Preventing Unintended Pregnancy Among Young Sexually Active Women: Recognizing the Role of Violence, Self-Esteem, and Depressive Symptoms on Use of Contraception

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Abstract

Objectives: Ineffective contraceptive use among young sexually active women is extremely prevalent and poses a significant risk for unintended pregnancy (UP). Ineffective contraception involves the use of the withdrawal method or the inconsistent use of other types of contraception (*i.e.*, condoms and birth control pills). This investigation examined violence exposure and psychological factors related to ineffective contraceptive use among young sexually active women.

Materials and Methods: Young, nonpregnant sexually active women ($n=315$) were recruited from an urban family planning clinic in 2013 to participate in a longitudinal study. Tablet-based surveys measured childhood violence, community-level violence, intimate partner violence, depressive symptoms, and self-esteem. Follow-up surveys measured type and consistency of contraception used 9 months later. Multivariate logistic regression models assessed violence and psychological risk factors as main effects and moderators related to ineffective compared with effective use of contraception.

Results: The multivariate logistic regression model showed that childhood sexual violence and low self-esteem were significantly related to ineffective use of contraception (adjusted odds ratio [aOR] = 2.69, confidence interval [95% CI]: 1.18–6.17, and aOR = 0.51, 95% CI: 0.28–0.93; respectively), although self-esteem did not moderate the relationship between childhood sexual violence and ineffective use of contraception (aOR = 0.38, 95% CI: 0.08–1.84). Depressive symptoms were not related to ineffective use of contraception in the multivariate model.

Conclusions: Interventions to reduce UP should recognize the long-term effects of childhood sexual violence and address the role of low self-esteem on the ability of young sexually active women to effectively and consistently use contraception to prevent UP.

Keywords: self-esteem, childhood sexual violence, depressive symptoms, contraception use

Introduction

NATIONALLY, MORE THAN one-half of all pregnancies are reported as unintended, defined as an unwanted or mistimed pregnancy at the time of conception.¹ Ineffective use of contraception, such as inconsistent condom or birth control pill use or use of the withdrawal method, is prevalent and constitutes a major risk factor for unintended pregnancies

(UPs) among sexually active young women.² Promoting effective use of contraception is a highly economical approach to preventing UPs. For every \$1.00 invested in preventing an UP, \$5.68 in Medicaid expenditures would be avoided.³ Current initiatives to reduce UP have focused on increasing access to and use of long-acting reversible contraception (LARC), such as intrauterine devices and implants,¹ but the proportion of sexually active women

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reporting use of condoms (14%), birth control pills (23%), or nonuse of contraception (10%) still remains high.^{2,4-6} In 2012, over 40% of sexually active young women reporting an UP reported inconsistent use of birth control or condoms, thus initiatives to promote effective use of contraception are needed.³

Particular groups of women have been found to be at high risk for UP, including women who report childhood violence, live in urban areas, are in a racial/ethnic minority group, have limited education, live in poverty, and are at the youngest or oldest spectrum of reproductive years.⁷⁻¹² Exposure to violence is very prevalent among urban sexually active women. Nationally, over 6% of women reported interpersonal violence in the past year and over 4% of women reported at least one episode of childhood sexual violence and these proportions are even higher among young urban women.¹³⁻¹⁶ In addition, violence exposure has been shown to influence reproductive health with the report of ineffective use of contraception at last sexual intercourse the highest among women reporting physical violence or history of sexual victimization.¹⁷

Stress, depressive symptoms, and self-esteem have also been linked to use of contraception. High levels of depressive symptoms have been related to inconsistent use of contraception in cross-sectional and longitudinal cohorts.^{18,19} Hall et al. found that the odds of weekly consistent contraceptive use were reduced by 47% among women reporting high depressive symptoms (odds ratio [OR]=0.53, confidence interval [95% CI]: 0.31–0.91) and long-term consistent contraceptive use was 10%–15% lower among women reporting high levels of depressive symptoms and stress compared with women with relatively low levels of depressive symptoms and stress.²⁰ Recently, high levels of self-esteem have been related to reports of more consistent use of contraception among college-age women.⁴

