Exploring why young African American women do not change condom-use behavior following participation in an STI/HIV prevention intervention

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Abstract

Human immunodeficiency virus (HIV) interventions can significantly reduce risky sexual behaviors among vulnerable populations. However, not everyone exposed to an intervention will reduce their sexual risk behavior. This qualitative study sought to identify factors associated with young African American females’ lack of increase in condom use post-participation in an HIV prevention intervention. Semi-structured interviews were conducted with 50 young African American women (18–23 years; approximately half were mothers) after participating in a demonstrated effective HIV prevention intervention; 24 did not increase condom use post-intervention. Interviews were thematically coded for barriers to condom-use post-intervention. Although nearly all young women reported partner-associated challenges to using condoms, there were relational differences observed among those who changed their condom use versus those who did not. Many ‘non-changers’ were engaged in non-stable ‘on and off’ relationships, with high rates of infidelity, often with the father of their child, in which they were fearful of requesting condom use. ‘Non-changers’ also reported more substance use, feeling incapable of change and not thinking about condom use. Thus, future HIV prevention efforts may benefit from incorporating strategies on how young mothers can maintain a non-sexual relationship with their child’s father, as well as elaborating on the intersection of substance use and risky sexual decision-making.

Introduction

In the United States, adolescents and young adults are disproportionately affected by sexual transmitted infections (STIs) [1]. Among young people, girls have particularly high rates of STIs. Findings from the Centers for Disease Control and Prevention (CDC) indicate that, overall, one in four in the United States has an STI; with nearly half (48%) of the African American girls detected with an STI [2]. To combat the STI epidemic among adolescents or young adult females, several STI/human immunodeficiency virus (HIV) prevention interventions have been developed, including interventions designed to be culturally congruent for African American adolescent or young adult females [3–9]. Typically, STI/HIV prevention interventions targeting adolescent or young adult females focus on increasing participants’ knowledge regarding STI/HIV transmission dynamics, condom-use self-efficacy, barriers to condom use, attitudes toward condom use, intentions to use condoms, condom-use skills as well as facilitating partner communication about sex and condom use [3–8]. A recent meta-analysis supports the inclusion of these components in interventions specifically for
African American females, as they report that HIV prevention intervention efficacy was greatest in studies that specifically targeted African American females, used gender- and/or culturally specific materials, addressed empowerment issues, provided skills training in condom use and negotiation of safer sex and used role-playing to teach negotiation skills [10]. Thus, a strong emphasis on communication and negotiation strategies may be particularly salient for African American females.

Recent reviews of controlled STI/HIV risk-reduction intervention trials, including reviews of tailored interventions for African American adolescent or young adult females inclusive of all of the above-mentioned components, have repeatedly shown positive outcomes [9, 11, 12]. Although effective interventions to reduce STIs and risk behaviors exist, they are most potent in the short term and are not uniformly effective [13–15]. Thus, not everyone exposed to an STI/HIV risk-reduction intervention will positively change (i.e. reduce) their STI/HIV-associated risk behavior post-participation in the intervention.

Recent studies conducted with high-risk adults have recognized the variability of initial and sustained responses to sexual risk reduction interventions [13–15]. They have demonstrated that even homogeneous subgroups show different patterns of change in response to tailored interventions [13, 14]. For instance, Kalichman [13] examined patterns of sexual behavior change among adult STI clinic patients who received risk reduction counseling and were subsequently followed for 9 months post-counseling. Cluster analyses identified three subgroups: (i) sustained low-risk behaviors over follow-up, (ii) significant reduction in risk behaviors over time and (iii) increased risk behavior over follow-up. However, no baseline behaviors differentiated the subgroups patterns of risk taking over-time, post-intervention.

To date, understanding factors associated with non-responsiveness to STI/HIV prevention intervention has only been examined in adult populations. Little is known about the factors associated with adolescents’ or young adults’ ‘failure to change’ high-risk behaviors following participation in an STI/HIV prevention intervention. Thus, this qualitative study sought to identify barriers associated with young African American females’ failure to change their condom-use behaviors post-intervention. Such knowledge could be useful for the creation, revision, or adaptation of sexual risk reduction interventions for this especially risky subgroup of non-responsive adolescents.

