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Screening and Assessing Violence and Mental Health Disorders in a Cohort of Inner City HIV-Positive Youth between 1998–2006

Jaime Martinez, M.D.,[1] Sybil G. Hosek, Ph.D.,[2,3] and Russell A. Carleton, M.A.[4]

Abstract

The focus of the primary care appointments for HIV-positive youth is often solely on medical concerns. However, these youth also present with mental health issues and histories of exposure to violence. To screen and assess for mental health disorders, HIV-positive youth between the ages of 13 to 24 consecutively enrolled in an adolescent and young adult HIV clinic between 1998–2006 ($n = 174$), were screened for mental health disorders and violence, using the Client Diagnostic Questionnaire (CDQ). All youth subsequently had diagnostic interviews conducted by psychologists. Findings of the CDQ and the psychological interviews revealed the following. Violence reported by youth occurred in several forms: physical assault/abuse (24% in childhood; 19% as adolescents), sexual abuse/assault (28% in childhood; 15% as adolescents), dating violence (i.e., physical abuse by sexual partner) (18%), and family violence (44%). Females had higher sexual abuse ($p < .001$). Psychological disorders included: major depressive disorders (15%), generalized anxiety disorder (17%); posttraumatic stress disorder (28%); alcohol abuse disorder (19%); and substance abuse disorder (31%). Physically abused youth had higher symptoms of anxiety ($p < 0.05$, and PTSD ($p < 0.01$). Sexually abused youth had higher symptoms of PTSD ($p < 0.05$). Youth with family violence had higher symptoms of Anxiety Disorder ($p < 0.05$) and PTSD ($p < 0.01$). CDQ findings closely correlated with diagnostic assessments of the psychological interview. We conclude that inner city HIV-positive youth present with high prevalence of violence and with psychological disorders. Failure to screen for and treat these psychological disorders may impact successful treatment of their HIV infection.

Introduction

Many HIV-positive youth who seek medical care services report being victims of violence and also present with mental health issues. Unfortunately, the focus of the care of HIV-positive youth is often just on medical treatment for their HIV infection. However, issues like exposure to violence, victimization and mental health issues can impact the success of HIV treatment, but are rarely addressed in the medical setting.

Violence, whether from intentional or unintentional injuries, plays a major role in the morbidity and mortality of youth in this country.[1] Violence can be defined as the intentional use of physical force, threatened or actual, to injure somebody or damage something; and it also includes physical, sexual, and psychological abuse.[2] Nationally, violence as reported by youth in school (with unreported HIV serostatus) takes on many forms including physical fights (35.5%), dating violence (hit, slapped, or physically hurt on purpose by a boyfriend or girlfriend; 9.9%) and being sexually abused or raped (7.8%).[3] Data on violence experienced by youth with HIV is over a decade old and revealed high rates of physical abuse (60%) and sexual abuse (52%–33%).[4,5]

Youth from communities of color have been reported to have higher violence exposure within their communities compared with youth from white communities.[6] For example, African American males are more likely to be victims of crimes than whites,[7] have homicide as the leading cause of death,[8] and have a homicide rate that is 7 to 10 times that of white males.[9] The literature on violence and Latinos is scarce; however, fatal violence for young Latino men has been reported to be 3 to 4 times greater than for whites.[10] Thus, violence exposure is one of the most serious health threats to adolescents, especially in communities of color.

[1]Division of Adolescent and Young Adult Medicine, [2]Division of Child and Adolescent Psychiatry, [3]Department of Psychiatry, Stroger Hospital of Cook County, Chicago, Illinois.
[4]Department of Psychology, DePaul University, Chicago, Illinois.

Surveys of youth in the United States do reveal that 6 to 9 million children and youth experience mental health disorders, with approximately 20% experiencing some impairment in any given year.[11,12] A 2007 survey of a representative national sample of youth in school (with unreported HIV serostatus) revealed that 28.5% felt sad or hopeless; 14.5% seriously considered attempting suicide; and 11.3% made a suicide plan.[3] Psychiatric disorders in youth are reported to include depression (5%) at any given time,13 anxiety disorder (13%),[14] and posttraumatic stress disorder (PTSD; 3.7% for boys and 6.3% for girls).[15] Furthermore, research conducted in adults revealed that 50% of all lifetime mental illnesses begins by age 14 and 75% by age 24. However, there are long delays between when symptoms first appear and when treatment is received; and these delays, which can be as long as decades, can make diagnosis and treatment of those with chronic illness difficult.[16] Left untreated, mental health disorders in children and adolescents lead to other morbidities and mortality like unintentional injuries, suicide, violence, alcohol and other drug use, and also lead to school dropout, family dysfunction, and juvenile incarcerations.[17]