A limitation of prior research examining predictors of UP is the scant number of longitudinal studies to clarify the causal direction between violence exposure, psychological factors, and use of contraception. To our knowledge, no studies have examined the independent and interactive effects of violence exposure and psychological factors on use of contraception among high-risk women. In the current investigation, we conducted a longitudinal study among young, urban primarily minority women to test theory-driven models of the direct independent effects of both violence exposure and psychological factors on ineffective use of contraception. Based on vulnerability–stress models²¹ and resilience models,^{22,23} we also predicted that psychological factors would moderate the positive relationship between violence exposure and ineffective contraceptive use. Specifically, we hypothesized that (1) depressive symptoms would be a vulnerability factor and increased the odds that women with high violence exposure report ineffective contraceptive use and (2) self-esteem would be a resilience factor and decreased the odds that women with high violence exposure would report ineffective contraceptive use. By investigating violence exposure and psychological effects in the same assessment of factors related to ineffective contraceptive use, these results may inform interventions designed to promote self-esteem and decrease depressive symptoms to improve effective contraceptive use and reduce UP in this high-risk population of young women.

Materials and Methods

Enrollment and study eligibility

The Young Women's Health Study (YWHS) recruited 315 young urban women who sought care in a high-volume, urban family planning clinic from January 2013 through November 2013 and followed each woman for 9 months. Eligible women resided in North Philadelphia, were aged 18–30 years, reported sexual activity with a man in the past 3 months, and were not currently pregnant, attending a postpartum visit, or planning to get pregnant. This project recruited women from a clinic serving North Philadelphia, a low-resource neighborhood with particularly high rates of poverty, teen pregnancy, and violence. The Temple University IRB approved the study protocol. Recruitment, consent, and baseline data collection occurred in clinic waiting rooms. Research coordinators approached each woman in the waiting room, described the purpose of the study, and screened women for study eligibility. An audio computer-assisted survey instrument (ACASI) was used to administer the baseline questionnaire. Follow-up CASI telephone interviews were conducted 9 months after baseline to assess the contraception method and consistency of use. Women were compensated (\$45) for their time participating in this study, with \$30 provided at baseline and \$15 after completion of the follow-up interview.

Measures

Descriptive variables and covariates. At baseline, race/ethnicity, educational status, relationship status, homelessness, sexual health history, gravidity, and substance and alcohol use were measured. Problem drinking was measured with the 5-item TWEAK (Tolerance, Worried, Eye-Opener, Amnesia, K/Cut) scale.²⁴ A total TWEAK score of 3 or more indicated problem drinking (yes/no).

Violence. The following measures of violence exposure were collected at baseline and examined as independent variables of interest. *Childhood physical and sexual violence:* Women were prompted to think about their entire childhood and remember all episodes of violence before 16 years of age. Exposure to physical violence was measured with the item: "How often, before you were 16, were you slapped, pushed, hit, punched, or beaten up by someone you know or by a stranger?" Exposure to sexual violence was measured with the item: "Before you were 16 years old, how often did anyone ever force you to have sex?" Response options for both questions were never, once or twice, sometimes, often, or very often. The childhood violence measures were dichotomously classified as exposure to childhood physical violence (y/n) or exposure to childhood sexual violence (y/n). These questions have been used in previous research.^{13,25} *Adult physical and sexual violence:* To assess violence since 16 years of age, women were asked about their experience with physical violence since 16 years of age (y/n), their experience with sexual violence since 16 years of age (y/n), and their experience with physical violence by an intimate partner in the past year (y/n) using standardized questions.¹³ *Community violence:* Current community-level violence was measured at baseline using the City Stress Inventory (CSI), a validated 18-item scale to assess perceived neighborhood disorder and exposure to community-level violence.²⁶ Higher

scores of CSI indicated a high perception of neighborhood violence. We also collected information on the degree of reproductive coercion reported from a sexual partner in the past year using a modified version of items that determine the amount of birth control sabotage and pregnancy coercion, as described by Miller et al.²⁷

Moderators. Two psychological factors were assessed to determine the role of psychological vulnerability and resilience factors on ineffective use of contraception. The 10-item Center for Epidemiologic Studies depression (CES-D) scale was used to measure depressive symptoms at baseline. This scale has been shown to be reliable among urban populations.^{28,29} Higher scores indicated a higher level of depressive symptoms. Scores of 10 or higher indicated high levels of depressive symptoms and scores below 10 indicated normal levels of depressive symptoms (y/n).²⁹ The validated 10-item Rosenberg self-esteem scale was used at baseline to measure self-esteem and higher scores indicated higher levels of global self-worth.^{23,30} Scores ranged from 0 to 30, with scores below 15 indicating low self-esteem and scores over 25 indicating high self-esteem.