**Methods**

**Description of parent study recruitment**

From June 2005 to June 2007 African American adolescent or young adult females, 14–20 years of age, were recruited in downtown Atlanta, Georgia, from three clinics providing sexual health services to predominantly inner-city adolescents. A young African American woman recruiter approached adolescents in the clinic waiting area, described the study, solicited participation and assessed eligibility. Eligibility criteria included self-identifying as African American, being 14–20 years of age and reporting at least one instance in the past 6 months of vaginal intercourse without a condom. Young women were excluded from the study if they were married, pregnant or attempting to become pregnant. Those meeting inclusion criteria and interested in participation returned to the clinic to complete informed consent procedures, baseline assessments and getting randomized to trial conditions. Written informed consent was obtained from all adolescents or young women. Parental consent waived for those younger than 18 years due to the confidential nature of clinic services. Of the eligible individuals, 94% (N=701) enrolled in the study, completed baseline assessments and were randomized to study conditions (n = 359 in the comparison condition; n = 342 in the intervention condition). The Emory University Institutional Review Board (IRB) approved all study protocols.

**Parent study procedures**

The study used a two-arm randomized controlled trial design called a supplemental treatment trial.
Supplemental treatment trials are combined modality studies, in which participants receive a ‘primary’ treatment and, subsequently, receive a different treatment modality designed to enhance the effects of the primary treatment. Individuals randomized to the intervention condition participated in the AFIYA HIV intervention and thereafter received the supplemental intervention, an individualized telephone-delivered HIV Prevention Maintenance Intervention (AFIYA + HIV PMI). Individuals randomized to the comparison condition participated in the AFIYA HIV intervention, but they did not receive the supplemental HIV prevention maintenance intervention. Rather, participants in this condition received a time- and dose-equivalent individualized telephone-delivered Nutrition Education Intervention (AFIYA + NEI).

**Intervention methods**

The intervention (AFIYA+ HIV PMI) consisted of two components: (i) administration of one 5-hour group STI/HIV prevention session and (ii) administration of 18 individualized telephone-delivered HIV PMI sessions (one approximately every 8 weeks) to reinforce prevention information presented in the first component. The 5-hour group session was facilitated by trained African American women health educators, and presented to, on average, seven to nine participants attending the session. The intervention session was interactive, fostered a sense of cultural and gender pride and emphasized diverse factors contributing to young peoples’ STI/HIV risk; including individual factors (STI/HIV risk-reduction knowledge, perceived peer norms supportive of condom use, condom-use skills), relational factors (persuasive communication techniques to enhance male partner responsibility for condom use) and social factors (encouraged participants to reduce douching). Specific to the second component, each phone contact began with adolescents completing a brief risk appraisal. Participants prioritized current factors that were contributing to HIV risk. Subsequently, a health educator delivered scripted, brief, tailored prevention counseling based on participants’ prioritized risk appraisal.

**Summary of main findings of the AFIYA intervention**

Utilizing generalized estimating equation regression models (with exchangeable correlation), the AFIYA intervention arm, relative to the comparison group, showed statistically significant differences over 18 months post-intervention: the AFIYA intervention condition had lower Chlamydia incidence (7% versus 13.6%; \( P = 0.009 \)), lower mean frequency of sex while high on drugs or alcohol (1.42 versus 2.42; \( P = 0.009 \)), and higher mean percent condom-protected sex acts (58% versus 52%; \( P = 0.049 \)) (For a detailed description of the intervention results, please refer to ref. [16]).

**Description of the current study**

Qualitative inquiry is the most suitable approach for identifying and understanding barriers that may impede condom-use post-intervention among young African American females. Grounded theory [17], an inductive approach that consists of systematic data collection and analysis techniques, lends itself to the discovery of barriers that may hinder condom use (both within oneself and in one’s physical and/or social environment) by allowing the barriers to originate from the data instead of being determined *a priori*. This is especially important when there is scarce prior research to inform formulation of specific hypotheses.

**Participants**

From June 2009 through December 2009, 50 young African American females (18–23 years) were recruited to participate in semi-structured elicitation interviews in Atlanta, Georgia, USA. Eligibility criteria included being an AFIYA participant randomized to the intervention condition, completion of the intervention workshop and completion of at least one post-intervention follow-up. A convenience sample of eligible participants was recruited through telephone contact or in-person following completion of their 36-month follow-up session. It was decided *a priori* that roughly half of the 50 participants would be individuals who did not report increased condom use after participating in the intervention to
adequately address the study question. Sample size for each group was determined based on Kvale’s suggestion that selecting $15 \pm 10$ is acceptable when the goal of the interview is to understand someone’s lived experiences [18]. Interested participants were scheduled for one-on-one elicitation interviews (average length of time from last parent study assessment to interview participation was 1 month). Prior to interviewing, participants provided written informed consent to be interviewed and audio recorded. Interviews were conducted in private conference rooms in two sexual health clinics in downtown Atlanta or in a private space in the informant’s home. Participants were compensated $25 upon completion of the interview. All procedures were approved by Emory University’s IRB.