The adolescent with chronic physical illness has greater emotional and behavioral problems and mental health disorders compared to their healthy counterparts. While most adolescents with chronic illness report no comorbid mental health disorder, data from the 1990s revealed that an estimated 32% of adolescents suffer from chronic illness and of these, 35% also have behavioral problems.[18] More recent data also support the findings of comorbidities with specific physical chronic illness and mental health disorders. For example, adolescents with asthma also suffer from depression and anxiety.[19] Adolescents with HIV infection, similar to other youth with chronic illness, also suffer from mental health stressors. A decade ago, when HIV was considered a terminal illness, a small sample of HIV positive youth were assessed for mental health issues revealing that 44% had a current major depressive disorder.[20] At present, the HIV epidemic continues to grow in adolescents[21] with newer treatments prolonging the lives of HIV-positive individuals, transforming this infection from a terminal illness to a chronic disorder. More recent data revealed that 50% of HIV-positive youth had clinically significant mental health symptoms.[22]

Screening HIV-positive youth for violence and mental health issues may be vital in provision of their medical care. There is a relationship between violence/mental health and medical outcomes documented in the literature on HIV. HIV has found to be more prevalent among individuals with mental health disorders. A study on over 378,000 individuals discharged from a hospital revealed that persons with a mental illness are 1.44 times more likely to have HIV/AIDS, and especially those with a diagnosis of substance abuse or a depressive disorder.[23] Another study, involving a retrospective review of patients evaluated at psychiatric outpatient clinics found HIV infection to be present in 1.2% of the psychiatric outpatients, approximately 4 times the occurrence of HIV infection in the general adult population of the United States.[24] Psychological stressors have been documented to impact medication adherence in HIV-positive individuals. Violence experienced by individuals with HIV by way of HIV stigma or living in communities with prevalence of violence is one type of psychological stressor. A study on 30 HIV-positive youth revealed that 47% reported symptoms of posttraumatic stress in response to trauma from being victims of a personal attack or sexual abuse.[25] Also, psychological distress in adolescents with HIV leads to decreased adherence to antiretrovirals (ARVs).[26] Of note, only approximately 51% of HIV-positive youth benefit from ARVs primarily due to issues of adherence to these medications; and only 27% completely adhered to their ARVs.[27,28] In addition to psychological stressors, clinicians need to be particularly vigilant in screening HIV-infected patients for all levels of substance abuse because even intermittent use can interfere with adherence to medications.[29]

We sought to understand the prevalence of, and the relationship between, violence and mental health disorders (including substance use disorders) in HIV positive youth. We hypothesize that exposure to violence positively correlates with mental health disorders in inner city HIV-positive youth.

Methods

We report findings of psychological data uniformly collected on youth attending an inner city HIV-positive clinic. Data were also obtained from the psychological diagnostic interviews, and similar to the Client Diagnostic Questionnaire (CDQ), are uniformly conducted on all of the adolescent clients attending the HIV clinic. This study was Institutional Review Board approved.

Participants

The participants were 174 HIV-positive youth (58 females, 116 males) age 14–24 (mean age = 21) who were consecutively enrolled in a Midwest inner city adolescent and young adult clinic from 1998–2006. The majority of the sample (79%) identified their race/ethnicity as African American, 11% Latino, and 5% Caucasian. Additionally, 40% of the sample identified their sexual orientation as gay or lesbian, 42% heterosexual, 15% bisexual, and 3% undecided/unsure/preferred not to say. One third of the sample had completed their high school diploma or GED with another 24% completing some college (Table 1).

Procedures

Upon clinic enrollment, all HIV-infected youth were administered the CDQ and with a subsequent diagnostic psychological interview administered by a staff psychologists to assess for mental health disorders and violence. Data were obtained from reviews of the data scored from the CDQ as well as from the psychological diagnostic interview progress notes.

