Strategies for Managing the Dual Risk of Sexually Transmitted Infections and Unintended Pregnancy Among Puerto Rican and African American Young Adults

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Although young adults in the United States are at increased risk for sexually transmitted infections (STIs) and unintended pregnancy, they do not report high rates of dual-method use (condoms plus other contraception) for prevention. We used prospective qualitative data from 69 urban Puerto Rican and African American individuals aged 18 to 25 years to determine how they managed these risks in their heterosexual relationships during a 4- to 8-week period. Hormonal or long-acting contraceptive use, condoms, and withdrawal were the most common unintended pregnancy prevention strategies; condoms, STI testing, and perceived fidelity were dominant among STI prevention strategies. We need to shift the focus from dual-method use toward a broader concept of dual protection to be more responsive to young adults' concerns, perceptions, and priorities. (*Am J Public Health.* 2012;102:449–456. doi:10.2105/AJPH.2011.300461)

The dual burden of unintended pregnancy and sexually transmitted infections (STIs) among adolescents, young adults, and ethnic minority groups in the United States is well documented. In 2002, among women aged 20 to 24 years, 45% of pregnancies were mistimed or unwanted, with higher prevalence among African American and Hispanic women compared with White women (52.9% and 46.5%, respectively, vs 41%).[1] Young people aged 25 years or younger are also at high risk for nearly all major STIs, and African American and Hispanic populations are at higher risk compared with White populations.[2,3] For example, in 2009, the rate of HIV diagnosis was 144.7 per 100 000 for African American, 38.3 per 100 000 for Hispanic, and 11.2 per 100 000 for White young adults aged 20 to 24 years.[4] These disparities have been a steady cause for concern within the STI and reproductive health fields.[5,6]

The co-occurrence of unintended pregnancy and STIs has prompted a relatively new body of research and interventions to focus on dual protection, which generally refers to behaviors that protect from both outcomes simultaneously. Work on dual protection to date almost exclusively has focused on dual-method use or the concurrent use of a condom (male or female) for STI prevention and a hormonal or long-acting contraceptive for unintended pregnancy prevention.[7] National surveillance on dual-method use at last sexual intercourse shows that it is increasing but still fairly low. For example, females aged 15 to 19 showed a positive trend in the reported use of condoms and a hormonal contraceptive method at last sexual intercourse: 8% in 1995, 20% in 2002, and 21% in 2006 to 2008.[8] The latest available data (2002) for women aged 20 to 24 years showed that the prevalence of dual-method use was about half that for adolescents.[9]

Studies on dual-method use are mostly quantitative, tend to analyze dual use at a single point in time (e.g., at last sexual intercourse), and vary in their samples and predictors of dual protection, with mixed results. For example, race/ethnicity was not associated with dual-method use in one study but was associated in different directions in others.[10–12] Other researchers have found positive associations between dual-method use and having higher educational attainment, being younger, feeling more at risk for STIs, being strongly motivated to avoid pregnancy, communicating with partners or parents about condom use, having positive attitudes about condoms, having a history of condom use, and having more than 1 partner in the previous 12 months, among other correlates.[10–17] Conceptually, the determinants of dual use are multifaceted, involving the various barriers and facilitators of hormonal or long-acting contraceptive *and* condom use, such as side effects, health knowledge, service access, and relationship context.[13,18,19] Finally, interventions aimed at increasing dual-method use are few and have had modest results.[10,20,21]

More research is needed on dual-method use because it is generally agreed to be the most effective way to prevent both outcomes among sexually active persons.[22,23] However, focusing exclusively on dual-method use has important limitations. Cates and Steiner[22] emphasized the need to modify each person's dual-protection approach according to both epidemiological and individual characteristics. Berer[7] called for an expanded definition of dual protection that moves beyond dual-method use to include other methods and approaches to risk reduction and prevention, such as abstinence, consistent condom use, and condom use plus emergency contraception. She encouraged the sexual health field to overcome the disciplinary divide between STI prevention and unintended pregnancy prevention and to be more creative in understanding and promoting dual protection.[7]

We built on this work and examined how young adults manage the simultaneous risks of unintended pregnancy and STIs in their sexual relationships by looking at not only dual-method use (classic dual protection) but also other strategies and perceptions that they draw on to minimize or address the risks they face. We used prospective qualitative data from 69 sexually active Puerto Rican and African American young adults to create an expanded list of dual-protection approaches like those

Berer proposed yet one based on what young adults actually reported doing and thinking over a 4- to 8-week period. Our goal was to help identify alternative ways to view, research, and ultimately promote dual protection in this high-risk population.