Data collection
A semi-structured interview format was used because it provided a uniform set of topics to discuss with each participant but allowed flexibility in probing and phrasing of questions [18]. The interview protocol consisted of three general topics: participants’ feedback about the AFIYA program (e.g. ‘Talk about one thing from the workshops that stood out and you really enjoyed’), participants’ past and present sexual behaviors and barriers to using condoms (e.g. ‘Tell me about a time during AFIYA when you didn’t practice safe sex or use a condom. What made it hard or challenging to be safe?’), and participants’ life experiences in the past 3 years (e.g. ‘Since being in AFIYA, have you gotten pregnant’). Each topic consisted of open-ended questions and on average, interviews lasted approximately 40 min (range: 10 min to 1 h 4 min). Although participants were asked about all of the aforementioned topics, the findings reported in this study are specific to their reported barriers to using condoms after participating in the AFIYA intervention. Prior to its implementation, the interview protocol was reviewed by health educators, HIV prevention experts and was pilot tested with two AFIYA participants to ensure it would adequately capture the desired information. All interviews were conducted by the same trained African American female research assistant who was blind to whether the participant had or had not increased their condom use after intervention participation. Additionally, the interviewer was not affiliated with any facet of the AFIYA intervention project. Prior to conducting the interviews, the interviewer received one-on-one training with the study’s Principal Investigator on conducting semi-structured interviews, observed a senior research interviewer conducting an interview and was supervised during a pilot interview. Also, all interviews were digitally recorded, transcribed verbatim and checked for accuracy.

Data analysis
Transcribed interviews were coded and analyzed using Nvivo 9 computer software. Because of the exploratory nature of the interviews, the coding protocol was developed using a combination of several qualitative analysis approaches. Analysis began with open coding, or unrestricted coding of the data, conducted by hand, to identify relevant segments and open up the inquiry [19]. Open coding followed the steps: (i) initial review of all transcribed interviews, (ii) identifying key segments and sections [20] and (iii) coding or labeling sections and segments in margin notations. Next, axial coding was conducted, where the grouping and collapsing of initial codes to form categories was used to develop knowledge about relationships between subcategories and core categories [20]. Then, selective coding, the process of coding systematically and concertedly around core categories, was used to identify overarching themes represented in the data. For core coding categories, two independent observers coded 20% of the data (10 interview transcripts). The coders were the research assistant who conducted the interviews and another research assistant with an extensive background in qualitative coding. Prior to coding both coders participated in a course specifically pertaining to coding qualitative data using Nvivo software. Inter-coder agreement was assessed using the kappa coefficient, and agreement was high for all coding, and was 0.81 for the ‘barriers to change’ core category (the core category
of interest for this study). Subcategories were also coded from the category ‘barriers to change’. Discrepancies were resolved through discussions with the study’s Principal Investigator and an AFIYA lead health educator, and the remaining transcripts were divided between the two coders for independent coding.

Results

Sample description

The mean age of participants in this qualitative study was 20.5 years. The majority were either still in high school or had only completed some high school (i.e. dropped out of school) at enrollment (64%), 14% had graduated from high school and 14% had completed one or two years of college. One quarter had a job, and most (56%) reported getting most of their spending money from parents or relatives. Among this sample, condoms were used, on average, 44% of the time they had sex in the 6 months prior to baseline assessment, 36% reported using a hormonal birth control method and 17 (34%) tested positive for one of three STIs (Chlamydia, gonorrhea or trichomoniasis) at baseline (STI testing was conducted as part of Project AFIYA prior to participation in the STI/HIV intervention).

