

## Feasibility and Initial Efficacy Testing of an HIV Prevention Intervention for Black Adolescent Girls

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### **Abstract:**

HIV is disproportionately prevalent among Blacks. Black women most often contract HIV from having risky sex, and adolescence is a time when risky sex behaviors peak. This study tested the feasibility and initial efficacy of an intervention designed to help Black adolescent girls avoid risky sex behaviors. The intervention included group education for girls followed by a service learning opportunity in which the girls practiced the assertiveness and communication skills they had learned in the education sessions, and individual education for the girls' mothers. The intervention was guided by a risk and protective factors framework and by the goal of promoting racial/ethnic pride in the girls. We determined that the intervention was feasible. Schools allowed recruitment of potential participants and the use of their facilities for meeting with the girls. We encountered little participant dropout from the study, and the intervention was highly regarded by the girls who participated and their mothers. We found improvements in aspects of the girls' relationships with their mothers, their sexual assertiveness, and their self-efficacy to use condoms.

### **Article:**

HIV infection is a significant public health problem in the United States, with an estimated 56,000 new cases in 2006 (Centers for Disease Control and Prevention [CDC], 2008a; Hall et al., 2008). There are significant racial/ethnic disparities in HIV infection: In 2006, 45% of new cases were among Black Americans, and the rate of infection among Blacks was 83.7 per 100,000, while for Whites the rate was 11.5/100,000, and for Hispanics, 29.3/100,000 (CDC, 2008a). Clearly, Blacks are disproportionately affected by HIV infection and AIDS.

Women, especially young women, most often contract HIV through high risk sex (CDC, 2007; Espinoza, Hall, Hardnett, Selik, Ling, & Lee, 2007), which includes behaviors like having sex at an early age, using drugs or alcohol prior to engaging in sex (CDC, 2008b), having multiple partners, and having sex without using condoms (CDC, 2008c). In 2006, of the new cases of HIV reported among women 13 years and older, 45% were due to high risk sex. Only 16% of cases were attributable to injection drug use (39% of the new cases had no cause identified; many of these may have also been due to unprotected sex [CDC, 2008d]).

Adolescence is a time when high risk sex behaviors are often manifested (CDC, 2009a). In North Carolina, the 2007 Youth Risk Behavior Survey (North Carolina Department of Public Instruction & North Carolina Department of Health and Human Services, n. d.) found that more than 35% of high school students in the state were sexually active and a third of those reported that they had not used a condom the last time they had sex. In addition, more than 20% of the sexually active students reported that they had used drugs or alcohol prior to their last sexual activity. Behaviors that put adolescents at risk for contracting HIV are common among all adolescents, but some behaviors are even more common among Black adolescents. For example, Black adolescents have been found to have more sex partners than Whites and Hispanics, and to have sex without using birth control more often than Whites (Bartlett, Buck, & Shattell, 2008).

**RISK AND PROTECTIVE FACTORS FOR CONTRACTING HIV AMONG BLACK GIRLS**  
Essien, Meshack, and Ross (2002) suggest that inadequate knowledge about HIV and the role of substance use in contracting HIV contribute to the high HIV rates among Black women. Also, sexual assertiveness has been found to be lacking among young Black women, and this may contribute to their participation in risky sex behaviors (Rickert, Sanghvi, & Wiemann, 2002).

Education for Black girls that is gender and culturally appropriate and includes content on HIV and its transmission, the correct use of condoms, healthy relationships, and effective communication skills has been shown to help these girls develop behaviors and skills to self-protect against contracting HIV (DiClemente et al., 2004). One particular strategy that seems to delay a girl's first sexual encounter includes a combination of health education and volunteer placements in community settings (O'Donnell et al., 2002). Service learning activities allow girls to practice social skills that will be useful to them in the future, when they may need to act on their own behalf in order to avoid becoming involved in sex (Allen, Philliber, Herrling, & Kuperminc, 1997). Further, enlisting the help of parents of Black adolescents by educating them about their children's development and the challenges they face has also demonstrated promise in helping Black adolescents engage in fewer risky behaviors (O'Donnell et al., 2005).

