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Abstract

Young Black men (YBM), aged 13 to 24 years, face a disproportionate burden of sexually transmitted infections (STIs). STI acquisition among YBM is due to incorrect and inconsistent condom use and is exacerbated by multiple sexual partners. Sexual and reproductive health is influenced by a complex interaction of biological, psychological, and social determinants that contribute to increased risk for STI acquisition. However, there are key social determinants of sexual health that play a major role in adolescent sexual risk-taking behaviors: gender norms, environment, peers, and families as well as a desire to impregnate a woman. Associations between contextual factors (risky environmental context, desire to impregnate a woman, and peer norms supportive of unsafe sex) and sexual risk behaviors were examined among a sample of YBM attending adolescent health clinics. This study used baseline data from a randomized controlled trial ($N = 702$). Parental monitoring was also examined as an effect modifier of those associations. Sexual risk behaviors were the frequency of condomless vaginal sex, number of sexual partners within the previous 2 months, and lifetime number of sexual partners. Mean age was 19.7. In the adjusted model, peer norms was the only significant predictor for all sexual risk outcomes ($p < .05$). Parental monitoring was an effect modifier for the perceived peer norms and lifetime sexual partners association ($p = .053$) where the effect of peer norms on lifetime sexual partners was lower for participants with higher levels of perceived parental monitoring.

Keywords

young Black men, condoms, peer norms, parental monitoring, pregnancy, environment, unprotected vaginal sex, sexual partner

Introduction

Persons between the ages of 13 and 24 years experience a disproportionate burden of sexually transmitted infections (STIs) and human immunodeficiency virus (HIV) in the United States (Centers for Disease Control and Prevention [CDC], 2012a, 2015). Within the 13 to 24 age group, there is a disproportionate distribution of STIs among Black non-Hispanics (CDC, 2012a). For example, case rates for Black youth regarding chlamydia and gonorrhea range about 5 to 30 times more than their White counterparts for those aged 15 to 24 years (CDC, 2011). Young Black men (YBM) experience the greatest risk for STI and HIV acquisition (CDC, 2011, 2015). Correct use of the male latex condom primarily prevents STI acquisition (Crosby, Charnigo, Weathers, Caliendo, & Shrier, 2012), but YBM fail to use condoms consistently and correctly (Crosby, DiClemente, Wingood, Lang, & Harrington, 2003; Crosby et al., 2005; Crosby, Milhausen, Sanders, Graham, & Yarber, 2014; Crosby, Sanders, Yarber, Graham, & Dodge, 2002; Steiner, Cates, & Warner, 1999). The problem of STI/HIV is exacerbated if one has multiple partners (Doherty, Minnis, Auerswald,

Adimora, & Padian, 2007; Mah & Halperin, 2010; Morris, Kurth, Hamilton, Moody, & Wakefield, 2009), especially if condoms are not used to protect against STI/HIV.

Sexual and reproductive health is influenced by a complex interaction of biological, psychological, and social determinants (O'Rourke, 2008) that contribute to increased risk for STI acquisition (Aral, Over, Manhart, & Holmes, 2006). It is recognized that social determinants of health, the complex interaction and overlapping of social structures and economic systems, are responsible for health inequities experienced by various populations (Commission on Social Determinants of Health, 2008). However, there are key social determinants of sexual health that play a major role in adolescent sexual risk-taking behaviors: gender norms, environment, peers,

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and families (Viner et al., 2012; Women's Health West [WHW], 2011). The aforementioned social determinants of health are especially important because of the impact they have on adolescent risk behavior and their proximal relation to individual-level behavior (Viner et al., 2012).

Gender norms is a crucial social determinant of sexual health as it can influence one's sexual identity, practices and behavior, and the way in which one enacts his sexuality (WHW, 2011). For men, the cultural ideology of masculinity and what it means to be a "man" encourages young men to actively engage in sexual activity to prove their virility (Wellings et al., 2006). Young men who hold traditional attitudes toward masculinity report having more sexual partners (Pleck, Sonenstein, & Ku, 1993). A higher endorsement of masculinity ideology is related to increased negative condom attitudes, and more negative condom attitudes is related to decreased readiness to use condoms consistently (Noar & Morokoff, 2002). Additionally, desire to impregnate a partner is a contextual factor that may contribute to sexual risk-taking behaviors among men, although desire to impregnate a partner is not traditionally considered a social determinant of health. It is important to study desire to impregnate a partner when considering gender norms because males in the early teen years are more likely to have had sexual intercourse compared with females (CDC, 2012b); and having genetically linked children and fatherhood have been regarded as a central part of masculinity (Sylvest, Christensen, Hammarberg, & Schmidt, 2014). However, this has not been explored among YBM exclusively.

