

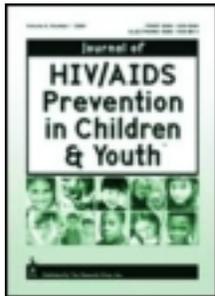
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### Adjustment of Adolescents of Parents Living with HIV

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# Adjustment of Adolescents of Parents Living with HIV

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**ABSTRACT.** Family environment and rates of mental health and behavioral problems in HIV-negative adolescents and their parents living with HIV (PWH) were compared to adolescents and parents from non HIV-affected families living in similar inner-city neighborhoods. Adolescents and their parents were interviewed and a case-control sample was constructed. Data on sixty-two matched pairs of adolescents of PWH and those of neighborhood parents and forty-six matched pairs of PWH and HIV-negative parents

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were examined. Compared to neighborhood controls, adolescents of PWH experienced greater life stressors and family conflict and reported lower self-esteem. PWH reported greater emotional distress and substance use. However, there were no significant differences in emotional distress or externalized problem behaviors between the two adolescent groups. Clinical implications are discussed.

**KEYWORDS.** Parental HIV infection, adolescent emotional distress, adolescent problem behaviors, parental substance use

## INTRODUCTION

In the United States, more than 120,000 children (Schuster et al. 2000) have a parent with symptomatic HIV/AIDS (PWH). Children of HIV+ parents face many stressors, including growing up in poverty, exposure to parental substance use, family disruptions, and adverse life events. Adolescent children are especially vulnerable (Havens, Mellins, and Hunter 2002). Unlike younger children, adolescents are typically aware of their parents' HIV status, assist in the management of the household, and assume premature caretaking for their siblings and parents (Lee, Lester, and Rotheram-Borus 2002; Keigher et al. 2005). Although advances in medical treatment have reduced mortality in people living with HIV, children of HIV+ parents must cope with the daily stress of living with a parent with a chronic and stigmatized illness. Given the stressors commonly present in urban poor communities (poverty, violence, drug availability, environmental degradation), it is unclear if parental HIV status differentially affects the emotional adjustment and sexual and drug risk behaviors of their adolescents. This paper examines the family environment, and emotional and behavioral outcomes of HIV-negative adolescents of PWH as compared to adolescents of HIV-negative parents from the same community.

Across different developmental periods, parental substance use and emotional distress have been found to have a negative influence on parenting practices, family functioning, and child adjustment (Boyd et al. 1999; Johnson and Leff 1999). For HIV infected parents, alcohol and illicit drug use represent a significant problem (Coyle 1998; Goldstein et al. 2005) with 76% of HIV infected mothers reporting at least one drug use (Lee, Lester, and Rotheram-Borus 2002). In addition, studies have shown that HIV-infected women are at high risk for psychiatric disorders (e.g.,

major depression, post traumatic stress disorder) and psychological distress (McDaniel et al. 1995; Miles, Gillespie, and Holditch-Davis 2001; Morrison et al. 2002; Murphy et al. 2002) with rates of mental health problems greater than comparison groups of uninfected mothers from similar inner-city communities (Morrison et al. 2002). Given the high rates of comorbid substance abuse and psychiatric disorders in HIV-infected parents, the potential inheritability of these disorders, and the potential negative impact on parenting practices, the adolescents of PWH may be at risk for poor emotional and behavioral health outcomes.

To understand the association between parental HIV illness and child functioning, studies have also examined the presence of family life stressors and the quality of parent-child interactions. Parental HIV illness places a significant amount of stress onto the family system, including loss of income, disruptions in family routine, AIDS stigma, and social isolation (Brackis-Cott, Mellins, and Block 2003; Reyland et al. 2002; Roth, Siegel, and Black 1994). Adolescents often become "parentified," acting as a caretaking parent to the PWH (Bekir et al. 1993; Chase 1999; Winton 2003). This parental role-taking has been shown to predict externalized problem behaviors: risky sexual behavior, alcohol and marijuana use, and conduct problems (Stein, Riedel, and Rotheram-Borus 1999). In addition, as adolescence is a developmental period marked by increased autonomy and identification with peers (Petersen et al. 1997), adolescents of PWH may experience increased conflict with PWH over household responsibilities and caretaking. Furthermore, studies of HIV-affected families have reported greater disturbance and hostility in the parent-child relationship when compared to non-HIV affected families (Kotchick et al. 1997; Reyland et al. 2002). The combined burden of familial stress and family conflict may place adolescents of HIV+ parents at risk for maladaptive coping and behaviors, including substance use and conduct problems (Mellins et al. 2007; Rosenblum et al. 2005).