#### **EFFICACIOUS INTERVENTIONS WITH BLACK GIRLS**

According to the CDC (2009b), among interventions specifically designed for Black adolescents with at least 50% girl participants, four have been identified as having "best evidence" of efficacy (DiClemente et al., 2004; Jemmott, Jemmott, Braverman, & Fong, 2005; Stanton et al., 2004; St. Lawrence et al., 1995; Wu et al., 2003). All of these interventions included group discussions with the girls on reduction of risky sex behaviors. One intervention placed emphasis on building gender and racial pride with the girls (DiClemente et al., 2004). Another included a discussion with HIV positive youth in hopes of increasing girls' perception of their vulnerability to infection (St. Lawrence et al., 1995), and a third included exercises to encourage girls to manipulate condoms (Jemmott et al., 2005). One intervention included a joint meeting of each girl and her parent/guardian where condom use was discussed and parents were provided information about the importance of parental monitoring and open communication with their daughter (Stanton et al., 2004; Wu et al., 2003). An additional intervention has met the CDC's criteria for having "promising evidence" of efficacy (Sikkema et al., 2005). This community-level intervention focused on helping urban, low-income adolescents avoid contracting HIV by promoting abstinence and condom use. Also, parents were invited to participate in a workshop to help them learn about HIV and discuss issues related to HIV prevention with their children.

While these interventions have shown promise, no study has tested a multi-component intervention that focuses on building girls' racial/ethnic pride and included group girl education, individual mother education, and a service learning component for the girls to practice skills they had learned as a way to help Black girls avoid risky sex behaviors. In this study, therefore, we examined the feasibility and initial efficacy of a school-based, multi-component, risky sex prevention intervention with middle school-aged Black girls and their mothers. The intervention was to increase knowledge about HIV and the risk factors for contracting HIV in girls along with ways to self-protect against contracting the infection (including abstinence), as well as assertiveness and self-efficacy to use condoms. For mothers, maternal support and monitoring were promoted as ways to help protect girls against the development of risk behaviors associated with contracting HIV. An overarching theme of the intervention was building the girls' racial/ethnic pride.

## METHOD

This study examined the feasibility and beginning efficacy of the intervention, using a pre-experimental one-group pretest-posttest, and 3-month post intervention follow-up design (Campbell & Stanley, 1963). The study was approved by the appropriate Institutional Review Board.

### *Participants*

Black adolescent girls and their mothers/guardians were recruited from two middle schools in a rural county in the southeastern US. To be included, girl participants had to self-identify as Black or of mixed race that included being Black, they had to have a mother/guardian who agreed to participate, and the mother had to reside in the primary residence of the girl participant. Exclusion criteria included current pregnancy or ever having had a live birth for the girl, and having a major life event in the past 12 months for the mother (e.g., divorce, birth of a child, or current pregnancy). A school representative in each school assisted with recruitment. A list of all Black girls in the schools was generated, and to ensure that girls were chosen at random, each school contact person was asked to telephone the mother or female guardian of every tenth person on the list, inviting her to come to the school with her daughter for a light supper, to learn about the study.

The study was explained to mothers and girls together, then the mothers were approached individually and privately (without their daughters present) to determine whether they had questions and whether they chose to participate. Of those who attended the meeting and met the study criteria, only one mother declined. Written informed consent was obtained from the mother first, both for herself and her daughter, and then assent from the girl was obtained after the study was explained. Ten girls and 11 mothers (one girl had two adult female guardians, she lived with each approximately 50% of the time) agreed to participate. Over the course of the study (approximately six months), one girl and two mothers dropped out. One mother stopped responding to our efforts to contact her, but her daughter continued in the study since the mother had completed her intervention. The other mother described transportation problems as the reason for dropping out.

The girls ranged in age from 11 to 14 years (mean = 12.9 years) and all self-identified as being Black. They were in middle school, grades 6 through 8. Three of the ten reported that they worked for pay (e.g., babysat). Two reported that they were not involved in any organized after school activities. The others were engaged in one to three after school-type activities such as sports, clubs, or dance lessons. All of the girls reported attending church from one to ten or more times a month.