Proximal factors associated with increased risk for STIs and HIV among men include peer influence and environmental context (Kinsman, Romer, Furstenberg, & Schwarz, 1998; Lang et al., 2010; Viner et al., 2012). Factors such as these may explain why Black men, especially YBM, experience much higher rates of STI and HIV acquisition compared with women within their own race and their counterparts across different race/ethnicities. For example, environment plays a role in risk behavior and outcomes as neighborhood deprivation is associated with teenage pregnancy (Harding, 2003) among other negative health outcomes (Aneshensel & Sucoff, 1996; Boyle, Georgiades, Racine, & Mustard, 2007; Knoester & Haynie, 2005). Young people in poor urban settings face health risks due to a lack of public infrastructure, poor housing, crowding, and high levels of violence (Montgomery, 2009). Environmental context is a factor that can explain sexual risk-taking behaviors of YBM, as suggested by an extension of the broken windows theory (Lang et al., 2010). Messages conveyed by a neighborhood that is disordered may contribute to negative health behaviors (Lang et al., 2010).

Peers can have positive or negative influences on young people's health as strong peer relationships is a key

developmental change of early adolescence (Jaccard, Blanton, & Dodge, 2005; Viner et al., 2012). Perceived peer sexual behavior is an important normative predictor of intention to engage in sexual intercourse as well as sexual debut (Kinsman et al., 1998). Other examples of contextual factors such as supportive friendships and parent connectedness predict decreased likelihood of sexual risk behavior (Heinrich, Brookmeyer, Shrier, & Shahar, 2006).

Finally, perceived parental monitoring is an important determinant of health, within the broader context of social determinants of health, for reducing sexual risk-taking behavior. While family ecology is related to HIV sexual risk behaviors (Voisin, 2002), evidence suggests that perceived parental monitoring is a protective factor against sexual risk-taking behavior (Li, Stanton, & Feigelman, 2000; Steinberg, Fletcher, & Darling, 1994). One important insight from the extant literature is that protective effects of perceived parental monitoring may occur only for young females rather than young males (Sieverding, Adler, Witt, & Ellen, 2005). Similarly, this protective effect may occur with non-Black youth rather than those who identify as Black (Black, Ricardo, & Stanton, 1997; Crosby, DiClemente, et al., 2002; Dutra, Miller, & Forehand, 1999; Li et al., 2000; Miller, Levin, Whitaker, & Xu, 1998; Romer et al., 1994). Unfortunately, perceived parental monitoring has not been well explored within the larger context of risk factors for sexual behaviors that may lead to STI/HIV acquisition nor has it been fully explored as a potential effect modifier of other social determinants of health. The purpose of this study was to conduct an analysis of proximal determinants of health on sexual risk-taking behaviors among high-risk YBM in the context of each other. The study explored the effects of environmental context, desire to impregnate a partner, and perceived peer norms on sexual risk-taking behavior. The authors also explored whether parental monitoring modified the effects of the predictors of interest on sexual risk outcomes.

Method

Study Sample

Cross-sectional baseline data from a larger randomized controlled trial were used for analysis of this report (Crosby, Charnigo et al., 2014). Data were collected in clinics diagnosing and treating STIs in New Orleans, Louisiana; Baton Rouge, Louisiana; and Charlotte, North Carolina. Males who identified as Black/African American, 15 to 23 years of age, were eligible. The researchers did not want to limit the study sample exclusively to individuals who identified as African Americans, thus "Black" was included as an option during the screening process. The

additional option allowed individuals who were considered to be Black but did not identify as African American to be included in the study. Seven hundred and two YBM were enrolled in the study and completed a baseline survey using an audio-computer-assisted self-interview. The institutional review boards for the University of Kentucky and Louisiana State University Health Sciences Center approved the original randomized controlled trial.

