantic relationship, date of birth (from which age in years was calculated), whether they were born outside the U.S., and race and ethnicity.

Sexual risk knowledge—Participants’ HIV and STI risk knowledge was assessed using an established 11-item measure (Heckman et al., 1996; Sikkema et al., 1996; e.g., “Birth control pills can protect a woman from sexually transmitted diseases including HIV”), adjusted to be answered from 0 (*definitely false*) to 4 (*definitely true*). Appropriate items were reverse-scored, and a sum was created, with higher scores indicating greater sexual risk knowledge ($\alpha = .66$).

Condom use norms, attitudes, and barriers—Participants completed the Sexual Risk Behavior Beliefs and Self-Efficacy Scale’s (Basen-Engquist, Edmundson, & Parcel, 1996; Coyle et al., 1996) three subscales of three questions each, assessing norms (e.g., “Most of my friends believe condoms should always be used if a person my age has sex”), attitudes (e.g., “I believe condoms should always be used if a person my age has sex, even if the two people know each other very well,”) and barriers (e.g., “I would feel uncomfortable carrying condoms with me”) for condom use on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). Appropriate items were reverse-scored, and a mean was created for each subscale, with higher scores indicating more positive norms and attitudes, and less barriers (α s = .81, .90, and .84, respectively).

Condom use self-efficacy—Participants completed an established 14-item measure of condom use self-efficacy (Brafford & Beck, 1991; Brien, Thombs, Mahoney, & Wallnau, 1994; e.g., “I feel confident in my ability to discuss condom usage with any partner I might have”) on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). Appropriate items were reverse-scored, and a sum was created, with higher scores indicating greater condom use self-efficacy ($\alpha = .88$).

Outcome variables: Unprotected sex—During second trimester, participants reported the percentage of times they used condoms when having sex with up to four sexual partners in the past 6 months (e.g., Kershaw et al., 2005). Only 12 participants at second trimester and two participants at third trimester interview reported having more than four partners.

During third trimester, participants reported the percentage of times they used condoms when having sex with up to four sexual partners since last interview. Participants were coded as having had any unprotected sex (1) or none (0). Consistent with past work (e.g., Roberts et al., 2012), the 199 women who reported no sexual partners during third trimester interview were also coded as having no unprotected sex (0).

Risky partners—During second trimester, participants reported whether their sexual partners in the past 6 months (up to four partners) fell into any of the following six risk categories: has other sexual partners, is/was an intravenous drug user, has HIV or AIDS, has ever had an STI, is a man who has ever had sex with another man, or has ever been in prison (e.g., Kershaw et al., 2005). During third trimester, participants reported whether up to four sexual partners since last interview fell into any of the risk categories. Participants were coded as having any risky sexual partners (1) or none (0; including those who reported no sexual partners).

STI diagnosis—During second trimester, participants reported whether they had ever before been diagnosed with the following six STIs: chlamydia, genital warts or the human papilloma virus, gonorrhea, herpes, syphilis, or trichomonas. During third trimester, participants reported whether they had been diagnosed with any of those same six STIs since last interview. Participants were coded as having had an STI diagnosis (1) or not (0). Research has demonstrated that self-reported STI diagnosis is very reliable when compared with medical records and independent STI testing (e.g., Niccolai et al., 2005).

Data Analysis

Logistic regression analyses were used to test whether everyday discrimination during second trimester was a significant predictor of having any unprotected sex, risky partners, and STI diagnosis during third trimester. To test whether discrimination makes a unique contribution to understanding sexual risk in this sample over time, analyses controlled for the outcome variables during second trimester; other known predictors of sexual risk from health behavior models and theories, including sexual risk knowledge, and condom use norms, attitudes, barriers, and self-efficacy; and other characteristics of the participants known to predict risk, including food insecurity and employment status (socioeconomic indicators), relationship status, age, whether they were born outside of the U.S., and race/ethnicity (identified as Latina, and identified as Black). For all analyses, site clustering and whether they were in group or individual prenatal care (RCT condition) were also controlled for. Analyses were conducted with SAS 9.2.

Results

Primary Analyses

Results of logistic regression analyses are in Table 2. Everyday discrimination during second trimester significantly predicted greater odds of having any risky partner and having been diagnosed with an STI during third trimester, while controlling for those outcomes during second trimester, many participant characteristics, sexual risk knowledge, and condom use norms, attitudes, barriers, and self-efficacy. Besides ever having been diagnosed with an STI before, everyday discrimination during second trimester was the only significant predictor of having had a new STI diagnosis during third trimester. However, everyday discrimination did not significantly predict having any unprotected sex.