Given the myriad of potential risk factors for emotional distress and externalized problem behaviors in adolescents of PWH, it has been difficult to determine the role of maternal HIV infection in this process. To date, few studies have compared the mental health and substance use of PWH and their uninfected children to a comparison group of parents and children not directly affected by HIV (Brackis-Cott et al. 2007; Mellins et al. 2007; Reyland et al. 2002). Such studies are necessary to shed light on the role of HIV infection, inner-city environmental stress, and youth and family psychosocial variables. The majority of studies examining parental HIV

illness and childhood functioning have focused either on young children ages 6 to 11 and early adolescents (Brackis-Cott et al. 2007; Forehand et al. 1998; Mellins et al. 2005; Reyland et al. 2002; Rosenblum et al. 2005) or have utilized within-group designs (Lee, Lester, and Rotheram-Borus 2002), where comparative data were not available. In addition, data on the substance use and sexual behavior of the PWH are often not available.

This is the first study to examine the quality of the family environment, and the prevalence of parental and adolescent emotional distress and externalized problem behaviors from two groups of families from ethnic-minority, low-SES, inner-city communities: (a) those in which parents are HIV-positive, and (b) those in which parents are HIV-negative. By having a neighborhood control group, we hope to minimize the confounding effect of poverty and inner-city environmental stress on adolescent adjustment. Given the high rates of mental health and substance use problems previously reported in parents who are HIV-positive, and the potential for high stress and disturbance in parent-child relationships, we hypothesize that families with PWH, compared to neighborhood controls, experience more stressors and conflict. Furthermore, we hypothesize that PWH and their adolescents, when compared to neighborhood controls, will experience more emotional distress and engage in more substance use and conduct problems.

## **METHODS**

### ***Overview***

The data for this analysis were taken from an earlier randomized controlled intervention study (1993–1999; Rotheram-Borus et al. 2001) designed to improve mental and behavioral health outcomes among inner-city, ethnic minority HIV-infected parents and their adolescent children in New York City. The data used for this analysis were from the HIV-infected parents and their adolescents who were in the standard care arm of the intervention study. A neighborhood comparison sample was recruited 5 years after the initial recruitment for the intervention study and matched to the PWH families based on sociodemographic features. Family environmental factors, emotional distress, and externalized problem behaviors were examined and compared between the parents and adolescents of PWH families and those of the neighborhood families.

## ***Recruitment and Eligibility***

### *Families Living with HIV*

Participants in the intervention study ( $n = 307$ ; 153 PWH in intervention group; 154 PWH in standard care group) were recruited from a log of financially needy persons with AIDS at the Division of AIDS Services (DAS) in New York City. The PWH were referred from DAS to the intervention study. To be eligible for the intervention study, participants were required to (1) be diagnosed with HIV; (2) be between the ages of twenty-five and seventy years; (3) have at least one adolescent child between the ages of eleven and eighteen who lived with the parent, and (4) have the assent of their social worker for participation. Among the 154 PWH families in the standard care group, there were 211 eligible adolescents.

For the purpose of this study, a matching process (described below) was conducted to identify a neighborhood sample that matched the sociodemographic characteristics of the 154 PWH families from the standard care group in the original study. After successful matching, the PWH sample for this analysis consisted of forty-six PWHs and sixty-two adolescents.