Contraception. At the 9-month follow-up survey, women reported all methods of birth control used during the follow-up period and the consistency of use. A composite measure reflecting both the type and consistency of contraception was the outcome of interest in this assessment. First, the contraception method collected at follow-up included the self-reported use of birth control pills, the withdrawal method, condoms, Depo-Provera, intrauterine device (IUD), patch, vaginal ring, Implanon, morning-after pill, some other method, or did not use anything to prevent pregnancy. As described by others and used in the National Survey of Family Growth, the type of contraception method was then top coded and classified by the most reliable contraception method.^{3,31} For example, women reporting using both birth control pills and condoms were classified as pill users since the pill has a lower failure rate than condoms. Second, the consistency of contraceptive use was defined as reporting the use of that method every time during sex in the past 9 months or the adherence to the patch, ring, or Depo-Provera. To be classified as an effective contraception user at follow-up, women had to report (1) using LARCS (IUDs or Implanon), (2) adherent use of Depo-Provera, patch, or vaginal ring during the follow-up period, or (3) consistent use of birth control pills or condoms for each sexual act during the follow-up period. Two women reported consistent and exclusive use of the morning-after pill and they were included in the effective user group. Women were classified as ineffective contraception users at follow-up if they reported (1) using the withdrawal method, (2) not using any form of contraception in the follow-up period, or (3) reported using birth control pills or condoms, but not consistently during follow-up. Thus, in this assessment, we are most interested in understanding the factors involved with consistent use of effective contraception methods to inform new strategies to prevent UP.

Statistical methods

Descriptive statistics and a series of logistic regression models were used to assess main and moderating effects. De-

scriptive statistics were generated for the total sample and contraceptive user group (*i.e.*, effective vs. ineffective contraception user). Analyses of variance (ANOVAs) or nonparametric Kruskal-Wallis tests were used to compare the contraceptive user groups on continuous variables. Fisher's exact tests or chi-square tests were used to assess the association between the contraceptive user group and categorical variables. For this assessment, the independent variables used to measure exposure to violence were childhood sexual violence, intimate partner violence, and level of community violence. Other independent variables included problem drinking and gravidity. The moderating variables were depressive symptoms and self-esteem. The outcome of interest was ineffective use of contraception over the 9-month period compared with effective use of contraception over the 9-month period.

Multivariate binary logistic regression models were developed to assess the main effects and moderating effects of childhood sexual violence and ineffective use of contraception by the psychological factors (depressive symptoms or self-esteem). A p -value ≤ 0.2 in the bivariate examination was used as a cutoff to include variables to assess in the multivariate models. Given this conservative cutoff, we included variables marginally related to the outcome on the bivariate examination to assess for confounding effects in the multivariate model. Given the collinearity between depressive symptoms and self-esteem ($R = -0.41$, $p < 0.001$), separate multivariate models were initially created for each moderator. The first multivariate logistic regression model included childhood sexual violence, level of self-esteem, and an interaction term (childhood sexual violence and low self-esteem compared with no childhood sexual violence and normal self-esteem). The second multivariate logistic regression model included childhood sexual violence, depressive symptoms, and an interaction term (childhood sexual violence and high depressive symptoms compared with no childhood sexual violence and normal depressive symptoms). To examine the collective effect of depressive symptoms, self-esteem, and childhood sexual violence, a final multivariate logistic model was developed. Two-tailed p -values of 0.05 were considered statistically significant in all models. All analyses were performed using SPSS 22 (IBM Corp, Armonk, NY).

Results

Of 621 women screened for study, 390 were eligible and 81% of the eligible women consented to participate. We were successfully able to recontact and reinterview 88% of enrolled women 9 months after the baseline interview ($N = 276$), with a 5% lost to follow-up and a 7% refusal rate. At follow-up, we found that 7 women reported trying to conceive and 11 women were not sexually active during the follow-up period; these 18 women were excluded from the analyses. Thus, the final analysis included 258 eligible women with complete baseline and follow-up data.