Supplemental Analyses

It is possible that women who did not report any sex in the past 6 months during the third trimester interview may represent a unique group. Although these women may not be having

sex to reduce their level of risk, they may also not be having sex for other reasons not related to risk. Thus, two sets of supplemental analyses were conducted to examine whether including this group in analyses influenced findings. First, the logistic regressions were rerun, excluding those reporting no sex. Second, multinomial logistic regressions were conducted to test whether results differed if women reporting no sex were considered a separate category (i.e., categories included no sex, sex but no unprotected, sex and any unprotected; and no sex, sex but no risky partners, sex and any risky partner). Results of these analyses replicated the initial findings: discrimination did not significantly predict any unprotected sex in any analyses, and discrimination significantly predicted greater odds of having any risky sexual partner and having been diagnosed with an STI during third trimester.

Because some past work on discrimination and sexual risk has focused on racial discrimination and African American samples (e.g., Roberts et al., 2012), further analyses tested if attributing discrimination to race (16.5% of participants) versus another reason, identifying as Black, or identifying as Latina were significant moderators of the relationships of discrimination with the sexual risk outcome variables, and all interactions were nonsignificant.

Discussion

Everyday discrimination reported during the second trimester of pregnancy significantly predicted greater odds of having a risky partner and of contracting an STI during the third trimester of pregnancy among young, socioeconomically disadvantaged, mostly Black and Latina pregnant women. These results were significant after controlling for those outcomes during second trimester; known predictors of sexual risk, including sexual risk knowledge, and condom use norms, attitudes, barriers, and self-efficacy; and participant characteristics that can affect sexual risk, such as food insecurity, employment status, relationship status, age, whether they were born outside of the U.S., and race/ethnicity. Besides lifetime history of STIs, discrimination was the only predictor of having had a new STI diagnosis by third trimester. Results were similar regardless of race/ethnicity and whether participants attributed discrimination to racism versus other factors. This work supports past work suggesting that associations between discrimination and health can be similar across racial/ethnic groups, and that across different attributions for discrimination (e.g., race, gender, age, etc.), the effects of discrimination on health remain consistent (e.g., Lewis et al., 2006).

These findings build on and extend past work in several important ways. This study examined the connection between discrimination and sexual risk among a high-risk population—young, socioeconomically disadvantaged, predominantly Black and Latina women—across pregnancy, a time when STIs are important as an indicator of longer-term sexual risk, and also as a risk factor for adverse birth outcomes. This study includes both sexual risk behaviors (unprotected sex and risky partners) as well as STI diagnosis, and to our knowledge this is the first study to test the association between discrimination and STI diagnosis. Because the study was longitudinal, it was possible to directly test temporally ordered variables over the course of pregnancy, increasing confidence in the direction of effects. Further, the measure of everyday discrimination incorporates experiences of discrimination attributed to many possible reasons, not just based on one category (e.g., race or sexual orientation).

Limitations and Future Directions

The sample is limited to young pregnant women of color. Thus, future research should test these associations among different groups at high risk for HIV and other STIs. For example, it is unknown whether discrimination increases likelihood of having a risky partner or

contracting an STI among nonpregnant women, or whether findings are unique to pregnancy. Because past research has documented an association between discrimination and sexual risk behavior in nonpregnant samples (e.g., Roberts et al., 2012; Stevens-Watkins et al., 2011), it may be likely that results would be the same; however, there may be unique circumstances that would affect these associations during pregnancy for future work to explore. Another limitation of the study is that 355 women were excluded from analyses because of missing the third trimester interview or other missing data. Although there were no significant differences except that those excluded reported lower condom use self-efficacy during second trimester than those included, it is unclear whether this affected results.

This study does not explain underlying mechanisms driving the relationship of discrimination with sexual risk, which is a key question for future research. Roberts et al., (2012) found negative affect, affiliation with deviant peers, and positive attitudes toward risky sexual behaviors were mediators of the relationship between racial discrimination and sexual risk behaviors among African American youth. Yet, mechanisms involved in the relationship between discrimination and sexual risk remain largely unknown. Some recent work has suggested a fresh look at mechanisms involved in explaining disparities in health behaviors and outcomes that might not be thought of in the framework of traditional health behavior theories (e.g., Factor, Kawachi, & Williams, 2011). The current study supports this suggestion, as logistic regression analyses found that sexual risk knowledge, as well as condom use norms, attitudes, barriers, and self-efficacy, were not significant predictors of STI diagnosis. Future work should test mechanisms identified by Roberts et al. (2012), as well as thus far unexamined mechanisms. Possible mechanisms to test are discussed below.

