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HIV-Risk Reduction with Juvenile Offenders on Probation

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Abstract

Youth involved in the juvenile justice system are at elevated risk for HIV as a result of high rates of sexual risk taking, substance use, mental health problems and sexually transmitted infections. Yet few HIV prevention programs exist for young offenders. This pilot study examined change in juvenile offenders' sexual activity, drug/alcohol use, HIV testing and counseling, and theoretical mediators of risk taking following participation in PHAT Life, an HIV-prevention program for teens on probation. Participants (N=54) were 13–17 year-old arrested males and females remanded to a detention alternative setting. Youth participated in a uniquely tailored HIV prevention intervention and completed a baseline and 3-month follow up assessment of their HIV and substance use knowledge, attitudes, beliefs, and behaviors. At 3-month follow up, teens reported less alcohol use, more positive attitudes toward peers with HIV, greater ability to resist temptation to use substances, and for males, improved HIV prevention self-efficacy and peer norms supporting prevention. Teens were also more likely to seek HIV counseling and males were more likely to get tested for HIV. Effect sizes revealed moderate change in sexual behavior. Findings support PHAT Life as a promising intervention to reduce HIV-risk among youth in juvenile justice.

Keywords

Juvenile offenders; HIV/AIDS; substance use; prevention

Introduction

In 2009, approximately 1.5 million youth under age 18 years were involved in the criminal justice system, and a disproportionate number were African American (US Department of Justice, 2010). Higher rates of undiagnosed sexually transmitted infections (STI) exist among young offenders compared to youth in the general population (Belenko et al., 2008), and untreated STI increase the risk for HIV/AIDS five-fold (Centers for Disease Control [CDC], 2010). Eighty percent of arrested youth are released on probation (i.e., community supervision), but compared to detained or incarcerated teens, probation youth rarely receive medical care, diagnostic evaluations, or treatment (Snyder & Sickmund, 2006; Stahl, Finnegan, & Kang, 2006). As a result, probation teens who continue to engage in sexual activity amplify the risk of STI and HIV in their communities and further contribute to health disparities in the most disadvantaged neighborhoods.

STI are exacerbated by high rates of risky sexual behavior (Dembo, Belenko, Childs, Wareham, & Schmeidler, 2009; Teplin, Mericle, McClelland, & Abram, 2003), mental illness (Fazel, Doll, & Langstrom, 2008; Teplin, Abram, McClelland, Dulcan, & Mericle, 2002; Vermeiren, Jaspers, & Moffitt, 2006), and substance use (Bryan, Ray, & Cooper, 2007; Teplin et al., 2005; Teplin et al., 2003) among youth in the criminal justice system. More than a third of juvenile offenders report unprotected sex when drunk or high (Teplin et al., 2003), and alcohol use can compromise intentions to use condoms and diminish skills to negotiate safer sex (Bryan, Schmiede, & Broaddus, 2009). Most of these data reflect detained or incarcerated youth, and less is known about probation teens. Poor emotion regulation (e.g., affective lability, lack of flexibility), a proxy and indicator of mental health problems, is associated with increased substance use and risky sexual behavior (Caspi et al., 1997; Lescano, Brown, Miller, & Puster, 2007), and juvenile offenders lack skills to manage affective arousal (Otto-Salaj, Gore-Felton, McGarvey, & Canterbury, 2002). The linkages across STI, mental illness, and substance use pose significant challenges for HIV prevention, as few programs address their comorbidity, particularly for criminally involved youth.

HIV prevention programs for juvenile offenders typically rely on social-cognitive theory and address HIV/AIDS and substance use knowledge, attitudes, beliefs, and safer sex skills. Research supports these targets; young offenders evidence significant HIV (Katz, Mills, Singh, & Best, 1995) and substance use (Leeming, Hanley, & Lyttle, 2002) knowledge deficits, negative perceptions of condoms, aversive feelings toward safe-sex practices (Carney, Werth, & Morris, 1997; Crosby, Salazar, & DiClemente, 2004), low personal vulnerability to HIV (Carney et al., 1997), and diminished self-efficacy for HIV prevention (Kasen, Vaughan, & Walter, 1992). Peer norms, attitudes, and behavior influence adolescent sexual activity and substance use (Donenberg, Emerson, Bryant, Wilson, & Weber-Shiffrin, 2001), and compared to non-offenders, justice involved youth report lower peer norms for safer-sex (Nader, Wexler, Patterson, Mckusick, & Coates, 1989), and their perceptions of peer norms are related to inconsistent condom use (Robertson, Stein, & Baird-Thomas, 2006).

Research on broader contextual factors related to risk behavior among young offenders is sparse, but findings for non-offending youth with mental health and substance use problems

point to poor affect regulation (Brown et al., 2012) and diminished partner communication as potentially important intervention targets. For example, among youth with significant mental health problems, affect dysregulation was related to non-condom use at last sex and a history of substance use (Brown et al., 2012), while talking to partners about safer sex predicts increased condom use among incarcerated adolescents (Rickman et al., 1994).

Still, few HIV prevention programs have targeted juvenile offenders (Tolou-Shams, Stewart, Fasciano, & Brown, 2010), and among those that have, published reports have yielded small effects on behavior, low retention rates (Bryan et al., 2009; Goldberg et al., 2009; Robertson et al., 2011; Rosengard et al., 2007; Schmiede, Broaddus, Levin, & Bryan, 2009; Tolou-Shams et al., 2011), and intervention decay (Tolou-Shams et al., 2010). By contrast, a review of HIV prevention interventions for juvenile offenders concluded that changes in theoretical mediators of risk (e.g., HIV knowledge and attitudes) are consistently strong (Tolou-Shams et al., 2010).