The majority of participants were young African American women with a mean age of 22 ± 3.3 years (Table 1). Sixteen percent of women were Latina, 22% of women did not finish high school, and 21% of women reported ever being homeless. Over one-half reported being single and in a relationship and 11% reported >20 lifetime sexual partners. Substance use was high in this population with 15% reporting problem

TABLE 1. BASELINE DEMOGRAPHIC CHARACTERISTICS, VIOLENCE EXPOSURE, AND PSYCHOLOGICAL FACTORS BY EFFECTIVE AND INEFFECTIVE CONTRACEPTIVE USE AT FOLLOW-UP

	<i>Total</i> (n = 258)	<i>Effective use</i> (n = 165)	<i>Ineffective use</i> (n = 93)	p
Demographic characteristics				
Age (mean $\pm$ std), ^{a,b}	22.5 $\pm$ 3.3	22.5 $\pm$ 3.3	22.5 $\pm$ 3.2	0.99
Race				
Black	80.2%	64.3%	35.7%	0.64
White	3.5%	55.6%	44.4%	
Other	16.3%	64.3%	35.7%	
Hispanic origin				
Yes	15.9%	65.9%	34.1%	0.95
No	84.1%	63.6%	36.4%	
Education				
<High school	22.9%	66.1%	33.9%	0.99
High school/GED	49.2%	63.8%	36.2%	
College	27.9%	62.5%	37.5%	
Relationship status				
Single, dating >1	31.0%	60.0%	40.0%	0.12
Single, in a relationship	57.4%	63.5%	36.5%	
Other	11.6%	76.7%	23.3%	
Ever homeless				
Yes	20.9%	61.1%	38.9%	0.72
No	79.1%	64.7%	35.3%	
Lifetime sexual partners				
1–4	40.7%	68.6%	31.4%	0.69
5–8	27.9%	61.1%	38.9%	
9–19	20.2%	61.5%	38.5%	
20+	11.2%	58.6%	41.4%	
Problem drinking, past year				
Yes	14.9%	57.7%	42.3%	0.01
No	85.1%	61.7%	38.3%	
Marijuana use, past year				
Yes	42.2%	62.4%	37.6%	0.29
No	57.8%	65.1%	34.9%	
Cigarette use, current				
Yes	74.4%	59.1%	40.9%	0.55
No	25.6%	65.6%	34.4%	
Gravidity (mean $\pm$ std)	1.81 $\pm$ 1.7	1.72 $\pm$ 1.48	1.96 $\pm$ 2.13	0.01
Violence exposure				
Childhood violence				
Childhood physical violence				
Yes	46.9%	62.0%	38.0%	0.06
No	53.1%	65.7%	34.3%	
Childhood sexual violence				
Yes	16.3%	47.6%	52.4%	0.05
No	83.7%	67.1%	32.9%	
Adult violence				
Adult physical violence				
Yes	45.3%	65.0%	35.0%	0.79
No	54.7%	63.1%	36.9%	
Adult sexual violence				
Yes	17.1%	56.8%	43.2%	0.43
No	82.9%	65.4%	34.6%	
Perception of community violence ^{a,b}	37.96 $\pm$ 11.5	38.14 $\pm$ 11.57	37.63 $\pm$ 11.4	0.13
Exposure to violence, ^{a,b}	10.88 $\pm$ 3.9	11.08 $\pm$ 4.14	10.52 $\pm$ 3.6	0.08
Neighborhood disorder, ^{a,b}	27.08 $\pm$ 8.7	27.05 $\pm$ 8.55	27.12 $\pm$ 8.9	0.21
Intimate partner violence, past year				
Yes	34.3%	56.5%	43.5%	0.61
No	65.7%	63.6%	36.4%	
Overall reproductive coercion				
Yes	33.3%	64.0%	36.0%	1.0
No	66.7%	64.0%	36.0%	

(continued)

TABLE 1. (CONTINUED)