Factor et al. (2011) recently suggested that members of marginalized groups (because of the history and their current experiences of discrimination) may engage in behaviors resulting in negative health outcomes as an act of resistance against and to distance themselves from norms associated with dominant groups in society. Given the history of exploitation and mistreatment by the medical system of communities of color in the U.S. and continued suspicion of the medical system among communities of color in the U.S. (Washington, 2006), greater perceived discrimination may lead first to resistance or rejection of health advice or norms given by that medical system (e.g., avoiding risky sexual partners), thereby leading to increased sexual risk. More specific to the current study sample, Black and Latina women as a group have experienced a history of unconsented, forced, or coerced sterilizations and use of long-term birth control, and have historically faced and continue to face negative societal stereotypes related to sexuality and motherhood (e.g., see Rosenthal & Lobel, 2011). Because of these experiences, women of color in the U.S. may be particularly likely to reject advice about sexual risk.

A longitudinal study of gay men who were caregivers for men living with AIDS in the San Francisco Bay Area found that over 18 months, greater internalized homophobia predicted greater sexual risk behaviors, including increased frequency of and number of partners for unprotected anal intercourse (Hatzenbuehler, Nolen-Hoeksema, & Erickson, 2008). It may be that internalization of stereotypes and stigmatization is a mechanism through which members of marginalized groups feel lowered self-worth, concern about one's own health, or self-confidence as a result of discrimination, leading to more risky sexual behavior. If Black and Latina women internalize stereotypes that label them as promiscuous or sexual objects of men, this could in turn affect their agency or confidence in sexual relationships, and therefore increase their risk of contracting HIV and other STIs. As a result of discrimination, socioeconomically disadvantaged women of color may also feel that they have less power both in society at large and in their sexual relationships, which is an important factor in women's sexual risk (e.g., see Rosenthal & Levy, 2010 for a review).

Theory and research suggest that discrimination constitutes a form of physical stress (e.g., Clark, Anderson, Clark, & Williams, 1999). And, research suggests sex can be used to cope with or escape from stress (e.g., Folkman, Chesney, Pollack, & Phillips, 1992). Thus, sex, and possibly specifically risky sex, might be used to cope with or escape from discrimination-related stress (Stevens-Watkins et al., 2011). Also, women experiencing discrimination may feel a greater sense of connection to others facing discrimination, which could include potential risky partners, such as someone who uses intravenous drugs, has HIV/AIDS or another STI, is a man who has sex with men, or has been in prison. These and other potential mechanisms should be explored in future work to better understand the relationship between discrimination and sexual risk.

Conclusion

Discrimination is increasingly identified as a key predictor of important health outcomes and seems to be critically important to understanding what drives large and persistent health disparities in the U.S. The current investigation is the first to find that discrimination experienced by young, predominantly Black and Latina, urban, pregnant women is associated with increased odds of having a risky partner and contracting an STI, suggesting implications for sexual risk during pregnancy and across the life span, as well as risks for the pregnancy and fetus. This study, along with an ever-growing body of literature connecting discrimination to adverse health outcomes, suggests that it is vital for us to find ways to reduce bias, stereotyping, and discrimination in our society to eliminate persistent health disparities.

Acknowledgments

The project was supported by a research grant from the National Institute of Mental Health, R01MH074399, as well as a grant from the Aetna Foundation, which funded Dr. Rosenthal's effort. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Mental Health, the National Institutes of Health, or the Aetna Foundation.

References

- Ajzen, I. From intentions to actions: A theory of planned behavior. In: Kuhl, J.; Beckman, J., editors. *Action control: From cognition to behavior*. New York, NY: Springer-Verlag; 1985. p. 11-39.
- Albarraçín D, Johnson BT, Fishbein M, Muellerleile PA. Theories of reasoned action and planned behavior as models of condom use: A meta-analysis. *Psychological Bulletin*. 2001; 127:142–161. [PubMed: 11271752]
- Amaro H. Love, sex, power: Considering women's realities in HIV prevention. *American Psychologist*. 1995; 50:437–447. [PubMed: 7598292]
- Bandura A. Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*. 1977; 84:191–215. [PubMed: 847061]
- Basen-Engquist K, Edmundson EW, Parcel GS. Structure of health risk behavior among high school students. *Journal of Consulting and Clinical Psychology*. 1996; 64:764–775. [PubMed: 8803367]
- Bontempo DE, D'Augelli AR. Effects of at-school victimization and sexual orientation on lesbian, gay, or bisexual youths' health risk behavior. *Journal of Adolescent Health*. 2002; 30:364–374. [PubMed: 11996785]
- Brafford LJ, Beck KH. Development and validation of a condom self-efficacy scale for college students. *Journal of American College Health*. 1991; 39:219–225. [PubMed: 1783705]
- Brien TM, Thombs DL, Mahoney CA, Wallnau L. Dimensions of self-efficacy among three distinct groups of condom users. *Journal of American College Health*. 1994; 42:167–174. [PubMed: 8132940]