Methodological factors in intervention research with criminally involved youth hamper general conclusions. For example, Hurd, Valerio, Garcia, & Scott (2010) compared the effectiveness of a 4- versus 8-session intervention, and found change in attitudes immediately after the intervention, but there were no risk behavior outcomes or follow-up data. Another pilot study tested an HIV prevention program for incarcerated males (Mouttapa et al., 2010), but excluded youth with mental illness and drug dependency, significantly restricting the target population and limiting generalizability. The authors reported increased condom use in the intervention condition, but there were no group differences in HIV transmission knowledge, sex while using drugs or alcohol, or attitudes toward condoms at follow up. The most comprehensive randomized trial to date (Bryan et al., 2009) evaluated a 3-arm sexual and alcohol risk reduction program for detained youth, and followed participants for 3-, 6-, 9-, and 12-months. All three conditions involved a single session lasting between 2 – 4 hours delivered in a group format with 1–10 participants. Youth in the two experimental arms reported less risky sexual behavior than youth in the control group, but effects were small and behavioral outcomes did not differ between the two active interventions. However, the impact of the intervention on theoretical mechanisms was strong, and two of these, self-efficacy and intentions, mediated the reductions in sexual risk. Unfortunately, very low retention (65%) calls into question the representativeness of the sample and external validity of the findings.

Finally, the interventions reviewed above focused on incarcerated and detained teens, even though the majority of arrested youth are placed on probation (i.e., community supervision). None of the interventions addressed comorbid mental health, substance use, and sexual risk present in many criminally involved youth, especially those on probation. One study evaluated an intervention for non-incarcerated young offenders remanded to drug court but found no significant differences between the experimental and control groups at the 3-month follow-up (Tolou-Shams et al., 2011). Prevention programs that target multiple risk factors among juvenile offenders are an urgent public health priority. This study reports the outcomes of a small pilot study testing a uniquely tailored HIV/AIDS, mental health, and substance use prevention program (Preventing HIV/AIDS Among Teens; PHAT Life) for juvenile offenders on probation. We hypothesized that at the 3-month follow up relative to

baseline, youth would report increased HIV knowledge, improved attitudes toward HIV prevention, greater self-efficacy to prevent HIV transmission and abstain from substance use, stronger intentions to engage in prevention behavior, less temptation to use substances, and decreased risk taking (i.e., less unprotected sex, fewer occasions of drug and alcohol use, reduced likelihood of having sex while using substances). We also hypothesized that teens would report increased affect regulation, a proxy for improved mental health, and greater HIV testing and counseling behavior.

Method

Participants

Figure 1 shows the participant flow from initial recruitment through the 3-month follow up. All youth present at the ERC during recruitment ($N=89$) were informed of the project and evaluated for eligibility. Youth were eligible to participate if they: a) understood the consent/assent process; b) spoke English (the assessments are normed for English speakers); c) provided assent to participate; d) had consent to participate by a legal guardian; e) would be in attendance at the ERC for at least 3 of the 8 intervention sessions based on days remanded to the ERC by court order; and f) completed baseline assessments. Of the 89 youth presented the study, 17% ($N=15$) were ineligible, primarily as a result of detainment prior to enrollment. Of the remaining 74 youth, 64 teens and parents provided assent and consent (86%), and 61 youth completed the baseline assessment (three youth were withdrawn by ERC staff for behavioral problems prior to baseline). Of the remaining 61 youth who completed the baseline assessment, six were detained or withdrawn by the ERC before the first intervention session, and one youth declined to participate further. Hence, the final sample that participated in the intervention ($N=54$) was 59% male, ages 13–17 years old ($M=15.7$, $SD=1.04$), and 93% African American. The remaining 7% were Latino (5%) and White (2%). The majority of youth (71%) lived with their biological mother, 11% with their grandmother, 8% with other relatives (i.e., aunt, step father, and great grandmother), 6% with a foster parent, and 4% with their biological father. Ninety percent scored in the first three levels of the Hollingshead index (Hollingshead, 1975), indicating low to middle incomes. Targeted recruitment from the female programs produced approximately equal representation of males and females. All of the youth who participated in the intervention ($N=54$; 100%) were retained at the 3-month follow-up. Six months into the study, we introduced a self-report measure of youth offenses, and thus, data are only available for a subset of the sample ($N=45$). These reports indicate that 42% of the teens were charged with assault or battery, 33% with theft, 9% with trespassing or vandalism, 7% with sale or possession of drugs, 7% with an armed offense or gun possession, and 7% with probation violation. Youth were able to report more than one offense. These rates are comparable to those for youth on probation nationally (Puzzanchera, Adams, & Hockenberry, 2012). Specifically, in 2009, youth on probation were arrested for person-related crimes (i.e., assault and battery) (26%), property-related crimes (i.e. theft, trespassing) (36%), drugs (13%), and public order offenses (e.g., gun possession) (25%) (Puzzanchera et al., 2012).

Procedure

Participants were recruited from Chicago Cook County's Evening Reporting Centers (ERC), a community-based probation service that is an alternative to detention following arrest. Minors from all city calendars can be ordered by the court to participate in the ERC from 5 to 28 days in lieu of Juvenile Temporary Detention Center placement, but no specific criteria exist to determine who will be given this judicial order. Many of the minors assigned to the ERC have been charged in violation of a pre-existing probation and awaiting hearing or disposition or on a warrant and presented to the court for disposition of the warrant. No formal data exist on youth remanded to the ERC, but teens have a range of offenses (M. Spooner, Operations Analyst, personal Communication, March 5, 2014). The ERC offer single-sex, on-site, after school supervision and programming for up to 28 days while teens await sentencing. The ERC are subcontracted to an external agency whose stated goals are to help youth (1) remain arrest-free, (2) minimize risk-taking and delinquent behaviors during and beyond ERC participation, (3) reduce recidivism and the likelihood of re-arrest, and (4) ensure that teens attend their scheduled court appearance. Unlike detention, youth attending the ERC typically live at home, and transportation to and from the ERC is provided by the Department of Juvenile Probation and Court Services.