Twenty-four AFIYA intervention participants had not changed their condom use in the first 6-month follow-up interval post-intervention participation. As part of the main trial’s assessment, each participant completed computerized interviews pertaining to their sexual behaviors, condom use and other variables at baseline and then again at each subsequent follow-up visit every 6 months post-intervention. Specifically, condom use during the previous 6 months was assessed by calculating the number of times condoms were used divided by the number of times the participant had intercourse. At each assessment participants were asked, ‘In the past 6 months, how many times did you have vaginal sex?’ Following this question, participants were asked, ‘Out of the XX times you’ve had vaginal sex, in the past 6 months, how many times did you use a condom?’ Change in condom use was calculated by comparing their reported percentage condom use in the 6 months prior to baseline (prior to intervention participation) to their reported percentage of condom use in the 6 months between baseline and the 6-month follow-up assessment (post-intervention). If a participant reported any increase in their condom use from baseline levels this was considered as ‘change’; if she reported no increase or a decrease in condom use this was considered as ‘non-change’. Condom use at the first 6-month follow-up interval post-intervention was selected because most HIV risk-reduction programs see the strongest impact on behavior change (i.e. increased condom use) closer to intervention participation, with effects tending to wane over time. Among the 270 young women who received the AFIYA intervention and returned to complete the 6-month follow-up assessment, 44.1% \((n=119)\) did not increase their condom use from baseline levels at the 6-month-follow-up assessment. The ‘changers’ and ‘non-changers’ did not significantly differ in their baseline rates of condom use, and importantly, they did not differ in regards to amount of exposure to the intervention (i.e. number of calls completed did not differ between groups, \(P=0.84\), nor did they differ in completion rate for the last intervention call, \(P=0.24\)).

Barriers to condom use

Nearly all young women reported barriers to using condoms, even post-intervention. Furthermore, the most commonly reported barriers were partner or relationship-related issues resulting in non-condom use after participating in AFIYA. Specifically, 11 distinct subcategories emerged from the interviews (see Table I), with 7 subcategories specifically related to male sex partners or relationships. The other subcategories were related to individual-level barriers such as stubbornness, low self-esteem or not physically having a condom present. In spite of commonly identified barriers to condom use by participants who both positively changed (i.e. increased) or did not change (i.e. did not increase
or decreased) their self-reported condom use post-intervention, there were differences in the barriers described by those who changed versus those who did not change their condom use.

**Partner and/or relationship barriers of non-changers**

Many ‘non-changers’ described being in ‘on and off’ relationships. They describe these relationships as ending, but only temporarily, often because of infidelity or suspected infidelity, usually discovered by the young woman after testing positive for an STI. For instance, one young woman [#101] describes why she decided not to use a condom with her boyfriend after contracting an STI from that boyfriend. She says, ‘That was mainly because a little trust got built back...it took a long time...and a whole bunch or arguin’ for some trust to get built back up.’ Thus, even after partner infidelity, resulting in an STI, this young woman reunited with her partner, then decided she could ‘trust’ him. However, now she refers to the relationship as, ‘whatever we call it’, as opposed to having a more distinct title. Another young woman [#102] describes the conversation about using condoms she had with her ‘on and off’ partner. She justified the need for this conversation as being because she felt a person cannot always know if a partner is faithful. She indicates that her partner got upset when she mentioned wanting to use condoms for this reason. She describes their exchange:

He’s like, ‘You don’t got that problem.’
And I said, ‘Well look, you ain’t no saint. You know what I’m saying? Cause hell, you done did your dirt too, and I know about it.’

He’s like, ‘Man, that was like three, four – that was before we had our kids.’
I said, ‘Still that happened.’
He said, ‘You did it since we had our kids.’
I said, ‘Well.’

After this exchange, the young woman goes on to detail that the episode of her infidelity the partner refers to occurred while he was incarcerated, and she was actually raped.

Having ‘on and off’ relationships, usually with the father of their child(ren) presents unique challenges to young women and may be a significant factor affecting their decision not to change condom use after AFIYA. Specifically, this is a partner with whom they have an enduring bond (often both emotionally and physically in the form of a child). This bond makes it particularly difficult to not only refuse sex with them, should they desire to (as many non-changers indicated), but especially difficult to negotiate condom use with this partner given their prior history of not using condoms during the ‘on’ time in their relationship.