METHODS

Data were drawn from the Philadelphia and Hartford Research and Education on Sexual Health and Communication, a research project funded by the US Centers for Disease Control and Prevention (CDC) and carried out between 2004 and 2008 by the University of Connecticut and the Family Planning Council. The study population included sexually active Puerto Rican and African American men and women aged 18 to 25 years living in neighborhoods of Philadelphia, PA, and Hartford, CT, with relatively high teenage pregnancy and STI prevalence and high proportions of 1 or both ethnicities. Project focus areas included decision making, partner communication, and behaviors related to contraceptive use, condom use, pregnancy, and STIs, as well as the broader social contexts of study participants.

Philadelphia and Hartford Research and Education on Sexual Health and Communication used 6 data collection approaches that built on one another over the project period to obtain a rich set of qualitative and quantitative data on young adults from those areas. For this analysis, we used qualitative data collected from 1 approach: a prospective diary interview method carried out during 2006 to 2007. Criteria for participation in the diary interview method included self-identified Puerto Rican or African American ethnicity, age 18 to 25 years, not currently pregnant (females), born in the United States or Puerto Rico, and being currently sexually active with a heterosexual partner. To recruit participants, teams used flyers, newspaper advertisements, street and community outreach (e.g., near local colleges, at local libraries), and word of mouth or referrals. Purposive sampling was used to recruit approximately equal numbers of men and women and Puerto Rican and African American subjects from both sites. Study staff did not keep figures on the total number of persons approached about participating in the diary interview method.

Participants were asked to chronicle their sex-related communication and behaviors on a daily basis for 5 consecutive weeks in diary form. Each participant returned for weekly debriefing with an interviewer. The interviewers used the diaries as a basis for guiding participants through a more detailed recounting of the previous week's events day by day. The actual time between each debriefing interview ranged from approximately 1 week to more than 2 weeks in some cases, for a total diary period of 4 to 8 weeks. The debriefing interviews were conversational in style and in-depth. Interviewers used a semistructured interview guide to ensure discussion about participants' sexual and romantic relationships and condom and contraceptive use. Interviewers allowed the discussion to follow the interests of the participants, with many participants talking about their families, jobs, and daily activities.

All research participants provided informed consent and received financial compensation for their time ($25 per interview). All interviewers were White, African American, or Hispanic women with extensive experience and training in interviewing and rapport-building skills. Nearly all interviews were conducted in English (2 were in Spanish), and all were conducted at study offices. Debriefing interviews took, on average, 1 hour each; they were all audio recorded, transcribed verbatim (with simultaneous translation, when necessary), and de-identified.

Four analysts examined the transcripts from all participants' debriefing interviews for information on participants' and partners' pregnancy intentions, pregnancy and STI prevention behaviors, condom and contraceptive use, and STI risk perceptions and testing behaviors. Relevant text was segmented with broad codes (e.g., "condoms/contraception," "STI/HIV," "exclusivity," and "pregnancy/children"). One author examined the segments for behaviors and beliefs that had the potential to affect a participant's real or perceived risk of unintended pregnancy and STIs. These behaviors and beliefs included both the actions that reduced unintended pregnancy and STI risk (e.g., contraceptive use, condom use) and the perceptions of the participants that led them to feel protected in some way from those risks (e.g., trust in a partner, belief that one is infertile). A participant's dual-protection strategy was defined as his or her set of behaviors and perceptions used over the course of the diary interview time period. These strategies reflected not only the participants' own behaviors but also the reported behaviors of their partners. For example, men whose partners used hormonal contraception were cataloged as "using" hormonal contraception as part of their dual-protection strategy. As emphasized by men who did not know whether their partners used contraceptives, the analysis relied on only what participants reported and knew.