The mothers ranged in age from 26–56 years (mean = 44 years). Most were in their 30s and 40s ( $n = 8$ ) and worked full time ( $n = 7$ ); all had completed high school. More than half were either married or living with someone ( $n = 7$ ; 64%)—a higher percentage than reported nationally (38%; United States Census Bureau, 2009). Based on weekly take home pay for the household reported by mothers and the number of persons living in the household, 3 of the 11 families were living in poverty (United States Department of Health and Human Services, 2008). Eight of the mothers reported that only one or two children lived in their homes, while three reported that three or more children lived with them.

### *Intervention*

This multi-component intervention (group girl education and service learning and individual education for the mothers) lasted approximately three months for the girls and included three 1-hour sessions for mothers (over several weeks). The intervention for the girls provided information on topics critical to protecting themselves from contracting HIV and allowed them to practice communication skills that could help them self-protect when placed in risky situations in the future. The mothers' intervention was designed to help them learn how to best help their daughters avoid contracting HIV.

The intervention had an overlay of promoting racial/ethnic pride in the girls. Toward this end, the study was named “Girls Empowered through Mind and Mission” (GEMM). Also, the intervention nurses were Black and the girls viewed films that included Black girls. One of these films was a documentary produced by a Black high school girl (Kiri Davis), which won a national award (Real Works Teen Filmmaking, n. d.). In addition, to promote the girls' racial and ethnic pride, we encouraged mothers to discuss aspects of their heritage with the girls, we used poetry written by Black authors in an exercise with the girls, and we had the girls repeat the study name (mantra) at least once during each contact with their intervention nurse.

**Girls.** The intervention was designed to be developmentally appropriate for adolescent girls; thus, games, exercises, and films were included as teaching strategies. The girls' education consisted of 12 hours of contact with a nurse intervener over several weeks (the exact timing was dictated by the schools' and girls' needs. For example, we made every effort to avoid major sports activities days in the schools and of course avoided teacher work days). Topics included communication skills, healthy relationships, assertiveness, human sexuality, risky behaviors related to contracting HIV infection, and self-protection against HIV infection. At the end of the education sessions, a woman affected by HIV was a guest speaker for the girls.

The service learning component was designed to give the girls opportunities to practice the communication and assertiveness skills they had learned during the education sessions. The girls spent 16 hours helping with children in a Head Start program, supervised by the same Black

nurse who was the intervener. The girls were encouraged to use assertiveness skills, to speak openly and directly, and to speak up for what they needed to the children in the Head Start program, the staff of the Head Start program, and the parents of the children. Our assumption was that if the girls practiced in the Head Start program, they would be more skilled with assertive communication strategies and more likely to use them when faced with potentially risky sex situations.

**Mothers.** The mothers were provided three hours of education, in three sessions, by the same Black nurse who worked with their daughters. The three sessions included content on normal adolescent development and the challenges faced by adolescent girls, the importance of parental monitoring and role modeling for an adolescent's behavior, and ways to help their adolescent daughters become assertive and to provide support to them in this process.

The girls' education sessions were held at their school, after school, in a group setting. Each girl received a gift card or monetary incentive for each education session and each data collection. The mothers' education sessions were held individually, at a time and place of mothers' choosing. Service learning was conducted at a Head Start program located in the same county as the schools the girls attended. Mothers were responsible for transporting their daughters to and from the service learning site, and home from the school after the education sessions. The mothers received \$5 compensation for each time they transported their daughter to or from an intervention site (e.g., home from school, or to and from Head Start). They also received compensation for each education session and at the time of data collection. Incentive amounts ranged from \$5 for each education session attended by the girls to \$50 for the final data collection with mothers.

Prior to the study, the registered nurses who implemented the interventions received a day-long training with the first author to learn all aspects of the intervention for both the girls and mothers, including ways to promote racial/ethnic pride in the girls, the rules of the girls' groups they were to enforce, ways to ensure the safety of girls with regard to transportation home each day, and the need to be maximally flexible with each mother in terms of when and where to meet for the mother's individual education sessions. To ensure fidelity of the intervention, each nurse was provided an intervention manual with all education materials for the girls and mothers. At least weekly contacts were then maintained between the intervention nurses and the first author to review issues related to the intervention and to the girls' and mothers' responses.