Study Variables

YBM answered various questions related to sexual health, sexual risk behavior, and parental monitoring, among other variables pertaining to individual-level condom use knowledge, skills, and outcome expectations. Outcome variables were as follows: (a) recent number of all sexual partners (assessed as the number of partners a participant had in the prior 2 months before completing the baseline survey), (b) lifetime number of all sexual partners, and (c) condomless vaginal sex (CVS). The predictor variables were environmental context score, desire to impregnate a partner, and the extent to which friends thought it was okay to have vaginal or anal sex without a condom. These variables were chosen as the predictors of interest because they have been identified as social determinants of health, are specific to YBM sexual risk behavior, and are proximal to YBM (CDC, 2012b; Kinsman et al., 1998; Lang et al., 2010; Viner et al., 2012). Perceived parental monitoring score was treated as the effect modifier because it has been identified as a protective factor; however, it is unclear if it modifies the effects of key social determinants of health.

Measures

To determine the number of sexual partners, the following statement first prompted YBM: "On this survey, 'sex' means when you put your penis in your partner's vagina and/or anus. The term 'oral sex' means when you put your penis in your partner's mouth, or a male puts his mouth on a female's private parts. Please keep these terms in mind when answering the following questions." Study participants were then asked, "How many people have you had sex with in the past 2 months (penetration only)?" to determine the recent number of sexual partners. For the lifetime number of sexual partners, study participants were asked, "How many people have you had sex with in your lifetime (penetration only)?" CVS was created by subtracting the reported number of times respondents used a condom during vaginal sex during the previous 2 months from the number of times they had vaginal sex during the same time frame.

Perceived parental monitoring was measured using nine-item scale. The scale was developed to assess perceptions of

parental tracking and supervision of their whereabouts and activities in which they are engaged. YBM were asked to assess the extent to which a parental figure knew with whom they spent their time and activities. Examples of items are as follows: (a) "When you are away from home and not at school or work, does this person know where you are?" (b) "When you are away from home and not at school or work, does this person know who you are with?" Response options ranged from *never* (1) to *always* (5). The interitem reliability coefficient for this scale was .98. Items were summed to create a continuous score. Higher scores indicated more perceived parental monitoring.

A three-item index assessed environmental context. The questions asked whether YBM had seen an arrest, whether they had seen someone using or selling illicit drugs, and if a person tried to break into their home in the 6 months prior to completing the survey. YBM were asked: (a) "In the past 6 months, have you seen someone else get arrested?" (b) "In the past 6 months, have you seen other people using or selling illegal drugs?" (c) "In the past 6 months, have you been at home when someone has broken in or tried to force their way into your home?" Response options ranged from *never* (1) to *many times (more than 4)* (4). Items were summed to create a continuous score. Higher scores indicated a riskier environment.

Desire to impregnate a partner was assessed with one item, "How much do you want somebody to be pregnant with your child right now?" Response options ranged from *not at all* (1) to *very much* (5). Higher scores indicated more desire to impregnate a sexual partner.

Perceived peer norms toward condom use was assessed using one item to determine how much YBM perceived their peers would think sexual intercourse (vaginal or anal) without a condom is acceptable. Next, YBM were asked several other questions prompted by the following statement: "These next questions ask about YOUR FRIENDS, your friends can be boys or girls." Then study participants were asked: "If you asked a group of your friends, how many do you think would think, it is ok to have vaginal or anal sex without a condom." Response options ranged from *not at all* (1) to *very much* (5). Higher scores indicated greater norms for having vaginal or anal sex without a condom.

Statistical Analysis

Data were entered and cleaned using IBM SPSS Version 19 (Chicago, IL). SPSS was used to calculate Cronbach's alpha to determine reliability of the scale measure for perceived parental monitoring. Model data were analyzed using SAS Version 9.3 (SAS Institute, Carey, NC). The univariate and frequency procedures in SAS were used to generate descriptive statistics for study variables. Univariate

negative binomial regression models were constructed to calculate odds ratio (*OR*) estimates for each predictor relative to each outcome. Negative binomial regression models were then constructed to include the potential confounding effects of demographic variables (age and highest level of educational attainment) and obtain adjusted *OR* estimates. The main predictor variables were forced into the model simultaneously so that effect estimates could be obtained for one of the main predictor variables while controlling for the effects of the other predictor variables of interest. Interaction terms between perceived parental monitoring and the contextual variables of interest were added to the adjusted models to assess moderation. Alpha was set at .05.