Research staff presented the project to all youth present at the ERC as a group, and interested teens provided parental contact information to obtain consent. Written assent and parental consent was obtained for all participants. Youths completed a 2-hour baseline interview and 3-month follow up assessment for which they were compensated \$50, but they were not paid to participate in the intervention. The 8-session intervention was delivered at the ERC over two weeks by trained co-facilitators with a background in HIV prevention, group therapy, and adolescents. All study procedures were approved by the University of Illinois at Chicago's Institutional Review Board, with special attention to vulnerable populations.

Measures

Risky sexual behavior and drug and alcohol use—The AIDS-Risk Behavior Assessment (ARBA) (Donenberg et al., 2001) assesses teens' self-reported sexual behavior and drug and alcohol use via audio-computer assisted self-interview (ACASI) to increase anonymity and privacy. Self-reported sexual behavior closely approximates actual behavior (Harrison, 1995), especially when questions are administered using computer technology (Romer et al., 1997) as in the present study. The ARBA has been used extensively with ethnically diverse low-income youth in psychiatric care (Brown et al., 2010; Donenberg et al., 2003; Starr et al., 2012). Youth reported on their baseline and 3-month follow up sexual behavior and substance use. Data analyses evaluated the following outcomes in the past 3 months (i.e., since baseline): (1) any vaginal/anal sex (yes/no), (2) any unprotected vaginal/anal sex (yes/no), (3) sex while using drugs and/or alcohol (yes/no), (4) any alcohol use (yes/no), (5) any marijuana use (yes/no), (6) number of days using alcohol, and (7) number of times using marijuana.

HIV counseling and testing—At baseline, participants indicated whether they had been tested and sought counseling for HIV in the previous six months, and at follow-up, they

reported whether they were tested and sought counseling for HIV in the previous three months.

Substance Use Attitudes and Beliefs—Context influences youth's substance use (DiClemente, Carbonari, Montgomery, & Hughes, 1994), and thus, the adapted Alcohol Abstinence Self-Efficacy Scale (AASE) (Upchurch, Aneshensel, Sucoff, & Levy-Storms, 1999) assessed how tempted (1 = not at all tempted to 5 = extremely tempted) teens would be to drink or to use drugs generally and in a given situation (i.e., during negative affect, social interactions, withdrawal, and physical/other concerns). Sample items include: "How tempted would you be to use drugs or alcohol when you are feeling angry inside?" and "How tempted would you be to use drugs or alcohol when you see others drinking or using drugs at a party?" Items also assessed teens' confidence (1 = not at all confident to 5 = extremely confident) that they would not drink or use drugs in that situation (e.g., "How sure are you that you would not drink or use drugs when you are feeling angry inside?" and "How sure are you that you would not drink or use drugs when you see others drinking or using drugs at a party?"). Overall self-efficacy to abstain and temptation scores were analyzed, in addition to the 4 subscales related to each (negative affect, social situations, physical or other concerns, withdrawal and urges). Each subscale included five items, and scores ranged from 5 to 25. The overall self-efficacy and temptation scores had a potential range of 20 to 100. Internal reliability was strong for temptation ($\alpha = .91$) and for self-efficacy ($\alpha = .96$), where higher scores indicated greater temptation to drink or use drugs and self-efficacy to abstain. The AASE has been used widely with teens (Owen et al, 2003; Schinke, Cole, & Fang, 2009). Internal reliability ranged from $\alpha = .70$ to $\alpha = .93$ for the subscale scores.

HIV knowledge, attitudes, and behavioral skills—HIV Knowledge. Teens indicated true or false on 35 items about HIV transmission and prevention (Donenberg et al., 2005). The scaled score indicated number correct and had moderate internal consistency ($\alpha = .65$). Sample items are "Keeping in good physical condition is the best way to prevent getting the AIDS virus," and "Having sex without a condom increases a person's risk of getting the AIDS virus." HIV Attitudes. Three scales evaluated teens' general attitudes and motivation to prevent HIV transmission (Donenberg et al., 2005; Mustanski, Donenberg, & Emerson, 2006), and one examined peer support for risky behavior. Four-items surveyed *general attitudes toward peers with HIV/AIDS* (e.g., "I would be willing to go to class with a kid who has AIDS"). Responses were rated on a scale from 1=strongly agree to 4=strongly disagree, and lower scores reflected more positive attitudes ($\alpha = .89$). Six-items assessed *peer norms regarding HIV/AIDS prevention* (e.g., "Friends that I respect think I should use condoms every time, if I have sex") on a scale from 1=very untrue to 5=very true ($\alpha = .75$). High scores indicated strong peer support for HIV/AIDS prevention. Three-items evaluated *intentions to prevent HIV/AIDS* (e.g., "If I have sex in the next two months, I'm planning to use condoms every time."). Responses were ranked from 1=very untrue to 5=very true, and higher scores indicated very likely to engage in HIV prevention ($\alpha = .74$). Youth also answered six questions from the widely used school-based Health Questionnaire (Jessor & Jessor, 1977) assessing *peer approval of sexual behavior, and alcohol, marijuana and cigarette use* ($\alpha = .80$). Item responses were rated on a 1 to 4 scale, with high scores