	Total (n = 258)	Effective use (n = 165)	Ineffective use (n = 93)	p
Psychological factors				
Depressive symptoms at baseline, ^{a,b}	9.23 ± 5.7	8.72 ± 5.56	10.13 ± 5.8	0.09
Depressive symptoms at baseline				
Yes	41.1%	56.6%	43.3%	0.11
No	58.9%	69.1%	30.9%	
Self-esteem at baseline, ^{a,b}	23.34 ± 5.6	23.99 ± 5.62	22.20 ± 5.3	0.01
Self-esteem at baseline				
Normal/low	59.3%	56.2%	43.8%	0.006
High	40.7%	75.2%	24.8%	

Effective contraceptive use includes (1) consistent use of pills and condoms, (2) adherent use of Depo-Provera, patch, and vaginal ring, or (3) use of an IUD or Implanon over the follow-up period. Ineffective contraceptive use includes (1) inconsistent use of pills or condoms, (2) use of the withdrawal method, or (3) no use of contraception during the follow-up period.

^aMeans.

^bKruskal-Wallis test statistic.

drinking, 42% reporting marijuana use in the past year, and 74% reporting current cigarette use.

Violence exposure and poor psychological health were also high in this group of young women. Overall, 16% reported at least one episode of childhood sexual violence, 47% reported at least one episode of childhood physical violence, 45% reported a history of physical violence, and 34% reported violence by an intimate partner in the past year. The mean level of perceived community violence was 37.96 ± 11.5. Over 40% of women reported high depressive symptoms at baseline, 59% reported low self-esteem at baseline, and the mean level of self-esteem was 23.34 ± 5.6 (Table 1).

Sixty-four percent of women reported effective use of contraception through the follow-up period, and 36% reported ineffective use of contraception. For this assessment, we were most interested in determining the role of violence and psychological factors related to ineffective use of contraception. As shown in Table 1, the experience of childhood sexual violence was significantly related to effective use of contraception. Among young women reporting childhood sexual violence, 48% reported effective use of contraception and 52% reported ineffective use of contraception ($p = 0.05$). We also found that problem drinking related to ineffective use of contraception; 42% of women reporting problem drinking reported ineffective use of contraception and 58% reported effective contraceptive use ($p = 0.01$). In addition, we found a higher mean number of pregnancies among women reporting ineffective contraceptive use (1.96 ± 2.13 and 1.72 ± 1.48 ; $p = 0.01$) (Table 1). The mean level of depressive symptoms was higher among young women reporting ineffective use of contraception compared with effective use of contraception (10.1 ± 5.8 vs. 8.7 ± 5.6 , respectively, $p = 0.09$). The mean level of self-esteem was also significantly lower among women reporting ineffective use of contraception compared with women reporting effective use of contraception (22.0 ± 5.3 and 23.9 ± 5.6 , respectively, $p = 0.01$) (Table 1).

From the bivariate models, the experience of childhood sexual violence and the report of high depressive symptoms increased the likelihood of ineffective use of contraception, while the report of high self-esteem decreased the likelihood of ineffective use of contraception (Table 2). Specifically, women reporting childhood sexual violence at baseline (OR = 2.25, 95% CI: 1.15–4.39) and high depressive symp-

toms at baseline (y/n) (OR = 1.71, 95% CI: 1.02–2.87) were significantly more likely to report ineffective use of contraception and women reporting higher baseline levels of self-esteem were significantly less likely to report ineffective use of contraception (OR = 0.42, 95% CI: 0.25–0.73). Including problem drinking and gravidity did not change the significant findings in these models.

In the multivariate models, the experience of childhood sexual violence and low self-esteem continued to be related to ineffective use of contraception (adjusted odds ratio [aOR] = 2.69, 95% CI: 1.18–6.17, and aOR = 0.51, 95% CI: 0.28–0.93; respectively) (Table 3). The interaction term assessing the moderating effect of low self-esteem on the relationship between childhood sexual violence and ineffective contraception did not support moderation (Table 3). The multivariate logistic regression model, including high depressive symptoms and experiences with childhood sexual violence, showed that childhood sexual violence was significantly related to ineffective use of contraception, but high depressive symptoms were no longer related (aOR = 3.32, 95% CI: 1.31–8.40, and aOR = 1.27, 95% CI: 0.71–2.28; respectively). The interaction terms assessing the moderating effect of depressive symptoms