The CDQ is a brief assessment tool designed to identify clients who may have mental health needs. It is a modification of the PRIME-MD, an instrument developed for screening mental health disorders in primary care settings. The CDQ screens for lifetime experienced with violence (witnessing and experiencing violence, inclusive of family violence and sexual abuse), depression, anxiety disorder, including PTSD, and psychosis, as well as alcohol or drug abuse or dependence. The CDQ was developed for persons living with HIV or at high risk of infection. The screening tool has been used in a variety of service sites including medical clinics, multi service community organizations, and homeless shelters. Screenings take 15–20 minutes to complete. Scoring instructions for the

Table 1. Participant Characteristics

Characteristic	Female n = 58 (%)	Male n = 116 (%)	Total (%)
Racial/ethnic background			
Black, non-Hispanic	82	77.4	78.8
Hispanic, Latino	6	13.2	10.6
White, non-Hispanic	2	6.6	5
Mixed	10	2.8	5.6
Sexual orientation			
Gay/lesbian	0	58.8	40.4
Bisexual	8	19.6	15.4
Heterosexual	88	19.6	41.7
Undecided	4	1.0	1.9
Prefer not to say	0	1.0	0.6
Education—years completed			
Junior high school	21.6	1.2	8.1
Partial high school	26.1	35.3	32.6
High school diploma/GED	28.3	35.3	33.3
Some college	21.7	25.9	23.7
Four year college degree	2.2	1.2	1.5
Graduate Training program	0	1.2	0.7
Mental health experience			
Has talked to a mental health provider about emotional problems	53.7	54.6	54.2
Has been prescribed medicine for emotional problems	35.8	15.7	23
Has been hospitalized for emotional problems	25	14.8	18.3

CDQ are provided in the areas of each diagnostic module. A validation study showed the CDQ to be highly sensitive: 90% of clients with clinically significant mental health needs were identified.[30,31] The CDQ was made available to health care sites receiving federal funding from RWCA Special Projects of National Significance prior to its publication in 2002. Use of the CDQ provides a baseline assessment of mental health functioning and indicates which clients need additional mental health services, either further assessment or direct referral for treatment by a clinician. All patients were screened using the CDQ by a psychologist as part of their initial intake on their day of clinic enrollment, and subsequently interviewed. The CDQ is used at the initial intake/initial date of enrollment, instead of the diagnostic psychological interview, since it allows for a rapid screen and allows enough time for the youth to meet with and be assessed by the rest of the medical care team. It is, however, just a screen. The diagnostic psychological interview is standard of care and used by the psychologists as part of their initial and ongoing assessment. If time permits, the diagnostic psychological interview is begun and completed during the following 2 to 3 clinic visits which are between 1 to 3 weeks apart.

The diagnostic psychological interview is conducted by the adolescent medicine trained psychologist. The interview is a combination of psychodynamic and structured interviewing techniques allowing for an assessment of the patient along a multiaxial system (Axis I-V) as set out in the *DSM IV/DSM IV*.[32] This assessment seeks to include an objective dimension and motivation for the psychosocial problems and behaviors that youth clients present with at the time of engagement into care. Use of the Multiaxial Assessment allows for the psychologists to capture the complexity of psychological, social, clinical, and environmental influences and functioning of the patient within a clinical setting.

Good agreement between positive screen on the CDQ and diagnosis made by an independent mental health professional has been demonstrated in the literature.[33] However, this study is not a comparison between the CDQ and the psychological interviews, but rather we used data obtained by both methods. Of note, within our sample, the CDQ demonstrated high internal consistency of 0.85 as measured by Cronbach α.

Study variables

Variables included demographics (age, race/ethnicity, gender) and those within the CDQ (exposure to violence and mental health symptoms). The violence variables are derived from the endorsement of traumatic (terrible, frightening) experiences occurring throughout the lives of the clients. The mental health variables are derived from the assessment of symptomatology related to mental health disorders and *DSM-IV* diagnostic criteria.

Plan of analysis

Analyses were performed to assess the main hypotheses. First, prevalence rates for both violence and mental health variables were obtained. Given that males and females often show differing patterns of endorsement of psychological symptoms and violence exposure,[34] prevalence rates were checked for association with gender using χ^2 tests. To determine whether those exposed to specific types of violence were more likely to be diagnosed as having a specific disorder, a series of chi-square analyses were run comparing groups that endorsed the relevant stressor and those that did not. Furthermore, t tests were run comparing groups that endorsed any violent exposure to those who did not on a continuous symptoms measure to determine whether violent exposure was associated with greater levels of symptoms, even if they were not clinically significant. Finally, to assess whether exposure to multiple types of violence was associated with greater symptom levels, correlation analyses were conducted to investigate this possible relationship.