indicating most friends use drugs, approve of drug use, and have had sex (Donenberg, Bryant, Emerson, Wilson, & Pasch, 2003; Donenberg et al., 2001). Sample peer approval items are: “How many of your friends drink alcohol fairly regularly,” and “Think of all your friends who are the same sex as you. How many of them have had sexual intercourse (“gone all the way”) with someone of the opposite sex.” Youth also indicated their *intentions to have vaginal, anal, or oral sex in the next 6 months* (yes/no) and if yes, their *intentions to always use a condom in the next 6 months* (“How often do you think you will use condoms when you have vaginal, anal, or oral sex”; always/less than always). **HIV Behavioral Skills.** Two scales examined youth behavioral skills: (a) Twelve items measured youths’ *self-efficacy to prevent HIV transmission* (e.g., “If you decide to have sexual intercourse with your partner, how sure are you that you could talk to your partner about safer sex”) on a scale from 1=very sure to 4=couldn’t do it, with high scores indicating lower self-efficacy for HIV prevention ($\alpha = .86$). (b) Thirteen items assessed *condom use self-efficacy* (e.g., “How sure are you that you could use a condom when your partner doesn’t want to use one,” and “How sure are you that you could use a condom when you have been using alcohol or drugs”) on a scale from 1=definitely could to 4=definitely could not. High scores indicated less self-efficacy for condom use ($\alpha = .92$). These measures of HIV knowledge, attitudes and behavioral skills have been widely used with adolescents (Mustanski et al., 2006; Donenberg et al., 2005).

Affect Regulation—Teens completed the 20-item Toronto Alexithymia Scale (TAS), a widely used measure of emotion regulation (Parker, Taylor, & Bagby, 2003). Responses range from strongly disagree =1 to strongly agree=5. Sample items include “I am often confused about what emotions I am feeling” and “I find it hard to describe how I feel about people.” A total score was used in the analyses, with higher scores reflecting more difficulty regulating affect. Internal consistency was strong ($\alpha = .83$).

Partner Sexual Communication—Teens indicated whether they talked to a partner(s) in the past six months (baseline) or past three months (follow-up) about using condoms (“Did you talk to a partner about using condoms during vaginal, anal, or oral sex”; yes/no) and HIV/AIDS/STI (“Did you talk to a partner about HIV/AIDS or STIs”; yes/no). Items were adapted from the Sexual Risk Behavior Questionnaire (El-Bassel et al., 1995) and a sexual communication measure by Miller, Levin, Whitaker, & Xu (1998).

Mental Health Symptoms—Teens self-reported their mental health symptoms on the Youth Self-Report (YSR; Achenbach, 1991), a widely-used measure of adolescent behavioral and emotional problems with extensive evidence of reliability and validity (Achenbach, McConaughy, & Howell, 1987). Normed for children age 11–18 years, the YSR generates raw and T-scores for internalizing (e.g., depression, anxiety) and externalizing (e.g., rule breaking and aggressive behavior) syndromes. Sample items include “I cry a lot” for internalizing and “I break rules at home, school or elsewhere” for externalizing.

Intervention

Intervention Development—PHAT Life was adapted from three empirically-supported interventions for high-risk youth: Rikers Health Advocacy Program (Magura, Kang, & Shapiro, 1994), Street Smart (Rotheram-Borus et al., 2003), and Project STYLE (Donenberg, Brown, Hadley, Kapungu, & Lescano, 2012). Guided by a combination of social learning theory (Bandura, 1986) and a Social-Personal Framework (Donenberg & Pao, 2005), PHAT Life was designed to target broad psychosocial factors implicated in HIV-risk behavior, including knowledge, attitudes, and beliefs about HIV/AIDS and substance use, emotion regulation, peer influence, and partner relationships.

Program development and modifications followed several steps with careful attention to cultural context and input from youth and adult advisory boards. First, we conducted four focus groups with young offenders (three male and one female) to identify important themes related to sexual risk taking, and these data informed the first set of curriculum revisions. We selected and adapted materials for relevance to African American and Latino youth, including videos, pictures, and role-plays, as they represent the majority of young offenders on probation in Cook County. Second, we pilot tested the intervention with one group of males (N=8) and one group of females (N=6), and we solicited feedback about program content, process, and logistics. Youth feedback was discussed with the advisory board and suggestions guided a second set of curriculum modifications. Revisions were relatively minor; no new content or constructs were added and no content or constructs were eliminated. The majority of revisions consisted of adjusting the amount of time allocated to activities, reordering the sequence of activities within a given session, and additional instructions for facilitators. For several of the sessions, revisions involved replacing activities (e.g., games focusing on understanding and controlling affect) with new activities designed to foster the same knowledge and skills. With the exception of one session (i.e., the first session), the goals and objectives of each session remained the same from the first and second pilot. We enrolled 40 young probationers in a second pilot test of the intervention. Teens from both pilot tests (N=54) completed the 3-month follow up assessment and were included in the current study.