This information was summarized for each participant's heterosexual partnership and then cataloged and tallied. The summaries were organized into 4 categories: (1) hormonal or long-acting methods (i.e., the pill, injectable contraception, the vaginal ring, the patch, and sterilization) and condoms used; (2) condoms and no hormonal or long-acting methods used; (3) hormonal or long-acting methods and no condoms used; and (4) no hormonal or long-acting methods and no condoms used. More detailed subcategories were created within each of these groups as more participants and strategy combinations were cataloged. Consistency of condom or other contraceptive use reflected the times a method was reportedly used over all the sexual encounters reported by a participant with a particular partner. Inconsistent use included sporadic use and method stoppage during the diary period. Relationships in which the female partner was currently pregnant (n=2) or reportedly infertile by clinician assessment (n=1) or in which a desire for pregnancy was mutual and consistent (n=3) were excluded from the analysis, given the absence of unintended pregnancy risk during the diary period. Each relationship was categorized as serious or casual. Serious relationships generally had expectations of fidelity and high emotional attachment, whereas casual relationships generally had no expectation of monogamy and low emotional attachments and also included 1-time sexual partners. Participants whose relationships were transitioning between serious and casual during the diary period were examined for concomitant changes in dual-protection strategies.

We compared results by ethnicity, gender, and relationship type by examining whether

any of these subgroups were particularly overrepresented or underrepresented in any main category of dual-protection strategies (e.g., Were all groups represented among dual-method users?) and by examining whether any particular individual strategy was particularly overrepresented or underrepresented in a given subgroup (e.g., Did 1 group report a specific method more than others did?).

RESULTS

Of the 113 persons who were eligible and agreed to participate in the diary interview method, 70 individuals attended at least 3 debriefing sessions and had usable data. One Puerto Rican female was ultimately excluded from this analysis because her interviews were very inconsistent regarding condom and contraceptive use. Table 1 shows that one third of participants had completed less than a high school education, whereas another third had some college education. One third also had 1 or more of their own children, and none were married. Eighty-three percent had more than 1 sexual partner in the previous 12 months. From their interviews, it was evident that participants represented a wide range of urban young adult experiences and backgrounds, including homelessness and stable housing; unemployment and graduate-school attendance; and 1-time sexual relationships and committed, cohabiting relationships.

Of the 69 participants, 36 reported having more than 1 sexual partner (heterosexual or same-sex) during the diary period. Participants collectively reported on approximately 200 heterosexual relationships during the diary period, with most of them casual relationships. The number of partners reported by participants ranged from 1 to 18. All 4 ethnic-gender subgroups reported serious relationships, casual relationships, and relationships in transitions.

Dual-Protection Strategies Among Casual and Serious Relationships

Most participants used a combination of approaches to manage STI and unintended pregnancy prevention in their relationships. In total, we identified 43 strategy permutations used across these relationships. In the preliminary analysis, we did not identify any differences in reported strategies by ethnicity and gender, with the exception of men reporting more casual sexual partners with whom they used only condoms, compared with women. In the following subsections and in Table 2, we present the results by relationship type and by the 4 broad categories of dual-protection strategies used in the analysis (described earlier in the "Analysis" subsection). Table 2 presents the most common reported combinations identified, as well as examples of the less common combinations. It does not include the 13 relationships categorized as transitional, which also are described later in this article (see "Relationships in Transition" subsection).

Hormonal or long-acting methods and condoms used. Most examples involving any degree of classic dual-method use (i.e., use of condoms and other effective contraceptive for dual purposes) came from participants' casual relationships. One example of consistent dual-method use within a casual relationship came from a woman who was clear that she wanted to avoid pregnancy at that time and was using an injectable contraceptive. She was dating 1 man with whom she was not yet serious and did not have expectations of fidelity; they used condoms consistently and eroticized them in their sexual relationship. In addition, she had several short-term sexual partners, with whom she always used condoms. Other cases of consistent dual-method use were similar in that they involved participants with more than 1 partner who used hormonal contraceptives and condoms with their casual partner(s).