### *Measures*

Data were collected prior to the intervention, immediately after the end of the intervention, and again approximately three months after the end of the intervention. The girls were asked to complete 11 surveys and the mothers were asked to complete 6, at each data collection point. The girls' and mothers' survey responses were kept confidential; the mothers did not know their daughters' responses.

**Girls' Surveys.** The girls' demographic information was collected using a tool with 16 questions derived from the codebooks of The National Longitudinal Study of Adolescent Health (Add Health). Questions asked about grade in school, activities in which the girl participated outside of school, living circumstances, and church attendance (Harris, Halpern, Whitsel, Hussey, Tabor,

Entzel, & Udry, 2009). No information on the psychometric properties of the Add Health measures is reported.

The girls also were asked to complete two knowledge quizzes, both developed for this study based on the literature. The first was a 4-item tool that assessed knowledge of pregnancy and risk and the second was a 10-item tool that tested the girls' knowledge of HIV risk. Validity and reliability of these tools were not tested in the study.

Sexual assertiveness was assessed through 12 items in two 6-item subscales, taken from the Sexual Assertiveness Scale for Women (Morokoff et al., 1997). The first assessed assertiveness related to refusal of sexual activity, and the other assessed assertiveness in taking measures to prevent pregnancy and sexually transmitted diseases. Morokoff et al. have reported good internal consistency, with standardized coefficient alphas of .71 for the Refusal subscale and .83 for the Prevention subscale.

The girls' emotional bond with their mothers was assessed by a 3-item scale that measured communication, warmth, and level of satisfaction with the mother-daughter relationship; protective factors were measured by asking the girls to complete an 8-item tool that asked about family, friends, and adults, and about other relationships. Perceived self-efficacy to use HIV prevention measures was measured by three items asking how sure the girls were that they could plan ahead and have condoms available, stop themselves once "turned on" in order to use condoms, and say no to sex if their partner refused to use a condom. All of these measures were adapted from the Add Health study (Harris et al., 2009).

The Parent-Teen Sexual Risk Communication Scale was used to measure the girls' perspective on their communication with their mothers (Hutchinson, 2007). This tool measures the amount of communication between parents and adolescents on sexual risk subjects. It is reported to have excellent internal reliability (Cronbach's alpha > .93) and acceptable test-retest reliability ( $r = .88$  over two months).

To measure the girls' perspective on the parental monitoring they received, they were asked to complete an 8-item tool that examined how much they thought their parents knew about where they were, what they were doing during non-school hours, and with whom they spent their time (Small & Kerns, 1993). The tool is reported to have acceptable internal consistency (Cronbach's alpha = .87).

The quality of communication between parents and adolescents also was measured using a 20-item tool entitled Parent-Adolescent Communication (girl version), developed by Barnes and Olson (1982). This tool includes subscales to measure both positive and negative aspects of communication, and has demonstrated good internal consistency reliability, for both the subscales and the total scale (Cronbach's alpha .87 for the Open Family Communication subscale, .78 for Problems in Family Communication subscale, and .88 for the total scale).

The girls' sexual behavior was examined through ten questions adapted from the Add Health study (Harris et al., 2009) and one additional opened-ended question. The ten questions asked the girls whether or not they had ever had vaginal or oral sex, and if so, how many times in the past

month, how many partners they had had in their lifetime, and whether they had ever used alcohol or marijuana prior to having any type of sexual experience. Other questions asked about participation in anal sex and having sex for pay. The girls were also offered an opportunity to share anything else about their sex activities.

To examine family rules that existed in each girl's family (to measure how much the girls were monitored by their mothers), a 13-item tool was developed for the study. The girls were asked to indicate whether or not they had typical adolescent rules in their homes (e.g., curfews, dating rules, drug and alcohol rules, bedtimes, church attendance, school and homework rules). Validity and reliability of this tool was not tested in the study.