### *Neighborhood Control*

Five years after the recruitment of the families living with HIV, families who lived in the same neighborhoods were recruited and assessed on the same dimensions as the original cohort and matched to the families living with HIV in two phases. In Phase 1, families with parents who were HIV negative who lived in the same community and had adolescents in the same age range (eleven through eighteen) as the PWH families of the original study were recruited. Negative HIV status was confirmed at the time of the baseline interview with items on HIV testing. The recruitment procedure consisted of the following steps: (1) a list of the PWH families' addresses was generated; (2) new addresses were then randomly selected in the same neighborhood block as the PWH families; (3) recruiters systematically and sequentially approached households at those randomly selected addresses, provided a brief overview of the study, and conducted a brief screening interview assessing age and gender of household members. Each household was given \$3 for participation in the screening interview. Through this process, ninety-eight neighborhood control families were successfully recruited.

In Phase 2, we constructed a case-control sample between specific PWH families and neighborhood control families recruited during Phase 1. The following matching protocol was utilized. First, for each of the PWH families, one adolescent was randomly selected as the *target youth*. Second, the recruited neighborhood families were screened to identify neighborhood adolescents who matched the *target youths* by gender, ethnicity, and age. The *target age* for matching was the age of the *target youth* at the time of initial recruitment into the intervention study. The neighborhood adolescent's age was considered matching to the target age if it was: (a) within 1 year for target ages seventeen and younger, or (b) within 2 years for target ages eighteen and older. Finally, among the neighborhood families with matching adolescents, the parent was matched by gender to the corresponding PWH parent.

From the ninety-eight recruited neighborhood families, sixty-two families were successfully matched with PWH families at the parent and adolescent level. In the other thirty-six neighborhood families, the adolescents did not fulfill the age criteria of the matching protocol. Of the sixty-two matched families, three PWHs and thirteen neighborhood parents decided not to participate in the current study. Therefore, there were forty-six matched pairs of PWH and neighborhood parents and sixty-two matched pairs of adolescents of PWH and those of neighborhood families.

### ***Interviewer Training and Procedures***

Interviewers were predominantly African American or Latino (62%). Five of the fifteen interviewers were bilingual in Spanish and English. All interviewers completed sixty hours of training which covered interviewing techniques, ethics, confidentiality, child abuse, emergency crisis protocols, HIV, and AIDS. They were also trained in conducting in-home assessments on laptop computers. Interviewers conducted mock interviews and demonstrated strict adherence to interview protocols before they were eligible to enter the field. Quality assurance procedures were conducted on an ongoing basis with the review and rating of a random selection of 10% of the interview audiotapes.

For both the PWH and neighborhood families, two-person teams conducted in-home 2-hour face-to-face interviews with the parents and adolescents separately. Each participant received \$25 for the interview. All study procedures were approved by the institutional review boards of Columbia University, University of California at Los Angeles, Sloan Kettering Medical Center, and the New York City Division of AIDS Services.

## MEASURES

For both parents and adolescents, “recent events” are defined as events that occurred within the past 3 months.

### Parents

#### *Demographics*

*Background characteristics* were recorded, including the parent’s gender, age, and ethnicity. *Educational level* of parents was indicated as (1) less than high school, (2) high school graduate or equivalency, or (3) some college or more. *Single Parent Household* was determined by a parent reporting that they did not live with a partner at time of interview. *Government entitlements* or *services received* were reported as yes (1) or no (0) for the following: Medicaid, public assistance, supplemental security income, Social Security disability, food stamps, WIC, DAS housing, Social Security survivor benefits, Veteran’s Administration benefits, or any other type of government entitlement. Perception of the household’s *financial situation* was indicated as being (1) very poor or poor, or (2) having necessities or feeling financially comfortable.

#### *Family Environment*

*Parent-adolescent conflict* was assessed using seven items, including arguments with an adolescent regarding household responsibilities, adolescent friends, trouble at school, job, and arguments with brother/sister(s) or other parent (Rotheram-Borus et al. 2001). Degree of argument was reported on a scale that ranged from never (0) to very much (5). Factor analysis results indicate a strong unidimensional model. Internal consistency for both the neighborhood parents and PWH was reported as  $\alpha = 0.79$ .