For some men, dual-method use allowed them some control over the prevention of pregnancy and STIs. For example, 1 man had a long-term casual partner who was taking oral contraceptives and with whom he used condoms consistently. He described this partner as "psycho," probably having sexual intercourse with other men, prone to violence, and attractive to him only because of the sexual intercourse. He said, "I would not, never, ever, f**k her without a condom . . . never without a condom, especially for her, ah, naw, naw." Throughout the interview, he emphasized his concern about any of his casual partners becoming pregnant, saying, "Yes, true, condoms take away the feeling; that is true, but you know what? I'm not trying to end up on Maury [the Maury Povich talk show]! . . . And [having] Maury saying, 'In the case of little Jesus, you ARE the father!'" Dual-method use in his long-term casual relationship may have allowed him freedom from worrying about STIs with her and about whether she took her oral contraceptives correctly.

Less common, but still reported among casual relationships, was use of hormonal or

TABLE 1—Characteristics of Diary Interview Participants (n = 70): Sexually Active Puerto Rican and African American Men and Women, Philadelphia, PA, and Hartford, CT, 2006–2007

Characteristic	Median (Range) or %
Age, y	20 (18–25)
Female	51
African American	53
Puerto Rican	47
Of Puerto Ricans, % born in Puerto Rico	30
Had < high-school education	31
Had some college education	29
Married	0
Had any children	36
Had > 1 sexual partner in last y	83
Ever used the condom	99
Ever used birth control (other than condoms)[a]	73

[a]For male respondents, questions referred to sexual partners.

TABLE 2—Numbers of Current Sexual Relationships That Relied on Particular Dual-Protection Strategy Combinations, by Relationship Type: Sexually Active Puerto Rican and African American Men and Women, Philadelphia, PA, and Hartford, CT, 2006–2007

	Casual Relationships, No.	Serious Relationships, No.
Hormonal or long-acting contraceptives and condoms used		
Hormonal or long-acting contraceptives and consistent condom use	10	0
Hormonal or long-acting contraceptives and consistent condom use plus STI testing	3	2
Hormonal or long-acting contraceptives and inconsistent condom use plus inconsistent withdrawal and perceived fidelity	0	2
Hormonal or long-acting contraceptives and Inconsistent condom use plus inconsistent withdrawal	1	0
Hormonal or long-acting contraceptives and inconsistent condom use plus inconsistent withdrawal and perceived fidelity plus condoms used with outside sexual partners	1	0
Condoms and no hormonal or long-acting contraceptives used		
Consistent condom use	117	1
Consistent condom use and perceived fidelity	1	1
Consistent condom use plus temporary abstinence and perceived fidelity	0	2
Inconsistent condom use plus inconsistent withdrawal and perceived fidelity plus STI testing and condoms used with outside sexual partners	0	2
Inconsistent condom use plus STI testing	2	0
Inconsistent condom use and perceived subfecundity plus STI testing	2	0
Hormonal or long-acting contraceptives and no condoms used		
Hormonal or long-acting contraceptive use and perceived fidelity	0	6
Hormonal or long-acting contraceptives plus inconsistent withdrawal and perceived fidelity plus STI testing and condoms used with outside sexual partners	0	3
Hormonal or long-acting contraceptives and perceived fidelity plus STI testing	0	1
Hormonal or long-acting contraceptives and STI testing plus trust that partner will not bring STI	1	0
Hormonal or long-acting contraceptives and perceived fidelity plus STI testing and condoms used with outside sexual partners plus temporary abstinence	0	1
No condoms and no hormonal or long-acting contraceptives used		
Consistent withdrawal and perceived fidelity	0	4
Consistent withdrawal	4	0
Inconsistent withdrawal and condoms used with outside sexual partners	1	1
Inconsistent withdrawal and perceived subfecundity plus STI testing	0	1
Inconsistent withdrawal and trust that partner will not bring STI plus STI testing and perceived subfecundity	0	1
Pregnancy and perceived fidelity plus STI testing	0	1
Nothing (no trust, no testing, no method)	1	0

Note. STI = sexually transmitted infection. This list includes the most common combinations in each category and examples of less common combinations. The sample size was n = 69.

long-acting contraception with inconsistent condom use and a compensatory strategy. For example, 1 man had many casual partners, 1 of whom he saw on a steady basis and especially liked. She used a contraceptive patch, and they used condoms or withdrawal inconsistently. Although he did not say so explicitly, this participant did not seem to worry that she was having sexual intercourse with other people. His primary goal with this partner was pregnancy prevention, but STI concerns also factored into his behavior. He had many other casual partners and reported always using condoms with them. Overall, he had a complex and flexible prevention approach with that partner that included hormonal contraception, inconsistent condom and withdrawal use, condom use with outside partners, and perceived fidelity (her).