Another relationship dynamic indicated by the young women who did not change their condom use was being in a relationship with older, controlling male sex partners. One young woman [#103] describes being in a relationship with a much older male partner (who tells her how to dress, though he did not hit her). Because of this situation she felt she should follow his rules. She states, ‘I was his girl, I was his property. So, that’s how I felt. And so I was debating to myself and was like, “Okay, no, this is my guy, he’s down for me, he’s special” I was just gonna try [not using condom], just a little one time –

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**Table 1. Barriers to condom use after participating in an STI/HIV prevention intervention**

<table>
<thead>
<tr>
<th>Barriers to condom use</th>
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<tbody>
<tr>
<td>- Partner dislikes or opposes condom use</td>
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<tr>
<td>- Partner is controlling and/or abusive resulting in fear of</td>
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<tr>
<td>communicating condom use desire.</td>
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<tr>
<td>- Transitory relationships—often with ‘baby daddy’</td>
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<tr>
<td>- Condom use signifies mistrust in relationship</td>
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<tr>
<td>- Being stubborn or hard-headed—belief they cannot change</td>
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<tr>
<td>- Lack confidence, self-esteem, respect for self to stand up</td>
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<tr>
<td>for what they want</td>
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<tr>
<td>- Don’t have a condom, getting caught in the mood, not on</td>
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<tr>
<td>mind</td>
</tr>
<tr>
<td>- Living together—close proximity</td>
</tr>
<tr>
<td>- Under the influence (self and/or partner)</td>
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<tr>
<td>- Pregnant, pregnancy desire, not concerned about pregnancy,</td>
</tr>
<tr>
<td>or partner wants a baby</td>
</tr>
<tr>
<td>- Being on the pill or other birth control</td>
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just a little one time thing. That little one time thing turned into a child.’

Thus, power differentials are present in some relationships between young women and older males. This power imbalance, especially when coupled with controlling tendencies on the part of the male partner, can create an environment where young women, despite their desire to use condoms, might be fearful of discussing condom use or ‘obedient’, as described by young women, to their partner’s wishes not to use them. As one young woman [#104] states, ‘I think I was scared to bring up that conversation to him to talk about it’.

‘Non-changing’ women also reported their partners would question their fidelity if they asked them to use condoms. For example, a young woman [#105] describes the antecedent of her non-condom use as her boyfriend saying things like, ‘Oh man, you just with me. Why – what you got something to hide?’ Additionally, they described their partners as not liking condoms, and having several complaints about their comfort. These types of complaints usually did not result in non-condom use, but were typically followed by the male partner then ‘flipping the script’ and using the young women’s suggestion of condom use as an indication that they (the male partner) should suspect infidelity on the part of the female.

**Individual-level barriers to condom use among non-changers**

In addition to relationship factors hindering young women’s positive change in condom use post-intervention participation, several individual-level factors were also identified by young women. The most common individual-level factor was pregnancy. Several young women indicated either they or their male partner desired pregnancy, or they were not opposed to the woman becoming pregnant if it were to happen. For example, this young woman [#106] states, ‘But like one day we were like intoxicated, and we decided that we was gonna have a baby. And then after that, we just kept doing it [unprotected sex].’ In her next sentence though she adds, ‘And it’s like once my period didn’t come on time, he wasn’t really, you know, feeling the fact that oh, she might be pregnant, like basically, he just was like, I don’t think I can do this.’ Thus, desire or ambivalence about pregnancy would be a significant contributing factor to non-condom use post-intervention participation.

In addition to pregnancy, ‘non-changers’ frequently indicated they were incapable of change. Some referred to this as being stubborn or hard-headed. One participant describes this inability to change as stemming from a lack of confidence, self-esteem or self-efficacy. She [#106] says, ‘It’s probably just – that I tried to change, but I can’t change. If it’s not the condoms, then I would say that it’s just having that confidence to come to your partner and like – and just tell him everything because I’ve came a long way, but it’s like there’s still, you know, some things that I know or I notice [cheating] and I don’t say anything.’ Another young woman [#107] says, ‘I tried to change – I tried to be abstinent and I just kept getting pregnant. I just kept getting pregnant, I’m too fertile.’ She later describes how she actually wants to leave this partner (who she is currently pregnant by), and she says, ‘And then I try to leave and he cry and do all that stuff. I don’t need no more stress until I deliver so…’, indicating that she remains in the relationship to avoid a stressful situation. Thus, several ‘non-changers’ reported having low self-confidence or self-efficacy that likely contributes to their desire to avoid stressful situations (e.g. discussions about condom use with potentially resistant male partners, leaving an unhealthy relationship), and resulting in their belief that they are incapable of change.