PHAT Life Description—PHAT Life is an interactive, comprehensive sex education program that also addresses mental health and substance use. Delivered in a group-format, PHAT Life employs role-plays, videos, games, and skill development activities (e.g., assertive communication) to facilitate information uptake. The group format is an effective strategy to challenge negative peer norms and provide social support when discussing sensitive topics (Burleson, Kaminer, & Dennis, 2006). PHAT Life targets theoretical factors associated with sexual and alcohol/drug risk behavior. It promotes positive attitudes toward HIV prevention, self-efficacy to reduce risk, emotion regulation, optimism about the future, and less substance use and sexual risk taking. Youth identify and anticipate risk-related triggers and develop plans to address the people, places, situations, and moods that prompt risk taking. Teens use a feeling thermometer to evaluate the impact of their “hot” and “cold” feelings on their decisions and risk behavior, and they learn strategies to manage their feelings more effectively. Condom demonstrations and practice reinforce and encourage condom use in real life settings, and the impact of drugs and alcohol on accurate condom use

is illustrated. Videos with ethnically matched and representative youth were carefully selected for cultural relevance, and healthy versus unhealthy relationships are discussed. Ample practice is provided for effective communication with peers and partners to avoid risk and increase prevention behavior (e.g., condom use, drug refusal). Importantly, recognizing the transience of youth in the juvenile justice system and the possibility that teens may not attend the full program (e.g., differing probation lengths, sentencing from probation to detention), each PHAT Life session was designed stand alone, whereby attendance at prior sessions was not required to understand or benefit from the current session. Specifically, each session began with the same two tasks (i.e., inside/outside check-in and learning goal), a review of group expectations, and an invitation to post questions on the “parking lot” poster for later discussion. Next, each session targeted unique theoretical issues related to HIV-risk.

Facilitator Training—Individuals with a background in psychology and previous experience working with youth co-facilitated each group. Group facilitators received over 30 hours of training in group dynamics, delivering manualized interventions, basic HIV/STI knowledge, and intervention content. Facilitators participated in multiple practice sessions, alternating between leading the session and being a participant. Each facilitator conducted all of the sessions following a detailed manual, received extensive feedback, and was deemed fully trained by the first author. Sessions were observed by a third trained facilitator and rated for fidelity to the manual. Facilitators were male and female for the boys’ groups. However, due to high rates of previous sexual trauma exposure among probation girls (Wilson et al., 2013), only female facilitators were used for the girls’ groups. An independent observer rated facilitators on fidelity to the curriculum. Across all sessions mean ratings indicated 95% fidelity.

Data Analyses

Analyses were conducted using Stata version 11.2. Changes from baseline to 3-month follow-up were tested with regression analyses using generalized estimating equations for linear, negative binomial, and logistic models. For linear and negative binomial regression models, robust standard errors were estimated. Age was included as a covariate in all models. For each dependent variable, we tested gender by time interactions; interaction effects with $p < .20$ were retained and gender-specific time effects were computed using the -lincom- post-estimation procedure. Given the small sample size, effect sizes were calculated to determine the magnitude of change. Odds ratios represent the effect size for dichotomous outcomes, and for continuous outcomes, we calculated Cohen’s d (Cohen, 1988) from the marginal means obtained after estimating linear regressions.

Results

Consistent with previous research, criminally involved youth reported high rates of sexual risk taking, alcohol and marijuana use, and mental health problems at baseline. The majority of males (75%, $n = 24$) and half of females ($n = 11$) endorsed lifetime sexual activity. Among sexually active youth, 31% ($n = 11$) did not use a condom at last sex, and 37% ($n = 13$) reported alcohol and/or marijuana use at last sex. Rates of alcohol and marijuana use

were over 60% and self-reported mental health symptoms were similarly high with 43% revealing clinically significant levels of aggression and rule breaking.

Eighty-nine percent of youth ($n = 48$) completed at least four sessions, and 13% ($n = 7$) received all eight sessions; the average number of sessions completed was 5.53 ($SD=1.72$). At the end of each session, boys and girls rated “How much fun did you have today?” and “How much did you learn today?” on a scale from 0=No Fun/Nothing learned to 10=A lot of fun/A lot learned. The average session rating for “fun” and “amount learned” was high for girls ($M=8.49$, $SD=1.04$; $M=9.27$, $SD=0.46$) and boys ($M=7.27$, $SD=1.62$; $M=8.54$, $SD=0.99$), suggesting all youth enjoyed the intervention and learned quite a bit.

The results of analyses on sexual behavior, substance use, and HIV counseling and testing are shown in Table 1. Overall, there were no statistically significant changes in sexual behavior and no significant time by gender interactions. However, among sexually active youth ($n = 33$), the likelihood of reporting unprotected sex decreased by 49% ($OR = 0.51$, 95% CI 0.18 – 1.44, $p = .20$), and the likelihood of having sex while drinking or using drugs decreased by 65% ($OR = 0.35$, 95% CI 0.10 – 1.29, $p = .11$). These effect sizes are generally larger than previous reports of sexual behavior change following an HIV prevention program for juvenile offenders (Tolou-Shams et al., 2010). Alcohol use in the past three months significantly decreased from baseline to follow-up by 59% ($OR = 0.41$, 95% CI 0.20 – 0.835, $p=.014$). Changes in the number of days using alcohol varied by gender ($OR=3.22$, $p=.16$). Days using alcohol decreased significantly for girls from 2.6 days (range 0 to 25) to 0.4 (range 0 to 5) days, an 83% decrease, whereas boys’ alcohol use increased by 42%, from 1.7 days (range 0 to 10) to 2.4 days (range 0 to 19). There were no significant changes in marijuana use and no significant time by gender interaction.

Participants were over three times more likely to have sought HIV counseling at 3-month follow-up ($p = .001$); 19% of participants ($n = 10$) sought HIV counseling in the 6 months prior to baseline, and 44% ($n = 24$) sought HIV counseling in the 3-months after baseline. Changes in HIV testing varied by gender ($OR=2.99$, $p=.11$). HIV testing increased among males only ($p = .004$); 19% ($n = 6$) of boys reported being tested for HIV in the previous 6 months at baseline, compared to 41% ($n = 13$) who reported an HIV test in the previous 3 months at follow-up. Among girls, 36% ($n = 8$) reported being tested for HIV at both time points.