*Major Life Events* were assessed by self-report of experiences of any of 32 items (adapted from *Life Events Questionnaire*; Cohen and Hoberman 1983) from four domains: home, work, family-life, and illness/injuries. Sample items include: “you divorced,” “you changed your residence more than twice,” “you were physically assaulted,” and “your children got into trouble with the law.” The mean number of life events experienced was calculated and reported for both PWH and neighborhood control parents.

## *Parental Emotional Distress*

*Parental emotional distress* was assessed using the Brief Symptom Inventory (BSI) (Derogatis 1993). The BSI is 53-item self-report symptom inventory which consists of 9 primary symptom dimensions that reflect psychological patterns. Participants reported the degree of distress for each symptom during the previous week on a 5-point Likert scale from 0 (not at all) to 4 (extremely). A global scale score ( $\alpha = .97$ ) and subscale scores for anxiety (6 items;  $\alpha = .84$ ) and depression (6 items;  $\alpha = .85$ ) were used for analyses.

*Self-esteem* was examined using the Rosenberg Self-Esteem Scale (RSE) (Rosenberg 1965). The RSE consists of 10 items rated on a 4-point Likert response format and assesses global self-esteem. The RSE has been validated and found to be reliable with normative samples of adults and adolescents of many ethnic groups and ages. Internal consistency for both the neighborhood parents and PWH was reported as  $\alpha = 0.83$ .

## *Parental Problem Behaviors*

*Sexual behaviors* were measured by participants reporting to be abstinent (0) or active (1) in the previous 3 months. The number of sexual partners was also reported. Because a few participants have high numbers of sexual partners, skewing the distribution, we report the rate of abstinence and the median number of sexual partners.

*Lifetime substance use* was measured using dichotomous variables indicating use of alcohol, marijuana, and hard drugs in the participant's lifetime as yes (1) or no (0). The variable *Hard Drug Use* was defined as ever using one of the following: stimulants, inhalants, cocaine, crack, hallucinogens, and heroin. The *Mean number of drugs used* was also calculated, accounting for marijuana and hard drugs, but not alcohol.

*Recent substance use* was also measured using dichotomous variables indicating use of alcohol, marijuana, and hard drugs in the past three months as yes (1) or no (0). The variables *Hard Drug Use* and *Mean number of drugs used* were defined in the same way as described above. *Drug Use* was defined the same way as *Hard Drug Use*, except it included marijuana.

## *Adolescents*

### *Demographics and Family Environment*

Adolescents reported gender, age, and ethnicity. *Parent-adolescent conflict* was assessed using the same items described for parents. Internal

consistency for both adolescents of PWH and the neighborhood adolescents was reported as  $\alpha = 0.67$ .

The measurement of *family life stressors* was based on the Social Readjustment Rating Scale (SRRS) (Holmes and Rahe 1967). A total of 7 items were used to measure the degree of stressful life events using a 4-point Likert response format. A sum of the seven recent stressful family events was reported for both neighborhood adolescents and adolescents of PWH. Internal consistency was reported as  $\alpha = 0.55$ .

The Parental Bonding Instrument (PBI; Parker, Tupling, and Brown 1979) was used to measure *parent-child bonding*. The PBI includes two dimensions: care (12 items;  $\alpha = 0.83$ ) and overprotection (13 items;  $\alpha = 0.72$ ). There is typically an inverse relationship between the dimensions of parental bonding (Weissman et al. 1999).

### *Adolescent Emotional Distress*

*Adolescent emotional distress* and *self-esteem* were measured in the same manner as for parents. For *emotional distress*, a global scale score ( $\alpha = .96$ ) and subscale scores for anxiety (6 items;  $\alpha = .77$ ) and depression (6 items;  $\alpha = .76$ ) were used for analyses. For *self-esteem*, internal consistency for both the neighborhood adolescents and adolescents of PWH was reported as  $\alpha = 0.85$ .