By contrast, 5 participants in serious relationships reported dual-method use, with all but 1 doing so for enhanced pregnancy prevention rather than for dual-purpose protection against STIs and pregnancy. For example, a woman reported using the patch but, having learned that the patch was not 100% effective, also sometimes used withdrawal or condoms with her serious and only boyfriend. In another case, a man was so concerned about pregnancy that he consistently used a condom with his serious girlfriend of many years, even though she was taking the pill and repeatedly asked him not to use a condom, and they both had been tested for STIs in the past. The interviewer asked if his use of condoms was partially a result of STI concerns, and he replied, "No, no. Habit and just . . . it's been ingrained [to use condoms and avoid pregnancy]." The 1 case involving dual-method use for dual-protection motives within a serious relationship came from a woman who was unsatisfied in her long-term, serious relationship and had

a casual partner on the side. She was using the patch and used condoms consistently with her casual partner. After being with her casual partner, sometimes she would use condoms with her serious partner, who reportedly did not question this; she also was tested for STIs during the diary period to help assure herself that she was not putting her long-term partner at risk for STI. She used logic evident in many participants—that testing (negative) for STIs served to compensate for inconsistent condom use.

Condoms and no hormonal or long-acting methods used. With casual or 1-time partners, most participants reported using condoms consistently, without other contraceptives, or, for men, without knowing the contraceptive status of the female partner. Condom use with such partners, particularly when the relationship was new or focused on sexual intercourse, was nearly universal and taken for granted. In fact, it was the most common dual-protection strategy reported. Participants' motivations often were not explained in much detail, as exemplified by the following male participant who had many casual partners:

> Interviewer: Okay. When you saw her on Saturday, did you use protection, such as a condom?
> Participant: Yeah. I use Magnums.
> Interviewer: Do you know if she's taking the pill or using the patch or something like that to prevent pregnancy?
> Participant: I don't know. We always used condoms.
> Interviewer: Did you ever talk about it?
> Participant: Nah, we just hit it.
> Interviewer: Did you ever talk about using protection?
> Participant: It just comes natural.

Some participants in casual relationships reported inconsistent condom use, in combination with other strategies. Some of these participants were heterosexual, but 3 were bisexual women who each had a steady, casual boyfriend. For example, 1 bisexual woman decided with her male partner to try to get pregnant for a short time and thus temporarily stopped using condoms; they subsequently changed their minds and reverted back to using condoms on a consistent basis. She also was tested for STIs after that period of unprotected sexual intercourse and later stated that she thought she might be subfecund. Another participant reported using condoms about "80%" of the time with her main, yet casual boyfriend. She believed that she could not get pregnant easily and that STIs were not a major concern. She thought that her boyfriend was probably not having sex with other people, and they had recently undergone STI testing together. Moreover, she was routinely tested for STIs on her own. Thus, this case combined inconsistent condom use with perceived subfecundity, routine STI testing, and partner testing.

Among serious relationships, a few couples used condoms alone but did so for pregnancy prevention only, given their mutual fidelity. One woman with twin infants explained her choice to use condoms with her serious boyfriend (and the father of her children), saying, "I'm not having no more kids. . . . No more children." As for using condoms, she said, "I don't trust anything else," adding that she considered the patch but heard that it could cause seizures. A few other serious couples alternated between withdrawal and condoms for pregnancy prevention (and in one case, also inconsistent use of spermicides), in combination with either perceived mutual fidelity or condom use with outside partners for STI prevention.

Hormonal or long-acting methods and no condoms used. Among casual relationships, use of hormonal contraceptives without condoms was rare. One example came from a man involved in a casual relationship with an ex-girlfriend who used oral contraceptives. They did not use condoms because they had stopped doing so during their previous relationship. He explained:

> I don't know. I should use condoms, but I don't. Honestly, I think the real reason I don't use condoms is I don't want to offend her. . . . That would seem like, you know, I know you're on the pill, but you might have something [an STI]. That's stupid.