- Brondolo E, Thompson S, Brady N, Appel R, Cassells A, Tobin J, Sweeney M. The relationship of racism to appraisals and coping in a community sample. *Ethnicity & Disease*. 2005; 15 S5-14-19–S5.
- Centers for Disease Control and Prevention (CDC). Establishing a holistic framework to reduce inequities in HIV, viral hepatitis, STDs, and tuberculosis in the United States. Atlanta, GA: U. S. Department of Health and Human Services; 2010. Retrieved from <http://www.cdc.gov/socialdeterminants>
- Centers for Disease Control and Prevention (CDC). HIV/AIDS surveillance report 2009. Vol. vol. 21. Atlanta, GA: U. S. Department of Health and Human Services; 2011a. Retrieved from <http://www.cdc.gov/hiv/topics/surveillance/resources/reports/>
- Centers for Disease Control and Prevention (CDC). Sexually transmitted disease surveillance 2010. Atlanta, GA: U. S. Department of Health and Human Services; 2011b.
- Clark R, Anderson NB, Clark VR, Williams DR. Racism as a stressor for African Americans: A biopsychosocial model. *American Psychologist*. 1999; 54:805–816. [PubMed: 10540593]
- Coyle K, Kirby D, Parcel G, Basen-Engquist K, Banspach S, Rugg D, Harrist R. A multi-component school-based HIV/STD and pregnancy prevention program for adolescents: The Safer Choices project. *Journal of School Health*. 1996; 66:89–94. [PubMed: 8857156]
- Crepaz N, Marks G. Towards an understanding of sexual risk behavior in people living with HIV: A review of social, psychological, and medical findings. *AIDS*. 2002; 16:135–149. [PubMed: 11807297]
- DePadilla L, Windle M, Wingood G, Cooper H, DiClemente R. Condom use among young women: Modeling the theory of gender and power. *Health Psychology*. 2011; 30:310–319. [PubMed: 21553975]
- Díaz RM, Ayala G, Bein E. Sexual risk as an outcome of social oppression: Data from a probability sample of Latino gay men in three U.S. cities. *Cultural Diversity and Ethnic Minority Psychology*. 2004; 10:255–267. [PubMed: 15311978]
- Dominguez TP, Dunkel-Schetter C, Glynn LM, Hobel C, Sandman CA. Racial differences in birth outcomes: The role of general, pregnancy, and racism stress. *Health Psychology*. 2008; 27:194–203. [PubMed: 18377138]
- Factor R, Kawachi I, Williams DR. Understanding high-risk behavior among nondominant minorities: A social resistance framework. *Social Science & Medicine*. 2011; 73:1292–1301. [PubMed: 21907476]
- Fishbein, M.; Ajzen, I. Beliefs, attitudes, intentions, and behavior: An introduction to theory and research. Reading, MA: Addison Wesley; 1975.
- Fisher JD, Fisher WA. Changing AIDS-risk behavior. *Psychological Bulletin*. 1992; 111:455–474. [PubMed: 1594721]
- Folkman S, Chesney MA, Pollack L, Phillips C. Stress, coping, and high-risk sexual behavior. *Health Psychology*. 1992; 11:218–222. [PubMed: 1396489]
- Goldenberg RL, Andrews WW, Yuan AC, MacKay HT, St. Louis ME. Sexually transmitted diseases and adverse outcomes of pregnancy. *Clinics in Perinatology*. 1997; 24:23–41. [PubMed: 9099500]
- Hatzenbuehler ML, Nolen-Hoeksema S, Erickson SJ. Minority stress predictors of HIV risk behavior, substance use, depressive symptoms: Results from a prospective study of bereaved gay men. *Health Psychology*. 2008; 27:455–462. [PubMed: 18643003]
- Heckman TG, Sikkema KJ, Kelly JA, Fuqua RW, Mercer MB, Hoffmann RG, Crumble D. Predictors of condom use and human immunodeficiency virus test seeking among women living in inner-city public housing developments. *Sexually Transmitted Diseases*. 1996; 23:357–365. [PubMed: 8885065]
- Ickovics JR, Kershaw TS, Westdahl C, Magriples U, Massey Z, Reynolds H, Rising SS. Group prenatal care and perinatal outcomes: A randomized controlled trial. *Obstetrics and Gynecology*. 2007; 110:330–339. [PubMed: 17666608]
- Kershaw TS, Ethier KA, Milan S, Lewis JB, Niccolai LM, Meade C, Ickovics JR. The influence of pregnancy, sexually transmitted diseases, and human immunodeficiency virus perceived susceptibility patterns on sexual risk reduction for adolescent females. *Journal of Community Psychology*. 2005; 33:313–331.