Changes in self-efficacy to abstain and temptation to use alcohol and drugs are shown in Table 2. Ratings of temptation to use drugs or alcohol declined overall ($d = 0.36$), and specifically for situations involving negative affect ($d = 0.38$), and for social situations ($d = 0.29$). However, there were no significant changes in ratings of self-efficacy to abstain from using drugs or alcohol and no significant time by gender interactions; effect sizes ranged from $d = 0.11$ – $d = 0.16$. Changes in HIV knowledge, attitudes, and behavioral skills are shown in Table 3. HIV knowledge increased significantly ($d = 0.40$). In contrast, of the four measures of prevention motivation, only two showed statistically significant improvement. General HIV attitudes improved among both girls ($d = 1.30$) and boys ($d = 0.48$), although more so among girls ($B=2.25$, $p=.04$). There was no time by gender interaction for general HIV attitudes. Peer norms supporting prevention improved among boys ($d = 0.51$), but

declined slightly among girls ($d = 0.33$) (interaction, $B = -0.69$, $p = 0.15$). Behavioral intentions ($d = 0.04$) and peer approval of sexual behavior and substance use ($d = 0.06$) did not change nor did youth intentions to have sex ($OR = 1.68$, 95% CI 0.86 – 3.30) or intentions to always use a condom among youth who intended to have sex ($n = 44$; $OR = 1.29$, 95% CI 0.59 – 2.83). There were no time by gender interactions for these variables. Although there were no statistically significant changes in self-rated behavioral skills, HIV prevention self-efficacy improved ($d = 0.30$) overall. The gender by time interaction was not statistically significant ($B = -3.66$, $p = 0.12$), but improvement in HIV prevention self-efficacy was evident among boys ($d = 0.54$), while girls' scores did not change. Total Toronto Alexithymia Scale scores measuring affect regulation were stable over time, with a mean of 47.1 ($SE=1.53$) at baseline and 46.3 ($SE=1.61$) at follow-up. There was no significant gender difference. There was also no statistically significant change in partner communication or differences in change by gender. However, participants were 84% more likely to have talked to a sex partner about using condoms ($OR = 1.84$, 95% CI 0.92 – 3.71), and 75% more likely to have talked about HIV/AIDS or STI ($OR = 1.75$, 95% CI 0.80 – 3.86) at follow-up compared to baseline.

Youth attended an average of 5.53 sessions ($SD=1.72$). Those who attended five or more sessions showed an average increase of 2.6 points on HIV knowledge ($p < .001$) at 3-month follow-up. The dose effects on HIV knowledge remained after adjusting for baseline differences in behavioral intentions, behavioral skills, and prevention attitudes among youth who attended more versus fewer sessions. No dose effects were found on any other outcomes.

Discussion

This study presents preliminary outcome data from a small pilot study testing an innovative and uniquely tailored HIV/AIDS, substance use, and mental health prevention program (PHAT Life) for juvenile offenders on probation. Following a carefully staged process of development, PHAT LIFE was delivered to 54 recently arrested males and females remanded to a community-based detention alternative. Even with the small sample size and varied exposure to sessions, all 54 youth were retained at the three-month follow-up. Results revealed significant improvement in theoretically important mechanisms linked to risk behavior, less alcohol use, and more HIV testing and counseling. Compared to baseline, teens reported more HIV knowledge, more positive attitudes and beliefs toward HIV prevention and people with HIV, less temptation to use drugs and alcohol, and less alcohol use. Consistent with recommendations by Durlak (2009), study effect sizes suggest moderate change in sexual behavior (see Tolou-Shams et al. (2010) for a review of HIV prevention program effect sizes for juvenile offenders) from baseline, suggesting preliminary efficacy of the intervention.

This pilot study advances HIV prevention research in important ways. Few programs target young offenders, in part because they are difficult to engage in formal interventions and health services. In this research, the majority of youth attended at least 4 sessions and reported having fun and learning a lot. It is possible that careful attention to curriculum development, including cultural relevance, ethnically matched videos, and extensive vetting

among young offenders, contributed to its high acceptability. Moreover, follow-up retention at 3-months was excellent for the youth who participated in the intervention (100%), and this may reflect their positive experience in the program. PHAT Life was designed with the knowledge that youth exposure to sessions would vary (i.e., each session was able to stand alone), and thus, we explored the dose-response relationship with theoretical mediators and behavioral outcomes. Findings indicated that receiving more sessions was linked to increased knowledge of HIV but no other outcome or mediator. Unfortunately, the sample size was too small to determine the key number of sessions related to the largest improvement, an important direction for future research.

Effect sizes revealed moderate reductions in risky sexual behavior and substance use. Among sexually active youth, for example, the likelihood of reporting unprotected sex at follow up decreased by 49%, and the likelihood of having sex while drinking or using drugs decreased by 65%. In a summary of previous HIV prevention research with young offenders, Toulo-Shams et al. (2010) reported an average effect size of $d=.23$ for pre/post research designs. In this context, the observed changes in sexual risk are promising (Durlak, 2009). Consistent with previous research (Goldberg et al., 2009; Needels, James-Burdumy, & Burghardt, 2005), PHAT Life had a positive impact on alcohol use, especially for girls who reported less alcohol use in general, and fewer days using alcohol over the past 3 months. It is possible that programs that target the range of comorbid problems for young offenders may lead to better short-term outcomes. Longer follow-up time periods will be essential to determine the maintenance of positive outcomes.