### *Adolescent Problem Behaviors*

*Sexual behaviors* and *recent substance use* were measured for adolescents in the same manner as for parents. In addition, *conduct problems* were examined using a delinquency scale with items adapted from the DSM-III-R diagnostic criteria for conduct disorder (American Psychiatric Association, 1987). The scale consists of twenty-eight dichotomous items. Adolescents reported on the presence of delinquent behaviors, and a total scale score was calculated by summing the number of delinquent behaviors ( $\alpha = 0.68$ ).

## ANALYSIS

The matching process produced comparison samples that were similar across most sociodemographics. Age was significantly different between the HIV-affected and neighborhood control families but the differences across samples were small, on average. Analyses appropriate for matched-pairs data were implemented. For the continuous variables (e.g., average

number of drugs used), a two-sample paired *t* test was chosen to test differences of means within each pair. If a continuous variable was positively skewed, a Wilcoxon two-sample paired signed rank test was applied instead of the *t* test. For the dichotomous variables (e.g., recent alcohol use), McNemar's test was chosen to compare discrepancies in each pair. We report test statistics, degrees of freedom (*df*), and *p*-values for significant results in the text. For continuous variables, we also report Cohen's *d* ( $d = (m_1 - m_2) / \sqrt{[(v_1 + v_2)/2]}$ ) where  $m_1$  and  $m_2$  are the means for PWH and neighborhood families, respectively,  $v_1$  and  $v_2$  are the variances for PWH and neighborhood families, respectively, and "sqrt" is the square root function.

## RESULTS

### Parents

#### Demographics

Table 1 presents characteristics of PWH compared to neighborhood control parents. Most parents were mothers (91.3%) and African American or Latino (82.6%) in both samples. There was a 3-year difference in the mean age between PWH (40.5 years; range, 32–70) and neighborhood parents (43.2 years; range, 31–57) ( $T = 2.53$ ,  $df = 45$ ,  $p = 0.015$ ,  $d = -.43$ ). Education levels were similar: 78% of PWH and 76% of neighborhood parents had a high school education or less (McNemar test = 1.64,  $df = 1$ ,  $p = 0.29$ ). More PWH lived in a single parent household (78.3%) than neighborhood parents (58.7%; McNemar test = 4.26,  $df = 1$ ,  $p = 0.06$ ), but the difference was not significant. PWH received significantly more government entitlements and services than parents in the neighborhood ( $T = 2.12$ ,  $df = 45$ ,  $p = 0.02$ ,  $d = .51$ ), and PWH tended to specify their financial situation as poor more often than the neighborhood control, although not statistically significant. Lastly, PWH reported a higher mean number of major life events than neighborhood control parents ( $T = 1.71$ ,  $df = 45$ ,  $p = 0.09$ ), but the difference was not significant.

#### Emotional Distress and Problem Behaviors

PWH reported significantly higher emotional distress ( $T = -4.91$ ,  $df = 45$ ,  $p < 0.001$ ,  $d = 1.00$ ), depression ( $T = -3.98$ ,  $df = 45$ ,  $p = 0.0003$ ,  $d = .85$ ), and anxiety scores ( $T = -4.29$ ,  $df = 45$ ,  $p < 0.001$ ,  $d = .92$ )