- Kershaw TS, Magriples U, Westdahl C, Rising SS, Ickovics JR. Pregnancy as a window of opportunity for HIV prevention: Effects of an HIV intervention delivered within prenatal care. *American Journal of Public Health*. 2009; 99:2079–2086. [PubMed: 19762662]
- Kershaw TS, Nicolai LM, Ickovics JR, Lewis JB, Meade CS, Ethier KA. Short- and long-term impact of adolescent pregnancy on postpartum contraceptive use: Implications for prevention of repeat pregnancy. *Journal of Adolescent Health*. 2003; 33:359–368. [PubMed: 14596957]
- Lewis TT, Everson-Rose S, Powell LH, Matthews KA, Brown C, Karavolos K, Wesley D. Chronic exposure to everyday discrimination and coronary artery calcification in African-American women: The SWAN Heart Study. *Psychosomatic Medicine*. 2006; 68:362–368. [PubMed: 16738065]
- Meade CS, Ickovics JR. Systematic review of sexual risk among pregnant and mothering teens in the USA: Pregnancy as an opportunity for integrated prevention of STD and repeat pregnancy. *Social Science & Medicine*. 2005; 60:661–678. [PubMed: 15571886]
- Mullick S, Watson-Jones D, Mabey D. Sexually transmitted infections in pregnancy: Prevalence, impact on pregnancy outcomes, and approach to treatment in developing countries. *Sexually Transmitted Infections*. 2005; 81:294–302. [PubMed: 16061534]
- Nicolai LM, Kershaw TS, Lewis JB, Cicchetti DV, Ethier KA, Ickovics JR. Data collection for sexually transmitted disease diagnoses: A comparison of self-report, medical record reviews, and state health department reports. *Annals of Epidemiology*. 2005; 15:236–242. [PubMed: 15723771]
- Pascoe EA, Smart Richman L. Perceived discrimination and health: A meta-analytic review. *Psychological Bulletin*. 2009; 135:531–554. [PubMed: 19586161]
- Roberts ME, Gibbons FX, Gerrard M, Weng C-Y, Murry VL, Simons LG, Lorenz FO. From racial discrimination to risky sex: Prospective relations involving peers and parents. *Developmental Psychology*. 2012; 48:89–102. [PubMed: 21942666]
- Rosenthal L, Levy SR. Understanding women's risk for HIV infection using social dominance theory and the four bases of gendered power. *Psychology of Women Quarterly*. 2010; 34:21–35.
- Rosenthal L, Lobel M. Explaining racial disparities in adverse birth outcomes: Unique sources of stress for Black American women. *Social Science & Medicine*. 2011; 72:977–983. [PubMed: 21345565]
- Sikkema KJ, Heckman TG, Kelly JA, Anderson ES, Winett RA, Solomon LJ, Mercer MB. HIV risk behaviors among women living in low-income, inner-city housing developments. *American Journal of Public Health*. 1996; 86:1123–1128. [PubMed: 8712272]
- Stevens-Watkins D, Brown-Wright L, Tyler K. Brief report: The number of sexual partners and race-related stress in African American adolescents: Preliminary findings. *Journal of Adolescence*. 2011; 34:191–194. [PubMed: 20303161]
- Washington, HA. *Medical Apartheid: The dark history of medical experimentation on Black Americans from colonial times to the present*. New York, NY: Harlem Moon; 2006.
- Williams DR, Mohammed SA. Discrimination and racial disparities in health: Evidence and needed research. *Journal of Behavioral Medicine*. 2009; 32:20–47. [PubMed: 19030981]
- Williams DR, Mohammed SA, Leavell J, Collins C. Race, socioeconomic status, and health: Complexities, ongoing challenges, and research opportunities. *Annals of the New York Academy of Sciences*. 2010; 1186:69–101. [PubMed: 20201869]
- Williams DR, Yu Y, Jackson JS, Anderson NB. Racial differences in physical and mental health: Socio-economic status, stress and discrimination. *Journal of Health Psychology*. 1997; 2:335–351. [PubMed: 22013026]
- Wingood GM, DiClemente R. Application of the theory of gender and power to examine HIV-related exposures, risk factors, and effective interventions for women. *Health Education & Behavior*. 2000; 27:539–565. [PubMed: 11009126]
- Wyatt GE, Chin D. HIV and ethnic minority women, families, and communities: An overview. *Cultural Diversity & Ethnic Minority Psychology*. 1999; 5:179–182.