Results

Sample Characteristics

Table 1 displays median and mean values of the outcome and predictor variables as well as the frequencies for demographic variables. The mean age of the sample was 19.7 (± 1.9 , range = 15-23) years. Median values for recent number of sexual partners and lifetime number of sexual partners were 2 (± 19.1) and 11 (± 6.2), respectively. The median number of CVS encounters reported was 1 (± 12.4). Under half (45%) of the sample reported that they have a parental figure. The mean parental monitoring score was 29.5 (± 7.0) and the mean environmental context score was 6.01 (± 2.0). The mean pregnancy desire score was 1.8 (± 1.2). The mean score for perceived peer norms for unprotected sexual intercourse was 2.1 (± 1.1).

Crude Effect Estimates

Table 2 displays the *OR* estimates for the models. Parental monitoring had a significant small effect on lifetime number of sexual partners (*OR* = 0.97, 95% CI [0.95, 0.99], $p < .001$) and on condomless vaginal sex (*OR* = 0.94, 95% CI [0.90, 0.98], $p < .001$). The environmental context score was significantly associated with the number of recent sexual partners (*OR* = 1.12, 95% CI [1.07, 1.16], $p < .001$). Pregnancy desire was associated with the number of CVS occurrences (*OR* = 1.20, 95% CI [1.03, 1.40], $p = .02$). YBM perceived peer norms for CVS was associated with lifetime number of sexual partners (*OR* = 1.12, 95% CI [1.04, 1.19], $p = .001$); recent number of sexual partners (*OR* = 1.18, 95% CI [1.10, 1.26], $p < .001$); and the number of CVS occurrences (*OR* = 1.38, 95% CI [1.18, 1.61], $p < .001$).

Adjusted Odds Ratio (AOR) Estimates Without the Interaction Term

Effect estimates for the adjusted model are reported in Table 2. Perceived peer norms for unprotected sexual

Table 1. Descriptive Statistics for Demographics, Independent Variables, and Outcome Variables.

Variable	<i>n</i>	%
Education		
<9th Grade	53	7.7
10th Grade	82	11.9
11th Grade	111	16.0
High school diploma/GED	299	43.2
\geq College	147	21.2
Participant and/or family member received public benefits		
Public assistance	563	83.4
Food stamps (EBT)	64	9.5
WIC	13	4.7
Federally subsidized housing	3	0.4
Did not receive services	32	4.7
Variable	<i>n</i>	Mean (\pm SD)
Age	701	19.7 (1.9)
Parental monitoring score	315	29.5 (7.0)
Environmental context score	671	6.0 (2.0)
Pregnancy desire	585	1.8 (1.1)
Perceived peer norms of unprotected vaginal and anal sex	691	2.1 (1.1)
Parental monitoring score	315	29.5 (7.0)
Environmental context score	671	6.0 (2.0)
Variable	<i>n</i>	Median ^a
Lifetime number of sexual partners	614	11 (19.1)
Number of recent sexual partners	672	2 (6.2)
Number of unprotected sexual encounters	546	1 (12.4)

Note. GED = Grade Equivalency Diploma; EBT = electronic benefit transfer; WIC = women, infants, and children.

^aMedian value reported due to asymmetrical distribution of the data.

intercourse was significantly associated with the lifetime number of sexual partners (*AOR* = 1.19, 95% CI [1.07, 1.31], $p = .0006$) in the model. Perceived peer norms of unprotected sex had a slightly smaller effect on recent number of sexual partners, but was a significant predictor for the model (*AOR* = 1.15, 95% CI [1.04, 1.27], $p = .005$). Finally, perceived peer norms of unprotected sex had a larger effect on the number of CVS occurrences (*AOR* = 1.48, 95% CI [1.13, 1.93], $p = .043$).