It is particularly noteworthy that youth reported significantly increased HIV testing and counseling at follow up. Recent data showing that individuals with an undetectable viral load are unlikely to transmit HIV (Cohen et al., 2011) have led to a growing emphasis on testing, counseling, and treatment as prevention (Smith, Powers, Kashuba, & Cohen, 2011). To our knowledge, this study is among the first to suggest a positive impact of an intervention on criminally involved youths' HIV testing behaviors.

Like other HIV prevention programs, PHAT Life demonstrated strong positive effects on theoretical mediators of risk at 3-month follow up (Bryan et al., 2009; Tolou-Shams et al., 2010), but with 100% retention among youth who participated in the program, these findings support increased relevance to probation youth. Boys and girls improved their HIV knowledge and reported more positive attitudes toward HIV, including greater acceptance of people with AIDS, and for males, more positive peer norms for prevention. These findings are consistent with previous data on detained youth (Bryan et al., 2009), and extend the research to probation youth, criminally involved girls, and a sample with strong retention.

Findings also revealed improvements in attitudes toward substance use at follow up, namely less temptation to use drugs and alcohol, less temptation to use drugs or alcohol when experiencing negative affect, and less temptation to use drugs and alcohol during social situations. Reductions in the temptation to use drugs and alcohol under "tempting" conditions provide new directions to interrupt the link between sexual risk and substance use. Moreover, these findings support evidence that comprehensive interventions for criminally involved youth that target multiple negative health behaviors simultaneously may

change key substance use attitudes. The small sample size prohibits testing pathways of risk, an important consideration in future research.

In contrast to previous research (Rosengard et al., 2007; St. Lawrence, Crosby, Belcher, Yazdani, & Brasfield, 1999), findings yielded no change in teens' affect regulation. Still, youth were 84% more likely to have talked to a sex partner about using condoms, and 75% more likely to have talked about HIV/AIDS or STI at follow up. The change in partner communication, a well-known mediator of reduced risk (Widman, Welsh, McNulty, & Little, 2006), may lead to less risk taking over time. Longitudinal studies are needed to test this hypothesis.

It is important to consider gender differences in the effects of PHAT Life on risk behaviors and theoretical mediators (Wingood & DiClemente, 2000). Specifically, the number of days girls used alcohol decreased by 83% from baseline to 3-month follow-up, while boys reported an increase in alcohol use by 42%. Similarly, PHAT Life was associated with a 22% increase in HIV testing among boys, but no change among girls. The mechanisms responsible for these differences are not clear. However, it is possible that girls (more than boys) recognized their unique increased vulnerability associated with alcohol use (e.g., rape), and this influenced their behavior. Likewise, there may be barriers to HIV testing for girls that do not exist for boys (Amaro & Raj, 2000; Wingood & DiClemente, 1998, 2000). For example, relationship power differentials may interfere with girls seeking testing if their male partners are not in favor of it (Pulerwitz et al., 2002). Further research is needed to fully understand the factors driving gender differences in this population.

This pilot study reflects a number of methodological advances over previous research. PHAT Life was based on strong theoretical principles and three promising interventions. Curriculum development occurred following a carefully staged process with input from young probationers and diverse stakeholders, and simultaneously addressed three comorbid concerns (i.e., mental health, substance use, and risky sexual behavior) rather than a single problem. This study, albeit a small pilot, achieved 100% retention among youth who participated in the intervention enhancing confidence in the representativeness of the findings. We targeted teens on probation in contrast to the vast majority of research on incarcerated and detained youth. While there are similar risk profiles across the two populations (Authors' names, under review), the former have more opportunities to engage in risk behavior following arrest and therefore, may more accurately reflect program impact.

Nevertheless, important study limitations exist. We did not include a control group to compare effects against the natural history following arrest. Although, extensive evidence documents poor long-term trajectories for criminally involved youth without intervention (Abram, Choe, Washburn, Romero, & Teplin, 2009; Schmiede et al., 2009), the lack of a control group limits our ability to determine how much of the changes observed in this study can be attributed to PHAT Life specifically or other factors associated with participation in an intervention (e.g., time or attention). Future work should include a control group to distinguish these effects. As a group-based program, there is the possibility of iatrogenic effects (Dishion, McCord, & Poulin, 1999). We chose a group-format to challenge negative peer norms, a well-known mediator of adolescent risk behavior. PHAT Life's structure and

manualized approach diminished opportunities for iatrogenic influences. The study focused solely on youth, even though families can play a critical role in reducing risk among young offenders (Udell, Donenberg, & Emerson, 2011) and help sustain short-term effects of HIV prevention programs (Donenberg, Paikoff, & Pequegnat, 2006). Findings are based on youth self-reports and these may be subject to biases such as social desirability. However, follow up assessments were conducted by individuals who did not lead the intervention, and data were collected via audio-computer assisted technology decreasing the likelihood of embarrassment in answering sensitive questions. Finally, eight potential participants (12.5%) were withdrawn from the study due to behavioral problems associated with the ERC prior to PHAT Life implementation. It is possible that these youth represent a unique subgroup whose outcomes are not represented here. Despite these limitations, the preliminary data are promising, particularly for a population sorely neglected and difficult to engage.