TABLE 2. PREDICTING INEFFECTIVE CONTRACEPTIVE USE AT FOLLOW-UP AMONG YOUNG SEXUALLY ACTIVE WOMEN (N = 258)

	OR	95% CI	p
Childhood sexual violence	2.25	1.15–4.39	0.02
Childhood physical violence	1.17	0.71–1.95	0.54
Community-level violence ^a	0.73	0.97–1.02	0.73
Gravidity ^a	1.08	0.94–1.25	0.29
Problem drinking	1.18	0.51–2.76	0.96
Self-esteem ^a	0.42	0.25–0.73	0.002
Depressive symptoms (y/n)	1.71	1.02–2.87	0.04
Intimate partner violence, last year (y/n)	1.44	0.82–2.53	0.21

Results from bivariate logistic regression models predicting ineffective compared with effective contraceptive use over the follow-up period.

^aContinuous variables.

CI, confidence interval; OR, odds ratio.

TABLE 3. EXAMINATION OF MODERATION OF CHILDHOOD SEXUAL VIOLENCE AND INEFFECTIVE CONTRACEPTIVE USE BY PSYCHOLOGICAL FACTORS (N=258)

	aOR	95% CI	p
Moderation by low self-esteem			
Exposure to childhood sexual violence	2.69	1.18–6.17	0.02
Self-esteem	0.51	0.28–0.93	0.03
Low self-esteem and childhood sexual violence ^a	0.38	0.08–1.84	0.24
Moderation by high depressive symptoms			
Exposure to childhood sexual violence	3.32	1.31–8.40	0.01
Depressive symptoms	1.27	0.71–2.28	0.42
High depressive symptoms and childhood sexual violence ^b	0.31	0.07–1.31	0.11

Results from multivariate logistic regression models predicting ineffective use of contraception compared with effective use of contraception.

^aInteraction term: Low self-esteem and childhood sexual violence exposure compared with normal self-esteem and no childhood sexual violence exposure.

^bInteraction term: High depressive symptoms and childhood sexual violence exposure compared with low depressive symptoms and no childhood sexual violence exposure.

aOR, adjusted odds ratio.

on the relationship between childhood sexual violence and ineffective contraception did not support moderation by these psychological factors (Table 3). A final multivariate logistic regression model, including childhood sexual violence, high depressive symptoms, and low self-esteem, found that the experience of childhood sexual violence and low self-esteem were significantly related to ineffective use of contraception (aOR=1.99, 95% CI: 1.00–3.97, and aOR=0.47, 95% CI: 0.26–0.86; respectively), but high depressive symptoms were not (aOR=1.18, 95% CI: 0.66–2.09).

Discussion

This longitudinal assessment of young, sexually active, primarily African American women aimed to examine the direct effect of violence exposure, depressive symptoms, and self-esteem on ineffective use of contraception, as well as evaluate the moderating influence of depressive symptoms and self-esteem on the relationship between violence and use of contraception. The results from this study identified both modifiable (low self-esteem) and nonmodifiable (exposure to childhood sexual violence) factors related to ineffective use of contraception, but did not find that depressive symptoms or self-esteem modified the relationship between childhood violence and use of contraception. Others have also examined the main and moderating effects of self-esteem. Morrison et al. recently reported a positive relationship between self-esteem and consistent contraceptive use, but they did not examine the role of violence exposure.⁴ UP has been linked to delayed prenatal care, increased substance use and depression during pregnancy, high rates of infant mortality and preterm birth, reduced breastfeeding, and increased child and maternal violence.^{32–35} Reducing the high rate of UP could have long-term individual and community effects by reduc-

ing poverty, improving education and socioeconomic status for women, expanding the national workforce, and reducing rates of sexually transmitted diseases, HIV, and teen pregnancy.^{36–39} These findings identified several factors to recognize when designing interventions to improve consistent contraceptive use and reduce the risk of UP among young sexually active women.