Adjusted Odds Ratio Estimates With an Interaction Term

The effect estimates for the models containing interaction terms are reported in Table 3. For the models containing the environmental context \times parental monitoring interaction term, there was a significant effect of peer norms on lifetime number of sexual partners (*AOR* = 1.19, 95% CI

Table 2. Crude and Adjusted Odds Ratio Estimates Between Predictor Variables of Interest and Sexual Risk Outcomes.

Variable	Lifetime number of sexual partners			Number of recent sexual partners			Number of unprotected sexual encounters		
	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p
<i>Crude models</i>									
Parental monitoring score	0.97	[0.95, 0.99]	.0006*	0.99	[0.97, 1.00]	.17	0.94	[0.90, 0.98]	.0045*
Environmental context score	1.04	[1.00, 1.08]	.06	1.12	[1.08, 1.16]	<.0001*	1.06	[0.98, 1.15]	.17
Pregnancy desire	1.04	[0.97, 1.11]	.27	0.94	[0.87, 1.01]	.09	1.20	[1.03, 1.39]	.02*
Peer norms	1.12	[1.04, 1.19]	.001*	1.18	[1.10, 1.26]	<.0001*	1.38	[1.18, 1.61]	<.0001*
<i>Adjusted models, no interaction term</i>									
Parental monitoring score	0.99	[0.97, 1.00]	.11	1.00	[0.98, 1.02]	.99	0.98	[0.93, 1.03]	.35
Environmental context score	1.03	[0.97, 1.10]	.28	1.03	[0.97, 1.09]	.29	1.07	[0.94, 1.22]	.27
Pregnancy desire	1.04	[0.94, 1.16]	.40	1.04	[0.94, 1.16]	.41	1.05	[0.82, 1.33]	.72
Peer norms	1.19	[1.08, 1.31]	.0006*	1.15	[1.04, 1.27]	.005*	1.48	[1.13, 1.93]	.004*

Note. OR = odds ratio; CI = confidence interval.
*Significant at $p < .05$.

Table 3. Adjusted Models With Interaction Terms.

Variable	Lifetime number of sexual partners			Number of recent sexual partners			Number of condomless vaginal sexual encounters		
	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p
<i>Environmental context models</i>									
Parental monitoring score	1.04	[0.97, 1.10]	.27	1.03	[0.97, 1.09]	.37	0.98	[0.83, 1.16]	.82
Environmental context score	1.31	[0.98, 1.74]	.07	1.17	[0.90, 1.53]	.25	1.09	[0.53, 2.28]	.81
Pregnancy desire	1.03	[0.93, 1.14]	.55	1.04	[0.94, 1.15]	.49	1.05	[0.82, 1.33]	.72
Peer norms	1.19	[1.08, 1.31]	.0004*	1.15	[1.04, 0.27]	.005*	1.48	[1.13, 1.93]	.004*
Environmental context × Parental monitoring	—	—	.10	—	—	.34	—	—	.96
<i>Pregnancy desire models</i>									
Parental monitoring score	0.97	[0.94, 1.01]	.11	1.00	[0.97, 1.03]	.99	0.93	[0.85, 1.02]	.11
Environmental context score	1.03	[0.98, 1.09]	.24	1.03	[0.97, 1.09]	.29	1.07	[0.94, 1.22]	.28
Pregnancy desire	0.86	[0.55, 1.35]	.51	1.04	[0.68, 1.60]	.86	0.52	[0.19, 1.43]	.21
Peer norms	1.18	[1.07, 1.30]	.0008*	1.15	[1.04, 1.27]	.0048*	1.46	[1.12, 1.90]	.005*
Pregnancy desire × Parental monitoring	—	—	.38	—	—	.98	—	—	.18
<i>Peer norms models</i>									
Parental monitoring score	0.96	[0.92, 0.99]	.01*	0.99	[0.96, 1.03]	.76	0.98	[0.88, 1.1]	.78
Environmental context score	1.03	[0.98, 1.1]	.27	1.03	[0.97, 1.09]	.28	1.07	[0.94, 1.22]	.27
Pregnancy desire	1.04	[0.94, 1.15]	.46	1.04	[0.94, 1.16]	.41	1.04	[0.81, 1.33]	.75
Peer norms	0.79	[0.52, 1.2]	.27	1.07	[0.69, 1.64]	.76	1.66	[0.43, 6.47]	.46
Peer norms × Parental monitoring	—	—	.053	—	—	.73	—	—	.32

Note. OR = odds ratio; CI = confidence interval.
*Significant at $p < .05$.