TABLE 1. Characteristics of HIV Parents and Neighborhood Parents

Parent Characteristic	PWH Family ( <i>n</i> = 46)	Neighborhood Family ( <i>n</i> = 46)
<b>Demographics</b>		
Male	8.7%	8.7%
Mean Age ( <i>SD</i> ) <sup>†</sup>	40.48 (6.08)	43.20 (6.47)
<b>Ethnicity</b>		
African American	41.3%	37.0%
Latino	41.3%	45.7%
White & Others	17.4%	17.4%
<b>Education</b>		
Less Than High School	47.8%	34.8%
High School Graduate/GED	30.4%	41.3%
College or More	21.7%	23.9%
Single Parent Household	78.3%	58.7%
Services Received <sup>m</sup>	65.2%	52.2%
Mean No. of Services Received ( <i>SD</i> ) <sup>†</sup>	1.43 (1.33)	0.85 (0.92)
<b>SES</b>		
Very Poor or Poor	60.0%	41.3%
Have Necessities or Feel Financially Comfortable	40.0%	58.7%
<b>Family Environment</b>		
Parent-Adolescent Conflict (Global Competence) ( <i>SD</i> )	13.72 (5.68)	12.96 (5.8)
Major Life Events ( <i>SD</i> )	5.3 (4)	3.8 (3.6)
<b>Emotional Distress and Problem Behaviors</b>		
<b>Brief Symptom Inventory</b>		
Brief Symptom Inventory Overall ( <i>SD</i> ) <sup>tt</sup>	1.07 (0.79)	0.43 (0.44)
Brief Symptom Inventory Depression ( <i>SD</i> ) <sup>tt</sup>	1.17 (1.00)	0.44 (0.68)
Brief Symptom Inventory Anxiety ( <i>SD</i> ) <sup>tt</sup>	1.00 (0.93)	0.34 (0.41)
Rosenberg Self-Esteem <sup>†</sup>	3.02 (0.47)	3.26 (0.44)
<b>Recent Sexual Behavior</b>		
Abstinent <sup>mmm</sup>	68.2%	34.8%
Median No. of Sex Partners <sup>www</sup>	0	1
<b>Lifetime Substance Use</b>		
Alcohol Use	76.1%	78.3%
Marijuana Use <sup>m</sup>	73.3%	47.8%
Hard Drug Use <sup>mmm</sup>	71.1%	37.8%
Mean No. of Drugs Used ( <i>SD</i> ) <sup>tt</sup>	3.42 (1.06)	2.72 (0.78)
<b>Recent Substance Use</b>		
Abstinent from Alcohol or Drugs	57.8%	64.4%
Alcohol Use	35.6%	35.6%
Drug Use (including marijuana) <sup>m</sup>	24.4%	8.7%
Hard Drug Use	17.8%	4.4%
Mean No. of Drugs Used ( <i>SD</i> ) <sup>†</sup>	0.40 (0.78)	0.13 (0.45)

<sup>†,tt</sup>Paired t test: <sup>†</sup>*P* < .05, <sup>tt</sup>*P* < .01

<sup>w,ww</sup>Wilcoxon signed rank test: <sup>w</sup>*P* < .05, <sup>ww</sup>*P* < .01

<sup>m,mmm</sup>McNemar's test: <sup>m</sup>*P* < .05, <sup>mmm</sup>*P* < .01

and lower self-esteem ( $T = 2.37$ ,  $df = 45$ ,  $p = 0.022$ ,  $d = -.53$ ) than the neighborhood parents. PWH reported significantly higher rates of recent abstinence from sexual acts (McNemar test = 10.67,  $df = 1$ ,  $p = 0.001$ ) and fewer recent sexual partners than the neighborhood control parents (Wilcoxon signed rank test,  $S = 112.5$ ,  $p < 0.001$ ). However, when examining lifetime drug use, PWH reported significantly more marijuana use (McNemar test = 6.00,  $df = 1$ ,  $p = 0.014$ ) and hard drug use (McNemar test = 8.91,  $df = 1$ ,  $p = 0.003$ ), and had a significantly higher mean number of drugs used ( $T = -3.65$ ,  $df = 45$ ,  $p = 0.0007$ ,  $d = .75$ ). As for recent drug use, the mean average number of drugs used was significantly higher among PWH ( $T = -2.29$ ,  $df = 45$ ,  $p = 0.027$ ,  $d = .42$ ) in comparison to the neighborhood parents.

## ***Adolescents***

### *Demographics*

Table 2 presents the characteristics of adolescents of PWH compared to neighborhood adolescents. About half of adolescents (43.6%) were male, and most of them were either African American (43.6%) or Latino (50.0%). There was about a 1-year difference in the mean age between the two groups (17.61 for adolescents of PWH; 18.50 for neighborhood adolescents).