**Mothers' Surveys.** Each mother was asked 24 questions adapted from the codebooks for the Add Health study (Harris et al., 2009) on things like race, marital status, number of children, living circumstances, work, church attendance, and health insurance for both the mother and her daughter. Mothers also completed a 28-item survey, Confidential Survey to Parents of Adolescents, developed by Jordan, Price, and Fitzgerald (2000) to assess parent-adolescent sexual communications. The items in the tool are stand-alone items and no composite score is available. Questions related to the intervention include these: "How much have you talked with your daughter about reasons for not having sexual intercourse, e.g., might get pregnant, loss of self-respect?" "How much have you talked with your daughter about reasons for not getting pregnant, e.g., how embarrassed the family would be?" "How much have you talked with your daughter about ways to resist pressures to have sex, contraceptives (birth control), and reproduction (how babies are made), etc.?" A final question related to the study is "How hard or uncomfortable is it for you to talk with your daughter about sexual issues?" Response choices range from very uncomfortable to very comfortable. Jordan et al. (2000) reported that the tool had good reliability (Pearson's  $r = .71$ ).

Parental monitoring was assessed using an 8-item survey by Small and Kerns (1993) that examines how much parents know about where their children are and what they are doing during non-school hours, and with whom they spend their time. The authors reported acceptable internal consistency (Cronbach's  $\alpha = .87$ ) for the tool.

DiIorio's 12-item tool was used to examine mothers' perceived self-efficacy to discuss sex issues with their daughters (DiIorio et al., 2001; C. DiIorio, personal communication, January 17, 2008). Using a scale from 1 to 7, mothers are asked how sure they are about their ability to explain various aspects of sexual behavior and self-protection. The tool is reported to have acceptable internal consistency (Cronbach's  $\alpha = .85$ ). Another tool developed by DiIorio and colleagues (2001; C. DiIorio, personal communication, January 17, 2008), the 15-item Parental Outcome Expectancy Scale, which measures parents' outcome expectancies related to discussing sex related topics with their adolescent, also was used. This tool is also reported to have acceptable internal consistency (Cronbach's  $\alpha .83$ ).

The 20-item Parent-Adolescent Communication (parent version) developed by Barnes and Olson (1982) was administered to mothers to measure the quality of their communication with their daughters. The tool measures both positive and negative aspects of communication. The authors report good reliability for both subscales and for the entire tool (Cronbach's  $\alpha .87$  for Open

Family Communication, .78 for Problems in Family Communication subset, and .88 for the total scale).

## FINDINGS

Table 1 shows the girls' mean scores on all the measures. On both the knowledge tests, mean scores increased from the pre-test to the immediate post-intervention test, but dropped at the 3-month post-intervention data collection point. On the test for pregnancy risk knowledge, the mean score pre-intervention was 2.4, and the immediate post-intervention score was 2.67. At the 3-month post-intervention point, the mean score was 2.11. On the HIV risk knowledge test, the pre-intervention mean score was 7.0. Immediately post-intervention the mean score was 7.44, and at the 3-month post-intervention follow-up, the mean score was 7.11. The girls' mean scores on the 3-item measure reflecting their emotional bond with their mothers also increased from the pre-test to the immediate post-intervention data collection, but decreased at the 3-month post-intervention data collection (mean scores 11.9, 12.56, and 11.0, respectively). Findings were similar on the scale measuring the girls' perceptions of their communication with their mothers about sex issues (56.7, 60.0, and 59.11, respectively), the protective factors scale (33.0, 33.22, and 31.78), and the girls' perceptions of their mothers' monitoring of them (35.6, 36.44, and 35.22). On the self-efficacy to use condoms scale, the girls' mean score decreased from the pre-test collection point (4.0) to the immediate post-intervention collection point (3.22), but increased at the 3-month post-intervention data collection (4.33). On the scale measuring negative communication with their mothers, the mean score decreased from pre-test (32.3) to the immediate post-intervention data collection point (32.0) and decreased again at the last data collection (30.77). The positive communication mean score was lower immediately post-intervention (37.33) than at the pre-test (38.8), but slightly higher at the last data collection (37.44). Mean assertiveness scores showed a positive trend over the three measurement points (53.68, 55.11, and 55.78, respectively). The refusal subscale mean scores also showed a positive trend across the three points (25.60, 27.33, and 28.0, respectively), but the prevention subscale mean scores did not show a positive trend (28.70, 27.78, and 27.78, respectively).