He seemed unwilling to breach the trust they had gained as a couple, despite the change in their relationship status and the fact that he believed she saw other people. In the other case, a woman was using injectable contraception and had many casual partners, 2 of whom she saw on a steady basis. She used condoms with her less-known casual partners but not with those 2 steady partners, trusting that they would not give her an STI, even though they were not faithful to her. She also routinely had STI testing.

Among serious relationships, the most common strategy combination involved use of hormonal contraception along with perceived fidelity by 1 or both partners. There was often little discussion of condom use or STI concerns in these interviews, presumably because their relationship was serious, and thus those issues were considered moot. For example, a man who was living with his serious partner with whom he had a 2-month-old infant reported that she was taking oral contraceptives to avoid pregnancy. The primary focus of his diary (and life at the time) was parenting and her postpartum depression, and issues such as condoms, infidelity, and STI concerns did not come up. In other cases, the combination of hormonal contraception and perceived fidelity was supplemented by withdrawal (for extra pregnancy prevention) or, in the case of 1-sided fidelity, condom use with outside partners. One woman loved her boyfriend of 7 months and had stopped using condoms with him because they both had negative test results for STIs; during the diary period, she relied on injectable contraception for pregnancy prevention. She believed that her partner was faithful to her, saying, "I know he's not cheating on me because I would feel it. And he'll tell me." Likewise, she reported that her partner believed that she was not involved with other men, although he knew about a female she had sex with sometimes. During the diary period, however, she did have 1 casual male sexual partner, with whom she used a condom.

No hormonal or long-acting methods and no condoms used. Some participants in casual relationships reported using neither condoms nor other contraceptives. Only 1 participant reported unprotected sexual intercourse with a partner he had just met; in this case, he ended up going to the hospital with epididymitis, which he blamed on his partner. A few other cases involved long-term casual partners. This category also included 2 participants whose behavior with their casual partners defied the logic evident in many other cases. For example, 1 woman wanted to be serious with 1 of her casual partners, but he did not feel the same. Despite having 2 young children she was not caring for at the time, she wanted to have a baby with him, and he agreed. Thus, they did

not use condoms or other contraceptives. She routinely went for STI testing herself, and although she "[knew] he was messing with people [i.e., sleeping with others]," she said that they talked about STI testing and that she was not concerned about STIs with him. She apparently trusted that he would not introduce STIs to the relationship. She had 1 other long-term casual partner, with whom she used withdrawal inconsistently, and 2 other casual partners with whom she had transactional sexual intercourse and used condoms. Such cases were notable but outliers among the participants.

The nonuse of condoms or hormonal or long-acting contraceptives was more common in serious relationships. In particular, withdrawal was often reported, used either on a consistent basis in conjunction with a perception of fidelity or on an inconsistent basis combined with fidelity and other strategies. In the cases of consistent withdrawal use (plus perceived mutual fidelity), the participants related their decision to use withdrawal to concerns about other contraceptives' side effects. A more complex case of inconsistent withdrawal involved a man with a serious partner and many casual outside partners. He said of his serious partner,

> We just don't use it [birth control]. I trust her, and she trusts me. She not only knows me; she knows my sister. Her and my sister are best friends. . . . I just don't use a condom, but with other girls, I do. . . . I'm not trying to give her nothing [an STI].

Although he and this partner were hoping to avoid pregnancy, he said that they would deal with a pregnancy if it happened. He said, "We never planned it [pregnancy]. Whatever happens, happens." He seemed to balance concern for STIs and pregnancy prevention by using condoms with outside partners and being accepting of unintended pregnancy if it happened with his main partner.

Dual Protection Strategies Among Relationships in Transition

Thirteen participants changed, or planned to change, from 1 dual-protection strategy combination to another as their relationships evolved. Three participants started out as dual-method users with their partners and then, as their relationships became more serious, became inconsistent or noncondom users as they relied increasingly on a combination of negative STI testing results and an expectation of mutual fidelity to manage STI risks. The change was not always immediate and sometimes backfired. For example, a woman said that she and her partner were tested for STIs as they became more serious. They stopped using condoms, and she continued to use the contraceptive ring. However, when her partner became emotionally distant, she suspected that he was cheating. She continued not using condoms with him in light of his assurances that he was not cheating, but she decided to get tested for STIs. She was diagnosed with an STI, felt humiliated, and ended the relationship.