**Barriers to condom use reported by ‘changers’**

Young women who positively increased their condom-use behavior after participating in the AFIYA intervention also reported barriers to always using condoms. Many times, they reported the same barriers as the ‘non-changers’. However, the ‘changers’ tend to refer to their non-condom use as ‘slip ups’, which resulted in feelings of guilt or
disappointment with oneself. Whereas the ‘non-changers’ rarely reported negative affect associated with not using condoms. For example, one young woman describes a time when she ‘slipped up’ and did not use a condom after her partner had taken her out for a romantic dinner for her birthday. She says [#108], ‘I wasn’t thinking about using nothing. So that—that’s a slipup and I kinda felt a little bad about that.’ Another young woman [#109] states, ‘Honestly, I think he woulda gotten mad or he wouldn’t understand the concept of me wanting to use condoms... I think I was scared to bring up that conversation to talk to him about it.’ She later describes how she eventually ‘gained the strength’ to talk to him about it, and how having respect for herself and self-confidence helped her. She concludes, ‘Well, actually it was a lot of things that I found it hard to talk about with him about, I think mainly because of the person that he is, the type of attitude he has. Really I was always scared to express how I feel and bein’ able to tell him.’ She ends by indicating that they were no longer together, and says, ‘You know, they can’t take you as you are, you shouldn’t really be wastin’ your time’. Thus, unlike the non-changers, young women who positively increased condom use after AFIYA indicate the ability to find confidence and strength from within to overcome partner-related barriers. ‘Changers’ also appear to be more reflective, aware of, or more capable of recognizing negative partner characteristics and terminating unsatisfactory relationships. Additionally, when ‘slip ups’ occurred, they assumed responsibility for the situation, thereby indicating they viewed themselves as active agents in their sexual decision making, as opposed to ‘non-changers’ who were more passively involved in their sexual decision making and also relied on avoidance strategies to manage difficult relationship situations.

Another example of the level of reflection present in the ‘changers’ accounts of barriers to condom use is detailed by a young woman [#110], who describes how alcohol and marijuana impeded her condom use, which was mentioned as a barrier by several young women. She says, ‘I used to smoke and drink and stuff like that. Well, just judgment is not there at all. So, I think that’s probably one of the main reasons why I got pregnant twice, from drinking. Maybe if I wouldn’t have been doing that cause, you know, when you — if you’re like high and out of it, your decision making is not there. So you’re just going to go with anything.’ This is also exemplified by the young woman and her partner (quoted earlier) who, while drunk, decided to stop using condoms in order to actively attempt to become pregnant.

Another reason provided for non-condom use among the ‘changers’ was that they and their male partners (usually a long-term boyfriend) both were tested for STIs (usually together), so they felt it was ‘safe’ for them to have unprotected sex. The ‘non-changers’ occasionally reported this as a reason for non-condom use, but they also expressed doubt that their partners actually were tested.

Finally, overall, young women who were successful at changing their condom-use post-intervention rarely ever reported being in transitory or ‘on and off’ relationships. Instead, they typically described their on-going relationships as being ‘long-term’, trusting (on both sides), or ‘committed’. They rarely indicated that their male partners complained about condom use or that their male partners would try to use the suggestion of condom use to question the young women’s fidelity.

Discussion

Similar to the limited findings reported in the adult HIV prevention literature on non-change post-intervention [13], several adolescent or young adult women who participated in an efficacious STI/HIV risk-reduction program did not increase their condom-use post-intervention. In the present study, when asked about barriers to condom use encountered post-intervention, young women who both positively changed (i.e. increased) or did not change (i.e. condom use was the same level or decreased) their condom use after participating in AFIYA, reported a variety of barriers that continued to impact their condom use. Although barriers were reported by both groups, the young women who did not increase condom use after AFIYA described
more relationship-specific barriers to condom use, lower self-confidence to negotiate condom use with male partners and a general belief that they were incapable of change. Identifying and understanding the unique or persistent barriers encountered by the subset of non-responsive (i.e., did not report behavior change in the form of increased condom use) young women exposed to an HIV prevention program that demonstrated an overall positive effect for the majority of intervention participants is a critical first step to adapting existing or creating new prevention programs to accommodate the needs of these young people.