**Table 1:** Means and Standard Deviations for Girls' Surveys Responses

Scale/Subscale	Time 1	Time 2	Time 3
	<i>M (SD)</i> <i>n = 10</i>	<i>M (SD)</i> <i>n = 9</i>	<i>M (SD)</i> <i>n = 9</i>
Knowledge—pregnancy risk	2.40 (.97)	2.67 (.71)	2.11 (.33)
Knowledge—HIV risk	7.00 (1.4)	7.44 (1.88)	7.11 (1.17)
Emotional bond with mother	11.90 (2.9)	12.56 (2.51)	11.0 (3.12)
Mother/adolescent sex communication	56.70 (8.78)	60.0 (9.15)	59.11 (8.54)
Protective factors	33.0 (4.19)	33.22 (4.06)	31.78 (3.19)
Girls' self-efficacy to use condoms	4.0 (1.25)	3.22 (.44)	4.33 (1.73)
Maternal monitoring	35.60 (3.98)	36.44 (3.58)	35.22 (5.38)
Parent/girl communication—positive	38.80 (7.86)	37.33 (9.72)	37.44 (7.45)
Parent/girl communication—negative*	32.30 (6.77)	32.0 (5.98)	30.77 (3.49)
Mother/girl communication—total	66.50 (12.26)	65.56 (13.95)	66.67 (9.63)
Family rules	10.2 (3.39)	11.00 (1.41)	9.89 (1.45)
Assertiveness—refusal	25.60 (3.95)	27.33 (3.78)	28.0 (2.45)
Assertiveness—prevention	28.70 (2.83)	27.78 (4.06)	27.78 (3.53)
Assertiveness—total	53.67 (5.75)	55.11 (7.03)	55.78 (4.06)

\*Lower mean scores reflect less negative communication (a positive finding).

The girls demonstrated negative mean trends on some aspects of three scales. For self-efficacy to use condoms, their mean score was 4.0 pre-intervention, 3.22 immediately post-intervention, but then 4.33 at the 3-month post-intervention time point. On the positive aspects of their

communication with their mother the mean trend was 38.8, 37.3, and 37.4; similar to their communication mean scores, at 66.5, 65.56, and 66.67, respectively, for the three data collection time points. On the family rules scale, the girls' scores were 10.2, 11.0, and 9.89 over the three data collection points; that is, they reported this mean number of family rules in their homes at these times.

We collected sex behavior data on the girls and the majority were delaying risky sex behaviors post-intervention and at 3-month follow-up. However, because of the small sample size and the potential for deductive disclosure of highly sensitive information, these data are not reported here.

Table 2 gives the mothers' mean scores. On each scale and subscale except the negative communication subscale (26.18, 24.56, and 24.67, over the three time points, respectively), mean scores for the mothers trended in a positive direction.

**Table 2:** Means and Standard Deviations for Mothers' Survey Responses

Scale/Subscale/Item	Time 1	Time 2	Time 3
	<i>M (SD)</i> <i>n = 11</i>	<i>M (SD)</i> <i>n = 9</i>	<i>M (SD)</i> <i>n = 9</i>
Maternal monitoring	37.55 (2.88)	38.0 (2.74)	38.22 (2.17)
Mother self-efficacy	75.36 (7.59)	78.22 (4.76)	80.0 (3.60)
Parental outcome expectancy	60.27 (6.84)	64.22 (8.17)	65.89 (5.37)
Parent/girl communication—positive	38.27 (5.35)	41.22 (3.87)	43.56 (4.19)
Parent/girl communication—negative*	26.18 (8.17)	24.56 (4.48)	24.67 (5.64)
Parent/girl communication—total	72.09 (8.67)	76.67 (7.50)	78.89 (7.29)
Reasons not to have sex	23.54 (5.09)	25.0 (2.29)	26.0 (1.73)
Reasons not to get pregnant	21.72 (6.45)	23.66 (4.06)	24.66 (2.40)
Talked with daughter about sex topics	47.81 (9.40)	56.22 (8.54)	57.33 (7.35)
How comfortable to talk about sex	4.18 (.87)	4.78 (.44)	4.89 (.33)

\*Lower mean scores reflect less negative communication (a positive finding).