Results

Violence variables

Twenty-four percent of the sample reported physical assault and/or abuse during childhood and 19% reported assault and/or abuse during adolescence/young adulthood. Additionally, 28% reported sexual assault and/or sexual abuse during childhood and 15% reported such an event during adolescence/young adulthood. Close to half of the participants (44%) had witnessed violence (i.e., seeing people hitting or physically harming one another) in their families while growing up. χ^2 tests for independence found no significant gender differences in exposure to these violent events, with the exception of females being more likely to have been sexually victimized in young adulthood ($\chi^2(1) = 12.58$, $p < 0.001$; Table 2).

Mental health variables

Fifteen percent of participants met diagnostic criteria for major depressive disorder and 17% met criteria for generalized

Table 2. Frequency of Violence Identified by HIV-Positive Youth ($n = 174$)

Violence variables	*Females* (n = *58*) *(%)*	*Males* (n = *116*) *(%)*	*Total (%)*
Physical abuse by sex partner	26.1	15.1	18.8
Physical assault/abuse as an adult	13	19.4	16.7
Physical assault/abuse as a child	21.7	25.8	24.3
Sexual assault/abuse as an adult	21.3[a]	11.8[a]	14.5
Sexual assault/abuse as a child	34.8	25.8	27.8
Witnessed family violence while growing up	47.8	45.2	44.4
Witnessed someone get seriously injured or violently killed	37	28	29.9

[a] $\chi^2(1) = 12.58$, $p < 0.001$).

anxiety disorder. Twenty-eight percent of the sample met diagnostic criteria for PTSD. Furthermore, 15% met criteria for alcohol abuse while 31% met criteria for drug abuse (primarily cannabis abuse; Table 3).

Analyses for gender differences found that among the mental health measures, adolescent women experienced higher levels of depressive symptoms, and were marginally more likely to be diagnosed as having panic disorder. Adolescent men were more likely to be diagnosed as abusing alcohol. No other significant differences were found.

To examine whether exposure to violent events was associated with diagnostic status, a series of χ^2 analyses were undertaken, comparing rates of diagnosable disorders between those who had been exposed to the violent event and those who had not. A Bonferroni correction within diagnostic category was applied to the critical alpha level. All findings were still significant after correcting for multiple analyses. Physical assault in childhood was significantly associated with meeting criteria for major depressive disorder ($\chi^2(1) = 6.33$, $p < 0.01$) and PTSD ($\chi^2(1) = 13.63$, $p < 0.001$). Physical assault in adolescence/young adulthood was significantly associated with a diagnosis of panic disorder ($\chi^2(1) = 4.05$, $p < 0.05$), and PTSD ($\chi^2(1) = 10.52$, $p < 0.001$). Again, all findings remained significant when correcting for multiple analyses, with the exception of the finding linking witnessing family violence to major depression.

Table 3. Frequency of Psychological Disorders Assessed in HIV-Positive Youth ($n = 174$)

Variable	*Females* (n = *58*) *(%)*	*Males* (n = *116*) *(%)*	*Total (%)*	χ^2
Major depressive disorder	20	12.9	14.8	1.446, *n.s.*
Suicidal ideation past 1 month	25.5	20.7	21.6	1.383, *n.s.*
Anxiety disorder	20	15.5	17	0.532, *n.s.*
Panic disorder	14.5	6	9.1	3.377, *n.s.*
Alcohol abuse	7.3	19	15.3	3.957, $p < 0.05$
Drug abuse	27.3	32.2	31.4	0.421, *n.s.*
Posttraumatic stress disorder	30.9	27.8	28	0.172, *n.s.*

Childhood sexual assault before age 12 was not predictive of having a particular psychogological diagnosis. However, χ^2 analysis revealed that experiencing sexual assault before or after age 12 was significantly associated with at least one of the diagnoses screened for in this study (major depressive disorder, anxiety disorder, panic disorder, psychotic disorder, PTSD, alcohol or drug abuse ($\chi^2(1) = 8.599$, $p < 0.003$). Specifically, sexual victimization as an adolescent or young adult was associated with a diagnosis of PTSD (χ^2 (1) = 11.57, $p < 0.01$). Witnessing family violence was significantly associated with a diagnosis of major depressive disorder ($\chi^2(1) = 5.10$, $p < 0.05$), generalized anxiety disorder ($\chi^2(1) = 9.63$, $p < 0.01$), and PTSD ($\chi^2(1) = 19.01$, $p < 0.001$), and drug abuse ($\chi^2(1) = 8.18$, $p < 0.01$), but not with alcohol abuse. No violent exposure type was associated with the development of a psychotic disorder.