[1.08, 1.3], $p = .0004$); number of recent sexual partners ($AOR = 1.15$, 95% CI [1.04, 1.27], $p = .005$); and CVS occurrences ($AOR = 1.48$, 95% CI [1.13, 1.93], $p = .004$). For the models containing the pregnancy desire × parental monitoring interaction term there was a significant

effect of peer norms on lifetime number of sexual partners ($AOR = 1.18$, 95% CI [1.07, 1.30], $p = .0008$); number of recent sexual partners ($AOR = 1.15$, 95% CI [1.04, 1.27], $p = .0048$); and CVS occurrences ($AOR = 1.46$, 95% CI [1.12, 1.90], $p = .005$). For the models containing

the peer norm \times parental monitoring interaction term, the *p*-value for the interaction term was .053) when assessing effect modification of peer norms on lifetime number of sexual partners. There was a significant main effect for perceived parental monitoring (*AOR* = 0.96, 95% CI [0.92, 0.99], *p* = .01) on lifetime number of sexual partners when the peer norm \times parental monitoring interaction term was included in the model. However, the *OR* of perceived peer norms on lifetime sexual partners was 0.79 (95% CI [0.52, 1.2], *p* = .27) when modeling the predictor with the peer norm \times parental monitoring interaction term.

Discussion

This study sought to describe the effects of contextual variables (environmental context, pregnancy desire, and peer norms toward condom use) on sexual risk outcomes (number of recent and lifetime sexual partners and unprotected vaginal sex) among YBM. Environmental context was not a significant predictor of any of the sexual risk outcomes, after controlling for other predictor variables and demographic variables. Environmental context was associated with sexual risk-taking behavior (i.e., recent number of sexual partners) in the crude model. However, when this predictor was modeled with pregnancy desire and perceived peer norms toward condom use, there was no statistically significant effect contrary to previous reports (Lang et al., 2010; Li et al., 2000). When interaction terms for environmental context with parental monitoring and pregnancy desire with parental monitoring were included for modeling the different outcomes (i.e., number of lifetime sexual partners, number of recent sexual partners, and CVS), the main effect of perceived peer norms was statistically significant. However, when the interaction term between peer norms and parental monitoring was included for modeling lifetime number of sexual partners, the main effect of perceived peer norms was not significant but the main effect for parental monitoring was significant. In this study, there was a difference in the effect of perceived peer norms on lifetime number of sexual partners for different values of perceived parental monitoring score. There was a change in the effect of perceived peer norms on lifetime number of sexual partners; the *OR* was 0.78 when the interaction term was included versus 1.19 when the interaction term was not included in the model.

The findings suggest that practitioners should continue to target peer groups of YBM when designing interventions designed to reduce sexual risk-taking behaviors. While it has been established that peer norms influence adolescent risk-taking behavior (Kinsman et al., 1998), this study is the first to examine the effect of peer norms in the context of other social determinants of health

(environment and pregnancy desire) among a sample of YBM, exclusively. To the authors' knowledge, it is the first study to analyze proximal determinants of health together, and the first to assess whether parental monitoring modifies the relationship between the proximal, social determinants of health, and risk behavior. This study is unique as it provides evidence supporting the value of targeting peer norms for condom use among high-risk YBM in the context of other key proximal, social determinants of health. Indeed, efforts devoted to targeting YBM peer leaders to disseminate health information to their peer groups are beneficial for mitigating negative sexual outcomes (Young et al., 2013). Targeting parents and guardians is still important, as parental monitoring was a moderator of the peer norm/lifetime number of sexual partners association in this study.