Relationship progression was also related to other strategy changes. One man said that he and his long-time partner had decided to become serious, so he ended relationships with other casual partners and underwent STI testing with his serious partner. They were using condoms and agreed during the diary period to switch to withdrawal. He explained this change:

> At first, I wanted to use a condom because I didn't want her to get pregnant or whatever, but the last 2 [times we had sex], I was like . . . f**k it, [Partner 1] is my girl, right. And I know [Partner 1] don't got nothing. I know I don't got nothing, so before I came, I pulled out.

He did not "believe in [hormonal] birth control," so withdrawal may have been his only perceived option to condoms.

Other examples show how partner reduction factored into participants becoming more serious with 1 partner. For example, a man enrolled in the diary period with 4 casual partners, and during the course of his study participation became "official" with 1 of them. He continued to use condoms with his new girlfriend, but he informed the other girls that he was no longer available, telling one, "We can still be friends and stuff but . . . now I have [Partner 1] as my girlfriend, I don't call other girls like that." For such participants, partner reduction served as an indication of a transition to a more serious relationship status. Such behavior had the added benefit of reducing potential STI and pregnancy exposure.

Finally, abstinence served as a dual-protection strategy for some couples in relationship transitions but, like partner reduction, was not carried out explicitly for that purpose. Five participants either waited to initiate sexual intercourse or temporarily stopped having sexual intercourse with their partner (e.g., for 1 or more weeks) to show their desire for a serious relationship. As one man said of his new girlfriend, "I'm going to try not to have sex with her so she can like stop asking me, 'Is our relationship just based on sex?' I think I'll just hold off; then, she'll come to realize, 'Hey, he was right.'" Table 3 summarizes the individual beliefs and behaviors for STI and unintended pregnancy prevention that gave rise to the strategy permutations described earlier.

DISCUSSION

We characterized the ways this sample of young adults managed the risks of unintended pregnancy and STIs within their sexual and romantic relationships. The results pointed to the use of largely different strategies (behaviors and beliefs) for pregnancy and STI risk management and, like other recent work on dual-method use,[24] highlighted various combinations of these strategies used over a relatively short period. Relationship type dominated these choices, with a few exceptions; different sets of combinations were more common among casual or 1-time sexual relationships than among more serious relationships or relationships that were in transition. This difference was made clear by participants who had more than 1 partner and used different strategies with different partners. Although individual characteristics certainly weighed heavily in the specific dual-protection behaviors that participants described, the relationship context seemed to determine the boundaries of those options, as has been noted in previous research on condom use.[25–27]

Our results were encouraging because all of these participants had some awareness of pregnancy and STI risk and ways to reduce those risks; nearly all of the sexual relationships involved some behaviors and beliefs that helped mitigate 1 or both risks. Certainly, many participants' behaviors and beliefs were imperfect from a public health point of view and put them at risk for infection and unintended pregnancy. However, their behaviors often made sense because STI and unintended pregnancy prevention competed with concerns for intimacy, sexuality, and support in their lives and relationships.

Dual-method use for dual-protection purposes (i.e., hormonal contraception for pregnancy

TABLE 3—Summary of the Individual Strategies Reported for Managing Risks of Unintended Pregnancy and Sexually Transmitted Infections (STIs): Sexually Active Puerto Rican and African American Men and Women, Philadelphia, PA, and Hartford, CT, 2006–2007

	Unintended Pregnancy Prevention	STI Prevention
More common[a]	Condoms	Condoms
	Hormonal or long-acting contraception	Point-in-time STI testing[b]
	Withdrawal	Perceived fidelity
Less common	Other less effective contraception	Condoms with side partners
	Perceived subfecundity	Routine STI testing
	Temporary abstinence	Temporary abstinence
	Lower frequency of sexual intercourse	Partner reduction or containment
		Trust not to bring STI to relationship

[a]Reported by ≥20 participants.
[b]STI testing at a particular time in a relationship.

prevention and condoms for STI prevention) was largely confined to people in casual relationships. These results suggest that efforts to promote this type of dual-method use may have most success among persons in those kinds of relationships. Condom use alone served both STI and pregnancy prevention purposes in most casual relationships, with long-term or well-known casual partners a potentially important exception.