Using independent-samples *t*-tests, those who had experienced any physical assault were compared to those who had not on continuous symptoms measures derived from the CDQ. Those who had experienced any physical assault were found to display significantly more symptoms of anxiety than those who had not ($t(104) = 2.028$, $p < 0.05$), as well as more symptoms of PTSD ($t(101) = 2.76$, $p < 0.01$), although the former finding does not meet the critical alpha level when a Bonferroni adjustment for multiple comparisons is applied. Those who had experienced sexual assault displayed higher levels of PTSD symptoms ($t(101) = 3.462$). Those who had witnessed family violence were more likely to report symptoms of generalized anxiety disorder ($t(72) = 2.08$, $p < .05$) and PTSD ($t(69) = 3.58$, $p < 0.01$), however, the former finding does not meet the critical alpha level when a Bonferroni adjustment for multiple comparisons is applied.

Of note, many participants experienced more than one type of physical assault (15.3%), more than one type of sexual assault (6.8%), and some experienced both sexual and physical assaults (6.8%).

Finally, a count of the number of violent events were experienced (of which the CDQ assesses for ten total) by the participant was calculated. This index correlated significantly with the indices of depressive symptoms ($r = 0.403$), anxiety ($r = 0.398$), PTSD ($r = 0.607$), and psychotic symptoms ($r = 0.271$), suggesting that violent exposure is at least moderately correlated with the presence of several different types of psychological symptoms within this sample.

Discussion

Youth with HIV infection present with high rates of violence and psychological disorders. We sought to assess prevalence of violence and mental health disorders in HIV positive youth, noting that a decade earlier, when there were fewer treatments available, smaller samples of HIV-positive youth were reported to have high rates of these disorders.

In contrast to the percentages of violence documented in national samples of youth with unreported HIV sero status (35.9% involved in physical fight; 9.2% involved in dating violence; 7.5% report being sexually abuse or rape),[3] youth from our cohort study revealed relatively higher rates of

violence for dating violence (18.8%) and sexual abuse (14.5%–27.8%), and physical abuse (16.7%–24.3%). In addition, 44.4% of our youth reported exposure to family violence while growing up. These findings are lower than those reported a decade earlier in smaller samples of HIV-positive youth (sexual abuse 33% in HIV-infected youth NYC[35]; 60% physical abuse and 52% sexual abuse in Washington, D.C.).[36] It may be that the difference in prevalence of violence from a decade ago may be attributed to less violence today, or that a smaller sample size from a decade ago yielded higher prevalence. However, it is still disheartening to know that youth in general experience violence, and that HIV-positive youth experience higher prevalence of violence compared to the general population of youth. Violence may put young people at risk of HIV and at risk for other mental health outcomes.

Mental health disorders in our study cohort were also more prevalent as compared to national samples of youth with unreported HIV serostatus. This cohort had higher prevalence of major depressive disorder (14.8%), anxiety disorder (17%); and PTSD (28%) compared to national samples (5%[13]; 13%[14]; 3.7% [males], 6.3% [females],[15] respectively), but not as high as those as previously reported in smaller samples of HIV-positive youth: Depressive disorder (44%) and other *DSM IV* Axis I psychiatric disorder (85%).[20] It may be that the difference in prevalence of psych disorders from a decade ago may be attributed to better outlook for HIV infection a decade later with the illness presently characterized as more of a chronic illness.

This study also sought to understand the relationship between violence and mental health disorders in youth with HIV infection. In general, physical abuse correlated more with anxiety and PTSD; sexual assault with PTSD; and family violence with anxiety. Essentially, the more violent events a youth experienced, the more likely were youth to have major depressive disorder and psychotic disorder.

We know that violence and violence exposure can have serious psychological sequelae. [37,38] Children who witness and are exposed to violence are reported to suffer from stress, depression, anxiety, and develop aggressive and other behavioral problems, and adolescents demonstrate self-destructive and acting out behaviors (e.g., substance abuse, delinquent behavior, etc.). These youth report problems in their relationships with others and hold a pessimistic belief about their future.[39–41] Thus, the psychosocial difficulties associated with a history of violence may preclude the development of trusting relationships, including those with the health care team, which may in turn affect health outcomes.