Findings further suggest that perceived parental monitoring, as an effect modifier, may not have a protective effect for YBM on all sexual risk behaviors directly when considering the effects of contextual variables included in this study. However, perceived parental monitoring moderated the relationship between perceived peer norms and number of lifetime sexual partners in this study. This variable may be important when peers exert less influence at the onset of YBM risk-taking behavior. The lack of a protective effect against the other sexual risk-taking behaviors may be due to several reasons. Parental monitoring can mitigate adolescent sex risk-taking behavior (Li et al., 2000; Steinberg et al., 1994), but the YBM in this study may not communicate with their parents on issues regarding sex and condom use, although this was not directly assessed in the study. Previous studies report that a lack of communication may cause adolescents to turn to peers and that peers may then influence their behavior (Whitaker & Miller, 2000). The protective effect of parental monitoring is beneficial when there is quality parent-teen communication about sex as opposed to more frequent communication (Wilson & Donenberg, 2004). The YBM in this sample were high risk and had to contend with issues surrounding poverty, as most participants in this sample were receiving some form of public assistance. Social capital, poverty, and income inequality are predictors of STIs including gonorrhea, syphilis, chlamydia, and AIDS case rates (Holtgrave & Crosby, 2003). Those with socioeconomic disadvantages are less able to exercise reproductive choice because of reduced access to resources and services that would mitigate negative health outcomes (WHW, 2009). The authors did not control for variables related to poverty because the primary focus of the research was proximal, social determinants of health as outlined by Viner et al. (2012).

The study findings support prior research that parental monitoring operates differently in YBM than it does for young Black women or youth from other racial/ethnic

groups (Black et al., 1997; Crosby, Sanders, et al., 2002; Dutra et al., 1999; Li et al., 2000; Miller et al., 1998; Romer et al., 1994; Sieverding et al., 2005). The differences may be due to the family structure of YBM or gender norms. Family structure is a predictor of initiating substance use and sexual intercourse in early adolescence (Flewelling & Bauman, 1990). Prior research reports that coming from a single-parent home and being Black is positively associated with a history of sexual intercourse, irrespective of income where effect sizes were larger among younger youth compared with older youth; and among younger teens, females were less likely than males to have initiated sexual intercourse (Blum et al., 2000). Although the nonmarital birth rate for Black women declined 12% between 1995 and 2002, the nonmarital birthrate for Black woman was the highest among all women (Ventura, 2009). Taken together, the joint effect of these forces limit YBM and their parents to communicate effectively about sex and thus limits the effects of parental monitoring on YBM sexual risk behavior. It should be noted that family structure was not directly assessed in this study. Another reason that could explain the lack of a parental monitoring effect is gender norms. A review of the literature cited numbers of sexual partners and attitudes toward condoms use as two themes related to masculinity (Zeglin, 2015). Men with traditional attitudes toward masculinity report more sexual partners (Pleck et al., 1993) and less favorable attitudes toward condom use (Noar & Morokoff, 2002). The protective effects of parental monitoring were not able to overcome the potential traditional attitudes toward masculinity and sex among the sample in this study. However, parental monitoring still has protective benefits to guard against the influence of deviant peer groups on sexual risk behavior (Ahmadi, Sangdeh, Aminimanesh, Mollazamani, & Khanzade, 2013), which can explain why the peer norm \times parental monitoring term was trending toward significance in the study. This effect only occurred for the distal outcome rather than proximal risk-taking behavior in the study.

Environmental context was associated with the number of recent sexual partners in the crude model. This contextual factor was not associated with sexual risk-taking behavior for YBM when considered in the context of other social factors. What this implies is that interventions targeting sexual risk-taking behaviors may transcend the environment in which they are implemented (i.e., interventions may not be limited by the environment, at least when targeted to YBM). Thus, the environment should not have a role in whether an intervention focused on risk-taking behavior finds significant effects.

Factors beyond parental monitoring and environmental context, such as desire for pregnancy, can explain why YBM continue to engage in sexual risk-taking behavior.

A recent longitudinal study published by the authors reported that the odds of conceiving a pregnancy increases, within a 6-month follow-up period, the more YBM believe a woman wants to be pregnant with their child (Crosby, Ricks, Salazar, Geter, & Jones, 2014). Another study reported that while most YBM indicate that they do not intentionally try to impregnate their female partners, some (39%) report a desire to impregnate a partner and among those who desire a pregnancy, views are generally favorable about becoming a father at an early age (Davies et al., 2004). Pregnancy desire is associated with having greater perceived barriers to condom use (Davies et al., 2003). Perceived barriers to condom use is associated with noncondom use (Katikiro & Njau, 2012) and failure to use condoms consistently and correctly put YBM at risk for STI/HIV acquisition (Crosby et al., 2003; Crosby et al., 2005; Crosby, Milhausen, et al., 2014; Crosby, Sanders, et al., 2002; Steiner et al., 1999), thus contributing to the sexual health disparities experienced by YBM.