### *Family Environment*

Adolescents of PWH reported significantly more negative family life events, reflected in stressors related to parental physical health symptoms ( $T = -2.75$ ,  $df = 61$ ,  $p = 0.008$ ,  $d = .47$ ), and significantly more arguments with parents ( $T = -2.69$ ,  $df = 61$ ,  $p = 0.0092$ ,  $d = .50$ ). Although not statistically significant, adolescents of PWH reported less caring and more controlling parents than neighborhood adolescents.

### *Emotional Distress and Problem Behaviors*

Adolescents of PWH reported similar levels of depression, anxiety, sexual behavior, substance use, and conduct problems as the neighborhood adolescents. However, adolescents of PWH reported significantly lower self-esteem than neighborhood peers ( $T = 4.02$ ,  $df = 61$ ,  $p = 0.0002$ ,  $d = -.71$ ).

TABLE 2. Characteristics of Adolescents of PWH and Adolescents of Neighborhood

Adolescent Characteristic	PWH Family ( <i>n</i> = 62)	Neighborhood Family ( <i>n</i> = 62)
<b>Demographics</b>		
Male	43.6%	43.6%
Mean Age ( <i>SD</i> ) <sup>tt</sup>	17.61 (1.06)	18.50 (1.61)
<b>Ethnicity</b>		
African American	43.6%	43.6%
Latino	50.0%	50.0%
White & Others	6.5%	6.5%
<b>Family Environment</b>		
Family Life Stressors <sup>tt</sup>	0.65 (0.58)	0.39 (0.52)
<b>Parent-Child Bonding</b>		
Care	3.13 (0.68)	3.37 (0.58)
Overprotection	1.97 (0.55)	1.83 (0.51)
Parent-Adolescent Conflict (Global Competence) <sup>tt</sup>	1.54 (0.96)	1.06 (0.96)
<b>Emotional Distress and Problem Behaviors</b>		
<b>Brief Symptom Inventory</b>		
Brief Symptom Inventory Overall ( <i>SD</i> )	0.60 (0.49)	0.51 (0.52)
Brief Symptom Inventory Depression ( <i>SD</i> )	0.68 (0.75)	0.51 (0.67)
Brief Symptom Inventory Anxiety ( <i>SD</i> )	0.50 (0.58)	0.33 (0.60)
Rosenberg Self-Esteem <sup>tt</sup>	3.03 (0.49)	3.35 (0.41)
<b>Recent Sexual Behavior</b>		
Abstinent	39.3%	43.6%
Median No. of Sex Partners	1	1
<b>Recent Substance Use</b>		
Abstinent from Alcohol or Drugs	48.4%	51.6%
Alcohol Use	43.6%	40.3%
Marijuana Use	33.9%	32.3%
Hard Drug Use	9.7%	4.8%
Mean No. of Drugs Used ( <i>SD</i> )	0.45 (0.67)	0.37 (0.55)
Conduct Problems	1.47 (1.81)	1.45 (1.97)

<sup>tt</sup>Paired *t* test: <sup>t</sup>*P* < .05, <sup>tt</sup>*P* < .01

## DISCUSSION

This study compared the family environment, emotional distress, and problem behaviors of PWH and their adolescent children with HIV nonaffected families sampled from the same inner-city community. Consistent with our hypothesis, adolescents of PWH experienced greater life stressors and family conflict than neighborhood controls and reported lower self-esteem. PWH reported greater emotional distress and substance use than

neighborhood parents. Counter to our hypothesis, there were no significant differences in emotional distress or externalized problem behaviors between the adolescents of PWH and those of HIV-negative neighborhood parents.