Of the ten girls, three missed one group education session and two missed two group education sessions. The nurse interveners reviewed what was missed during the previous session when the girls returned after the missed sessions. None of the girls missed any of the service learning component of the intervention. None of the mothers missed any of their education sessions.

The girls and mothers, in separate group meetings, gave highly positive feedback about the intervention. More than one mother asked that her daughter either be allowed to repeat the study, or be followed by the intervention nurse over time to help her daughter maintain the gains she had made or to achieve even further gains.

The school personnel who helped with recruitment had no concerns about the intervention. Their only concern was the difficulty of initial recruitment when they were calling the mothers.

## DISCUSSION

This pilot study examined the feasibility and initial efficacy of a multi-component intervention (group girl education, girl service learning, and individual mother education) designed to help Black middle school-aged girls avoid sex behaviors that put them at risk for contracting HIV. All the participants valued the intervention and thought it was a positive experience.

The girls showed a positive trend in scores on most of the scales and subscales that measured aspects of their relationships with their mothers, their sexual assertiveness, and their self-efficacy to use condoms. These trends, however, reflected very small differences over time and should only be used as preliminary information on the efficacy of the intervention. On several scales, there was a decrease in the mean score from immediately post-intervention to 3-months post-intervention, suggesting a need for a booster session with girls to continue the gains they make in knowledge and behaviors.

The differences in the mean scores for the girls in relation to family rules may have been appropriate since half of the girls moved from middle school to high school between the second and final data collection point, and it is likely that their mothers were loosening the rules in the house as they moved to high school. This trend was consistent with the girls' mean scores on the tool measuring their perceptions of their mothers' monitoring behaviors (a reliable tool; Cronbach's alpha = .87; Small & Kerns, 1993). However, since the family rules tool had not been tested for validity or reliability, these inferences may be premature, especially since mothers' mean perception score on their monitoring behaviors increased across the three time points.

Nearly all of the mothers' mean scores reflected a positive trend across the three time points, indicating that the mothers perceived that their abilities to communicate and monitor their daughters improved and this improvement was maintained over time. However, there was a slight mean increase in negative communication from the immediate post-intervention data collection point to the 3-month post-intervention point.

While we did not empirically test the role of promoting racial/ethnic pride in helping Black girls avoid risky behaviors, anecdotal information revealed that this was a valuable part of the intervention. With strong positive Black role models like the current President and First Lady of the United States, this may be a particularly opportune time to focus on racial/ethnic pride among Black adolescent girls. These girls may feel particularly empowered at this point in history, and interventions should capitalize on this.

We used aspects of the interventions developed by DiClemente et al. (2004), O'Donnell et al. (2002), and Allen et al. (1997). However, the way in which we combined various components of their interventions is unique. Our multi-component intervention seems feasible to conduct in a school-based setting with Black middle school-aged girls and their mothers. In addition, teaching mothers about what their girls are experiencing, how to support and monitor them, and how to promote the girls' racial/ethnic pride may be useful aspects of interventions to help Black girls develop behaviors that will help them avoid risky sex behaviors and HIV. We found including this in our intervention was feasible. Similarly, Wu et al. (2003) found that effective parental monitoring was an important strategy for helping adolescents avoid risky sex behaviors.

There were several limitations to this study, including the small sample and the use of some measures that had not been psychometrically tested with middle school-aged Black girls. Further, some of the items on the knowledge tests were poorly worded and, thus, these mean scores may not have been a true reflection of the girls' knowledge about pregnancy or HIV risk. In future efficacy studies, only psychometrically valid and reliable knowledge tests should be used. Also, given the nature of our recruitment (convenience sampling), there may have been selection bias.

We also did little to ensure treatment fidelity beyond initial training of the interventionists and weekly or more frequent contacts with them. In future efficacy testing of this intervention, a complete fidelity plan will be needed. The major goal of this study was to test the acceptability of the intervention and procedures with participants and the “doability” of the study. Having shown feasibility, and beginning efficacy, our goal now is to fully test the efficacy of this intervention to help Black adolescent girls avoid risky behaviors that put them at risk for contracting HIV.

#### DECLARATION OF INTEREST:

*The authors report no conflict of interest. The authors alone are responsible for the content and writing of this paper.*

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