Failure to provide screening, assessment and treatment of mental health symptoms, make HIV treatment difficult, especially when considering the problems that HIV-positive youth have with adherence to medical appointments and with antiretroviral regimens. Previous studies have identified variables hypothesized to predict nonadherence in HIV-infected youth, including mental health symptoms such as depression and substance use.[28]

Findings of high rates of physical and sexual abuse among our cohort of HIV infected youth highlight the association between abuse and risks for HIV. Physical abuse and sexual abuse have been noted to increase HIV risk behaviors during adolescence and young adulthood.[42] Physical violence in intimate relationships without reported sexual violence does occur, and is associated with substance use, early coitarche (before age of 15 years), unprotected sexual activity, and multiple partners (more than 3 sex partners in the past 3 months), pregnancy, and suicidality (considered suicide, attempted suicide) among female adolescents.[43] The literature in adults also highlights the relationship between physical violence and HIV risks. Specifically, studies in women found significant relationship between partner violence and lack of condom use.[44] Sexual assault and physical abuse have also been well documented to increase HIV risk behaviors in women.[45–47] In addition, one study of sexually active women surveyed in an emergency department setting revealed that after adjusting for childhood abuse and age, women who have been abused in the past in comparison to non abused women were almost 5 times more likely to have contracted an sexually transmitted disease and 4.2 times more likely to have sex with a high-risk partner in the month prior to the interview.[48] Sexually abused men were significantly more likely than homosexual and bisexual men with no history of sex abuse to engage in HIV risk behaviors and to be HIV positive.[49] Further, one study noted that a history of multiple abuse during adolescence and young adulthood had a greater association with HIV infection than just one sexual abuse event in adolescence.[39] It may be that the strategies to reduce physical and sexual abuse among youth may also result in decreasing HIV infection for those not yet infected. Recommendations for clinicians to counsel patients and their families on violence prevention have been issued by a number of groups, including the American Academy of Pediatrics (AAP),[50] American Academy of Family Physicians,[51] American Medical Association,[52] and the U.S. Public Health Service.[53] From a secondary prevention perspective, addressing these issues as part of a comprehensive interdisciplinary treatment plan may reduce rates of reinfection and acquisition of resistant strains of HIV, thereby enhance more optimal treatment outcomes and quality of life for HIV-positive youth.

Findings on exposure to violence, as well as physical and sexual abuse, among HIV-positive youth underscores the need to train medical staff working with adolescents on how to screen for and address these issues during the history and physical exam. The CDQ may assist busy providers in screening for these issues which can then be more fully explored in the context of the psychological interview of a mental health specialist. Medical providers must also learn to develop appropriate strategies addressing violence in the management plan. Highlighting the need for mental health to be part of the primary health care services for HIV-positive youth is vital, because these youth present with mental health issues that may complicate their HIV treatment. Finally, providers caring for youth with unknown HIV serostatus must be alert to addressing violence, especially sexual abuse and violence within intimate relationships, as these forms of violence are associated with HIV risk.

Limitations of this study must be weighed before generalizing to other cohorts of HIV-infected youth. Although the size of this sample of HIV infected youth is larger than the data obtained from HIV-positive youth from a decade ago, it is on par presently with most adolescent medicine centers caring for HIV-infected youth. However, this is still a relatively small sample size, comprised of mostly African American and Latino youth, and caution must be taken when attempting to generalize the results of this study to cohorts of

youth from other race/ethnicities and from other cities. Another limitation of this study is that no information was included in this analysis about the amount of time that elapsed between when the youth learned of their HIV-positive serostatus and when the youth was enrolled in care. Data obtained through the CDQ and through the psychological interview may also be influenced by the time that elapsed between when the youth received their first HIV test results, when they accepted their diagnosis and when they enrolled in care. It may be that those who recently received their diagnosis may score higher for anxiety and depression. Future studies should continue to explore, through multicenter studies, the impact of violence on youth's risk for HIV.

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Author Disclosure Statement

No competing financial interests exist.

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Address reprint requests to:
Jaime Martinez, M.D.
Division of Adolescent and Young Adult Medicine
Stroger Hospital of Cook County
West Polk Street, Room 1110
Chicago, IL 60612

E-mail: jmart312@aol.com