The lack of significant differences in emotional distress and problem behaviors between the two adolescent groups suggests that parental HIV status may not be the primary risk factor for mental health problems and risk behaviors among adolescents of PWH. Previous studies of early adolescents of HIV+ mothers also found that parental HIV status did not significantly add to the risk for problem behaviors (Brackis-Cott et al. 2007; Mellins et al. 2005; Mellins et al. 2007). These findings are contrary to other studies of youth with HIV-positive parents that found increased risk for mental health problems in the youths (Esposito et al. 1999; Forehand et al. 1998; Lee, Lester, and Rotheram-Borus 2002). There are several possible reasons for the non-significant findings. First, as our sample was recruited from New York City where HIV-infected populations have access to substantial medical and social services through government-funded sources (e.g., Medicaid), it is possible that risk associated with parental HIV infection was balanced by protective factors such as increased availability of services for families affected by HIV. Second, our sample consisted of older adolescents who are often assuming care-taking roles, and it is therefore possible that more frequent communications of HIV issues with their PWH (O'Sullivan et al. 2005) and increased understanding of the negative consequences of risk behaviors may protect them from engagement in similar risk behaviors as those engaged in by their parents. Third, when compared to younger children, adolescents may be able to access more social support (e.g., peers, teachers) which is associated with positive psychosocial adjustment (Hough et al. 2003; Keigher et al. 2005).

As hypothesized, PWH reported more emotional distress and lifetime and recent substance use than parents without HIV. These findings support results of some previous studies demonstrating the increased risk for emotional distress and psychiatric disorders among HIV+ parents (Brackis-Cott et al. 2007; Rotheram-Borus, Lightfoot, and Shen 1999; Schuster et al. 2000). The ongoing use of substances has important clinical implications since substance use has been associated with poor adherence to HAART therapy and poor compliance with medical appointments (Freeman, Rodriguez, and French 1996; Galvan et al. 2002; Malow et al. 1998). Though PWH reported the receipt of more governmental entitlements in the form of financial support, the findings suggest that these services may

be insufficient to address the mental health needs and reduce the risk behaviors of PWH.

### ***Limitations***

The study findings must be interpreted within the context of its limitations. First, our data are cross-sectional and the neighborhood sample was recruited 5 years after the initial recruitment of the HIV-affected families. Though we identified neighborhood families with similar sociodemographic features as the HIV-affected families, it is unknown how the neighborhood might have changed over time and how a potential change in environmental factors (e.g., physical deterioration; neighborhood violence) may impact on the study variables. Second, given the relative small size of each group in our sample and the 5-year difference in recruitment of the HIV-affected and neighborhood control families, we did not conduct any regression analyses to further examine relations between study variables. Third, although it would have been desirable to find neighborhood matches for each PWH and their adolescent children, it does not appear that we had a major selection bias and the demographics of the matched versus the unmatched HIV-affected families were similar. Fourth, our sample of convenience may not fully represent the larger population of youths with HIV-infected parents, and thus results may not be generalizable to samples other than inner-city, low-SES, ethnic minority HIV-affected families. Fifth, since the interviews were conducted face-to-face, and we did not assess for socially desirable responding, substance use and sexual risk behaviors may be underestimated (Catania, McDermott, and Pollack 1986). However, this should not differentially affect the groups (adolescents of PWH versus HIV- parents). Lastly, retrospective report bias of substance use and engagement in problem behaviors needs to be considered, and no cross-validation of data, either from collateral informants or objective indices, were obtained.

### ***Implications for Interventions and Future Research***

In line with previous studies (e.g., Kotchick et al. 1997; Reyland et al. 2002), adolescents of PWH report greater family stress and conflict than neighborhood control adolescents. Often, government and community agencies focus on the individual health and mental health needs of PWH but do not routinely screen for family stressors and disturbances in the

parent-adolescent relationship. Since adolescents take on the majority of the care-taking role in HIV-affected families (Keigher et al. 2005; Stein, Riedel, and Rotheram-Borus 1999), supportive services including peer support groups, psycho-education, and family counseling may be critical to improving family and adolescent functioning.

The findings of this study may be used to stimulate future research to examine the unique impact of HIV illness on family functioning and the mental health of parents and children. An ecological developmental model may be used to test variables at the community, family, parental, school, and personal levels to examine the relative impact these variables may have on adolescent adjustment and functioning.

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