The results emphasize other strategies to examine in future research on dual protection. For example, trust to be faithful, trust to use a condom with outside partners, and trust not to bring STIs back to a relationship were STI strategies that some participants relied on when they did not want to use condoms. The link between condoms and trust has been extensively documented.[19,28,29] If trust replaces condoms in some relationships, then trust should be acknowledged as a real part of a person's dual-protection behaviors. Whether and how to address trust in sexual health interventions is unclear, but its role in STI prevention and dual-protection behaviors needs to be further examined and addressed, in ways that still support most young adults' desire for loving, trusting relationships.

STI testing had a dominant role in STI risk management and needs to be understood better as well. It was commonly used by these participants to help counteract the known risks of inconsistent condom use and multiple sexual partners. This strategy involves interface with clinical services that are amenable to change by the public health establishment; STI testing sites could prove an important venue for dual-protection interventions. Among pregnancy prevention strategies, withdrawal and, to a lesser extent, perceptions of subfecundity and temporary abstinence also may warrant more attention given their apparent role in dual-protection behaviors.[30–32]

Limitations

Our analysis did not focus on how participants balanced or understood pregnancy and STI risk or on whether they felt they had to compromise between these 2 potential outcomes in their relationships. If anything, participants seemed to approach STI and pregnancy prevention as distinct topics and selected strategies accordingly. This should be explored in future research. The analyses by gender, ethnicity, and relationship type were limited by the relatively small number of cases in each subgroup. The lack of evident gender differences should not be misconstrued as suggesting that men and women do not view dual protection differently. Neither women nor men have control over all strategy options (e.g., male condoms, hormonal contraceptives), and practicing dual protection is gendered.[18,33] However, that dynamic was not the focus of this analysis.

Some individuals may have overstated their prevention and sexual behaviors out of social desirability bias; this was a particular concern for men, who were interviewed by women. However, the interviewers believed that this was not an issue because most male and female participants seemed to discuss their (healthy and unhealthy) relationships and sexual behaviors openly, suggesting that social desirability bias may not have affected these results to a great extent. Potential bias aside, the list of strategies noted by each individual, and the accompanying motive(s), may not be complete because of the relatively open, conversational interview format. For example, a participant may have been tested for STIs with a partner in the past and simply not mentioned this during the interviews. Nevertheless, it seems clear that any list of strategy permutations still would be long and complex. Finally, the strategy combinations identified in this study are not generalizable to other populations. Rather, they should be understood as descriptive of these participants and indicative of their peers from the urban neighborhoods from which they were recruited.

Conclusions

Notwithstanding these limitations, qualitative data were ideal for exploring the concept of dual protection more deeply and providing a fresh view, from young adults' own perspectives. Most research on dual protection has maintained a limited focus on dual use (and furthermore, at last sexual intercourse), partially as a result of the relative ease of measuring dual protection this way. The myriad strategy permutations identified in this research are unlikely to be detected through traditional quantitative research methodologies, and operationalizing them in quantitative formats would be difficult. Quantitative and qualitative research on dual protection and dual use should proceed with a better understanding of who uses dual methods and who does not and how dynamic dual-protection behaviors can be. We should begin to explore and test some of the concepts presented here, such as the deliberate use of compensatory strategies in lieu of perfect dual use; the specific role, timing, and effectiveness of STI testing in relationships; and what occurs during relationship transitions. Overall, we hope these findings elevate the broader concept of dual protection over the narrower focus on dual use in our collective efforts to promote sexual health among young adults and other

populations facing high rates of both STIs and unintended pregnancy. ■

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Contributors

M.W. Carter led the analysis and writing of the article, and all other coauthors helped conceptualize the analysis and respond to drafts. L. Hock-Long and M. Singer were principal investigators, and D. Henry-Moss was a research manager and interviewer for the Philadelphia and Hartford Research and Education on Sexual Health and Communication, the research project from which this analysis drew.

Human Participant Protection

The common study protocol was approved by the institutional review boards of the Centers for Disease Control and Prevention and partner institutions.

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