The results of this study support previous reports suggesting that peer norms influence condom use among adolescents (DiClemente, 1991; Gardner & Steinberg, 2005; Latkin, Forman, Knowlton, & Sherman, 2003). The results from this report suggest that the single greatest return on behavioral intervention efforts for YBM may occur for peer norms pertaining to condom use. Sexual risk increases as YBM perceive that more of their friends find sexual risk-taking behavior acceptable. Whether these perceived norms actually mirror reality is not known and thus one potential intervention tact is to provide YBM with a more realistic, and more positive, perception of peer norms supporting condom use. Another consideration is to determine the level of perceived parental monitoring when designing interventions. Though the research is moving toward targeting network transmission, researchers should account for high levels of perceived parental monitoring when designing interventions for at-risk YBM. They should also develop strategies to incorporate high levels of perceived parental monitoring when targeting YBM peer groups.

Limitations

This study had several limitations such as the reliance on participant self-report of sexual risk behaviors. Participants could have overestimated or underestimated their risk-taking behaviors due to inaccurate recall. However, the authors used a recall period of 2 months so that YBM could provide more accurate answers. The analysis for this article relied on baseline data so it is unclear if the main factors observed for this report have the same effects over time. There is the potential that effects can change as participants become more aware of their risk for acquiring an STI or if

the parental figures have more influence on YBM. Only 315 participants indicated that they had a parental figure. It is conceivable that the lack of significance for parental monitoring scores was due to a lack of power for parental monitoring. Also, the participants were older as indicated by the mean age for the sample, so they could have had living situations in which they were not dependent on a parental figure. The age range of the sample was wide in this study and that could have affected effect estimates. Older participants could have had less parental monitoring, and thus engaged in more sexual risk-taking behavior. However, models were adjusted for the confounding effects of age to produce the most robust estimates. Although the peer norm/parental monitoring interaction term was not significant at .05, this lack of statistical significance may be a Type II error and a result of a lack of power to detect a significant effect though the authors cannot directly assess whether this is true. This study looked at cross-sectional data, prospective studies are needed to accurately quantify the effect of the peer norms/parental monitoring interaction and to determine if this effect holds over longer periods of time. The authors did not apply a Bonferroni adjustment to the overall error rate for the multiple regression models that were run. If the authors were to apply a Bonferroni adjustment for an alpha of .05 and the amount of tests that were run ($k = 18$), perceived peer norms for unprotected sex would have still been the most powerful predictor of all the variables under study for CVS. The study relied on a subset of YBM from a clinic-based sample so the results cannot be generalized to all YBM. The YBM sampled for this study engaged in some health-promotive behaviors by seeking sexual health services and counseling, and it is reasonable to assume that such engagement reduces their risk-taking behavior. Finally, the study only examined factors that predict risk-taking behavior as a form of STI transmission. Indeed, there are other key determinants that influence whether STIs will be transmitted from one person to another and the extent of the spread of STIs in different populations including sexual network patterns, duration of infectiousness of an infected person, sexual intercourse with members of groups with high STI prevalence, antibiotic use and drug resistance, timely and accurate diagnosis, and appropriate treatment (Aral et al., 2006). The scope of this research was to examine established social determinants of sexual health and their influence on sexual risk-taking behavior. This research offers insights on the effects of key proximal, social determinants of health on sexual risk-taking behavior when they are considered simultaneously.

Conclusions

For YBM, perceived peer norms appears to have the greatest influence on sexual risk-taking behavior when

accounting for other factors such as parental monitoring, environmental context, and pregnancy desire. However, perceived parental monitoring may moderate the relationship between perceived peer norms toward risk-taking behavior and accounting for this may be vital when designing interventions for this population. Future studies should address how the contextual factors investigated in this study may change as a consequence of behavioral interventions. Incorporation of some aspect of parental monitoring when designing interventions for YBM and their peer groups is warranted.

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