One of the most salient barriers reported by the young women in this study was being in unstable or transitory relationships with male partners, often times the father of their children. AFIYA, and many other HIV prevention programs designed for adolescent or young adult women, include a component on identifying healthy and unhealthy relationships (i.e., identifying abusive relationships). However, it is typically a small component of the program and does not thoroughly address the multitude of additional relationship dynamics that may be hindering young women from living healthy, both emotionally and physically, lives.

Consistent with earlier work on young mothers involved with the father of their child and non-condom use [21, 22], we found that often times the relationships in which young women had the most difficulty negotiating condom use were with the father of their child(ren). To our knowledge, no STI/HIV prevention programs include content on managing co-parenting or encounters with prior partners with whom they share a child. For adolescents or young adults who are still learning how to establish, maintain or end intimate relationships, negotiating the complex feelings and situations unique to sharing a child, perhaps with a partner you still have strong emotions for, may be especially problematic. Indeed, many of the young women in these relationships stated they felt as if they simply could not change, perhaps because they lacked the skills to manage these situations. Thus, including more extensive instruction and education on relationship dynamics, managing relationship challenges (i.e., fights, mistrust, infidelity, abuse), and co-parenting skills into STI/HIV prevention programs for young African American women, may better provide young women (and young mothers) with the necessary skills to effectively negotiate condom use. Additionally, STI/HIV interventions that provide a more in-depth discussion about how to manage condom use within those types of relationships (i.e., transitory or concurrent partnerships) that pose a significant risk for STIs, and also prove to be especially challenging for initiating or maintaining condom use should also be included in future STI/HIV prevention programs for young women.

Consistent with the literature on adolescent or young adult pregnancy and non-condom use [23–26], another theme identified as a barrier to condom use post-intervention participation was related to pregnancy or ambivalence about becoming pregnant. Many young women reported that they and/or their partner did not use condoms because they were not concerned about becoming pregnant, and in some cases desired to become pregnant. Other times, those who had been pregnant indicated that it was hard to negotiate condom use during pregnancy as the concern about becoming pregnant was not an issue any longer. Thus, STI/HIV prevention programs may be more efficacious if they include education on why it is important to continue using condoms even if you become pregnant, as well as provide strategies for communicating this need for condom use during pregnancy with male partners. For young women interested in becoming pregnant, mutual testing (both self and partner) for STIs and HIV should be stressed before condom use is discontinued. Given the high frequency of pregnancy among African American adolescent or young adult females, STI/HIV prevention programs especially for young African American women may be more efficacious for greater numbers of participants if they are either adapted to include or designed to address condom use during pregnancy.

The inability to change, or being ‘stubborn’ or ‘hard-headed’, was cited by many young women who did not increase their condom use post-intervention. Along with this, and similar to
other findings [27], low self-esteem, lack of self-confidence and low self-efficacy were also described as barriers to condom use with male partners. AFIYA, and many other STI/HIV prevention programs for young females include components to increase self-esteem and self-efficacy to negotiate condom use. However, some young women, especially those with histories of abuse, may require additional support developing self-confidence and self-efficacy to enact behavior change. Thus, future STI/HIV programs for young women, particularly those who may have low self-esteem or self-efficacy because of trauma or abuse experiences, may benefit from including more extensive material and activities to boost self-esteem and self-efficacy in general in addition to their focus on sexual-behavior-specific self-efficacy.

Limitations
This study is not without limitations. First, the majority of young women in this sample were recruited when returning for a long-term AFIYA follow-up assessment. Thus, it is possible that young women who did not return for this long-term follow-up may differ in meaningful ways from women who did return for follow-up. Unfortunately, we are not able to examine this possibility. Second, the women who participated in the semi-structured interviews may have differed from AFIYA participants who did not participate in the interviews. However, no person approached to participate in the semi-structured interview declined to do so. Also, a preliminary comparison between the groups indicates they did not vary in sociodemographic or psychosocial variables, or behaviorally. Finally, the findings of this study may not generalize to other young women who have participated in STI/HIV prevention programs, especially if they participated in programs that varied dramatically in content from AFIYA.

Conclusion
Fortunately, several efficacious STI/HIV prevention programs exist for a variety of populations, including African American adolescent or young adult females [9]. However, despite this, not every individual exposed to such a program will positively change their sexual risk-behaviors (i.e. increase condom use) after participation. The ability to identify barriers that differentiate those who increased condom use post-intervention from those who did not is the first step in refining, adapting, or designing new STI/HIV prevention programs for these especially vulnerable youth.

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Conflict of interest statement
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