A high proportion of women enrolled in this urban clinic-based study reported childhood sexual violence, nearly double the proportion reported from national surveys.¹⁴ Prior cross-sectional studies have shown a link between childhood sexual violence and later adverse health outcomes such as high-risk sexual behaviors, inconsistent contraceptive use, and UP, and our longitudinal results support a direct relationship between the experience of childhood sexual violence and ineffective contraceptive use.^{40–48} Others have reported a role of other types of violence, such as intimate partner violence, reproductive coercion or a high level of community violence, and inconsistent use of contraception.^{49,50} We found high levels of violence exposure in this sample, but did not find the experience of reproductive coercion or the report of community violence to be related to ineffective use of contraception in this study.^{27,51,52} It is important to note that in this project, we used a modified version of the reproductive coercion scale developed by Miller and Silverman and did not include all the questions on pregnancy coercion.¹¹ These findings suggest that an experience of sexual abuse in childhood may influence long-term reproductive health behaviors and screening for a history of childhood sexual violence may be particularly important when discussing pregnancy prevention. Developing trauma-informed approaches to promote consistent and effective contraceptive use among women who have experienced childhood sexual violence could be an effective initiative to reduce UP. It should also be noted that over 15% of our sample were Latina, a group of women at particularly high risk for violence, and future studies should specifically examine the role of violence exposure and use of contraception with ethnically appropriate messages for Latina women.⁵³

We found that women with low self-esteem had an independent and significant increased risk for ineffective use of contraception. Limited research has examined the role of self-esteem on use of contraception while recognizing childhood violence exposure. A recent report linked high levels of condom communication assertiveness among sexually active couples and consistent condom use, but violence exposure was not assessed in this study.⁵⁴ Most research has examined the role of depressive symptoms on contraceptive use and found that high depressive symptoms among sexually active women influence contraceptive nonuse^{18,19,55–57} and that adolescents with higher depressive symptoms were most likely to report not using contraception, report inconsistent or incorrect use of contraception, and report early discontinuation of contraception.^{18–20,58} We initially found a role of high depressive symptoms linked to ineffective use of contraception; however, this positive finding did not remain significant in the multivariate model after recognizing the experience of childhood sexual violence. In fact, the report of depressive symptoms in adulthood has been linked to childhood and current violence.⁵⁵ The results from this study indicate that family planning interventions that increase self-esteem among young sexually active women may improve use of contraception. Improving self-esteem may impact a

young women's ability to say no to sexual advances, her assertiveness in requiring contraceptive use during sex, and her ability to discuss use of contraception with sexual partners or a healthcare professional. In fact, we found that women reporting low self-esteem in this study were less likely to report that they were certain about their ability to refuse a sexual advance by their partner, their ability to have a sexual encounter without feeling obligated to have intercourse, and their ability to promote the use of condoms with a sexual partner. In addition, these findings highlight the need to examine and better understand the interrelationship between a woman's mental health status, her prior and current exposure to violence, and the likelihood of consistent and effective use of contraception with a sexual partner.

There are several study limitations that should be noted. First, the sample of women was specific to young, urban, primarily African American women reducing the generalizability of these findings. Second, although we have longitudinal data, the observed associations are subject to alternative explanations due to unmeasured variables causing a spurious association. Third, the psychological factors and contraceptive use were self-reported, a common method used in other research with community-based cohorts.¹⁸ Fourth, methodological issues in the wording of the follow-up questions concerning consistent use (y/n) may have introduced misclassification in the assessment of consistent use of Depo-Provera. Given the limited information on the adherence of required visits for consistent Depo-Provera use, women reporting this method of contraception may have been incorrectly classified as effective contraceptive users if they reported consistent use without an additional probe regarding adherence to required provider visits for Depo-Provera injections. Fifth, we did not collect information on feelings of ambivalence surrounding UP or the role of an UP among close family members, and research has found that ambivalence and UP among family members may contribute to contraceptive choice and use among young sexually active women.^{59,60,61} Finally, we did not collect information on household income or information on the experience of violence during the follow-up period.

In this study, we found a strong, significant, and positive relationship between exposure to childhood sexual violence and ineffective use of contraception. In addition, low self-esteem at baseline was significantly related to ineffective use of contraception during the follow-up period. These findings suggest the importance of screening for childhood sexual violence when discussing pregnancy prevention and promoting interventions to increase self-esteem to improve consistent use of effective contraception methods to reduce UPs among young sexually active women.

Conclusion

Screening for childhood sexual violence, developing trauma-informed approaches, and designing interventions to increase self-esteem could contribute to the improvement in contraceptive use among urban minority women.

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