Table 1Descriptive Statistics of Analytic Sample ($N = 885$)

	2nd Trimester percentages	3rd Trimester percentages
Group prenatal care (vs. individual)	48.4%	—
Food insecurity	42.5%	—
Employed	21.5%	—
In relationship	78.6%	—
Born outside of U.S.	35.7%	—
Latino	61.6%	—
Black	39.5%	—
Any unprotected sex	92.2%	69.6%
Any risky partners	44.1%	26.2%
Any STI diagnosis	31.9% (Ever)	16.3% (Since last interview)
	2nd Trimester means (and standard deviations)	3rd Trimester means (and standard deviations)
Age (in years)	18.59 (1.74)	—
Sexual risk knowledge	35.15 (5.96)	37.52 (5.51)
Condom use norms	3.81 (1.02)	3.89 (0.99)
Condom use attitudes	4.17 (0.86)	4.23 (0.80)
Condom use barriers	4.01 (1.04)	4.17 (0.93)
Condom use self-efficacy	42.92 (9.54)	43.91 (9.80)
Everyday discrimination	1.47 (0.46)	1.35 (0.44)

Table 2

Results of Logistic Regression Analyses Predicting Unprotected Sex, Risky Partners, and STI Diagnosis, Controlling for Site Clustering

	Any unprotected sex 3rd Trimester (N = 841)	Any risky partners 3rd Trimester (N = 873)	Any STI diagnosis since last interview 3rd Trimester (N = 885)
<i>Odds ratios (95% Confidence intervals)</i>			
Outcome during 2nd trimester	2.87 (1.38–5.96)**	5.56 (4.15–7.45)**	11.13 (7.18–17.27)**
Group prenatal care (vs. individual)	1.08 (0.81–1.44)	1.11 (0.70–1.77)	1.26 (0.93–1.72)
Food insecurity 2nd trimester	0.94 (0.69–1.29)	1.14 (0.82–1.58)	0.73 (0.48–1.10)
Employed 2nd trimester	0.97 (0.64–1.48)	0.66 (0.45–0.97)*	0.69 (0.39–1.22)
In relationship 2nd trimester	2.22 (1.65–2.97)**	1.06 (0.77–1.46)	0.90 (0.52–1.56)
Age (in years)	1.12 (1.02–1.24)*	0.88 (0.81–0.96)**	0.99 (0.88–1.11)
Born outside of U.S.	1.08 (0.88–1.32)	0.77 (0.56–1.04)	1.10 (0.64–1.91)
Latino	0.93 (0.64–1.36)	1.29 (0.76–2.22)	0.81 (0.35–1.87)
Black	0.94 (0.59–1.49)	0.92 (0.49–1.73)	0.92 (0.36–2.36)
Sexual risk knowledge 2nd trimester	1.04 (1.00–1.07)*	1.08 (1.03–1.13)**	1.01 (0.99–1.04)
Condom use norms 2nd trimester	0.91 (0.77–1.07)	0.98 (0.87–1.12)	1.15 (0.92–1.44)
Condom use attitudes 2nd trimester	0.84 (0.69–1.02)	0.88 (0.73–1.05)	0.99 (0.77–1.26)
Condom use barriers 2nd trimester	0.92 (0.75–1.13)	0.96 (0.78–1.19)	0.94 (0.80–1.09)
Condom use self-efficacy 2nd trimester	1.00 (0.98–1.03)	0.99 (0.97–1.02)	0.98 (0.96–1.00)
Everyday Discrimination 2nd trimester	0.88 (0.69–1.11)	1.60 (1.07–2.40)*	1.47 (1.18–1.83)**

* $p < .05$;

** $p < .01$.