This study points to several directions for future research. Understanding the full effects of PHAT Life on risk behavior and HIV testing and counseling will depend on larger samples, comparison to a control group, and mediation and moderation analyses to identify change mechanisms (Schmiede, Feldstein Ewing, Hendershot, & Bryan, 2011). Future research should also consider the role of technology in HIV prevention for young offenders given its omnipresence among youth. Lightfoot and colleagues (2007) evaluated a computerized intervention versus a group-based program for incarcerated youth and found greater reductions in sexual activity and number of partners for youth in the computer condition. It will be important to understand how computerized interventions impact the full range of HIV-risk and mental health, particularly over time. This study underscores the utility of intervening with youth awaiting sentencing; probation is a “teachable moment” when they are faced with the crisis of potential jail time or other serious consequences (Schmiede et al., 2009; Tolou-Shams et al., 2010). Finally, the growing number of girls in juvenile justice (Cauffman, 2008) combined with higher rates of STI (Belenko et al., 2008; Dembo et al., 2009) and poorer long-term outcomes for young female offenders (Cauffman, 2008), make gender-based interventions a public health priority. The negative trajectories of juvenile offenders (Abram et al., 2009) have profound costs to society and lasting effects on community well-being and neighborhood health (Piquero & Brame, 2008). This study provides preliminary evidence that PHAT Life, a targeted program that addresses comorbid health issues (e.g., substance use, risky sex, mental health problems), may alter important theoretical mediators of health behavior and may influence negative health outcomes.

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Figure 1.
Participant flow into PHAT Life

Table 1
Changes in sexual behavior, substance use, and HIV counseling & testing at 3-month follow-up

(N=54)						
	OR	SE	95%	Conf Int	z	p
Any recent vaginal or anal sex	0.93	0.24	0.56	1.54	-0.30	0.765
Any recent unprotected sex	0.59	0.24	0.26	1.33	-1.28	0.200
Any recent sex while drinking/drugs	0.59	0.29	0.23	1.55	-1.07	0.287
Sought HIV counseling last 6/3 months	3.67	1.49	1.66	8.11	3.21	0.001
Tested for HIV last 6/3 months [†]						
Female:	1.00	0.57	0.33	3.06	0.00	1.000
Male:	2.99	1.14	1.42	6.31	2.88	0.004
IRR						
	IRR	SE	95%	Conf Int	z	p
Days used alcohol past 3 months ^a [†]						
Female:	0.17	0.12	0.04	0.72	-2.41	0.016
Male:	1.42	0.63	0.60	3.41	0.79	0.427
Days used marijuana past 3 months ^a	0.78	0.25	0.42	1.45	-0.78	0.433

^a Negative binomial regression

[†] Gender $\times$ Time interaction, $p < .05$

Table 2

Changes in self-efficacy to abstain, and temptation to use alcohol and drugs

	Pretest Marginal mean (SE)	Posttest Marginal mean (SE)	Coef.	Semi- robust Std Err.	95% Conf. Int.	z	p	N
Self-efficacy to abstain from using	75.29 (3.66)	72.21 (4.09)	-3.07	4.99	-12.84 6.70	-0.62	0.538	47
Self-efficacy to abstain, negative affect	18.20 (0.93)	17.54 (1.05)	-0.67	1.35	-3.32 1.99	-0.49	0.622	54
Self-efficacy to abstain, social situations	16.72 (1.00)	17.57 (1.13)	0.85	1.44	-1.92 3.73	0.63	0.531	49
Self-efficacy to abstain, withdrawal and urges	20.35 (1.01)	19.12 (1.14)	-1.23	1.42	-4.00 1.55	-0.87	0.387	48
Self-efficacy to abstain, physical or other concerns	20.98 (0.81)	19.94 (1.03)	-1.04	1.15	-3.29 1.22	-0.90	0.367	54
Temptation to use drugs or alcohol	38.26 (2.55)	32.37 (2.13)	-5.90	2.69	-11.17 -0.63	-2.19	0.028	49
Temptation to use, negative affect	10.98 (0.93)	8.76 (0.65)	-2.22	1.08	-4.33 -0.12	-2.07	0.039	54
Temptation to use, social situations	11.02 (0.79)	9.45 (0.66)	-1.57	0.79	-3.11 -0.03	-2.00	0.046	51
Temptation to use, withdrawal and urges	8.03 (0.61)	7.65 (0.54)	-0.38	0.72	-1.79 1.03	-0.53	0.595	49
Temptation to use, physical or other concerns	7.22 (0.55)	6.89 (0.58)	-0.33	0.70	-1.70 1.03	-0.48	0.632	54

Table 3

Changes in HIV knowledge, attitudes, and behavioral skills (N=54)

	Pretest Mean (SE)	Posttest Mean (SE)	Coef.	Robust Std. Err.	95% Conf. Int.	z	p
<i>Information</i>							
HIV knowledge	18.30 (0.50)	20.04 (0.68)	1.74	0.60	0.56	2.89	0.004
<i>Motivation</i>							
General HIV attitudes [†]							
Female:	11.15 (0.77)	6.74 (0.71)	-4.41	0.76	-5.91	-2.91	0.000
Male:	10.80 (0.79)	8.64 (0.82)	-2.16	0.79	-3.70	-0.61	0.006
Peer norms for HIV/AIDS prevention [†]							
Female:	23.97 (0.78)	22.60 (0.99)	-1.36	0.72	-2.78	0.05	0.059
Male:	19.43 (0.98)	22.37 (1.09)	2.94	1.33	0.33	5.55	0.027
Intentions to prevent HIV/AIDS	11.39 (0.41)	11.26 (0.39)	-0.13	0.49	-1.08	0.82	0.790
Peer approval of risk behavior	3.19 (0.19)	3.28 (0.24)	0.09	0.24	-0.38	0.57	0.701
<i>Behavioral skills</i>							
HIV prevention self-efficacy [†]							
Female:	17.64 (1.11)	17.86 (1.60)	0.23	2.00	-3.70	4.15	0.91
Male:	19.66 (1.30)	16.22 (0.96)	-3.44	1.19	-5.77	-1.10	.004
Condom use self-efficacy	1.39 (0.08)	1.32 (0.07)	-0.07	0.08	-0.23	0.09	0.388

[†] Gender × Time interaction, $p < .20$