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Violence Exposure, Drug Use and HIV/AIDS Risk Taking Behaviors: The Role of Gender

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Abstract

Objective: To examine gender differences among African American young adults in their exposure to violence (ETV) before age 18 and community violence as an adult, and the relationship of these exposures to drug use and HIV risk taking behaviors (HIVRTB).

Method: We detail these experiences in 440 self-identified African Americans, ages 18 to 25, from socio-economically disadvantaged wards in Washington, DC. Factor analysis was used to identify the types of violence experienced before age 18 and as adults. Regression was used to identify which types of violence had the greatest impact on subsequent drug use and HIVRTB.

Results: We found gender differences in the types of violence experienced and their effects on drug use and HIVRTB. For women, the strongest ETV factors were direct personal violence, and exposure to drug sales or physical violence as adults. For men, the strongest factors were feeling unsafe in different situations as adults and exposure to violence among adults before age 18.

Conclusions: We identified the specific kinds of violence that are most likely to impact drug use and risky sexual behaviors that can leave one vulnerable to HIV and how these differ between women and men exposed to both childhood violence and community violence as an adult. Our findings point toward the need for trauma-informed programs that are tailored to gender.

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Keywords

African American young adults; exposure to childhood violence; exposure to community violence; gender differences; drug use; HIV risk taking behaviors

1. Introduction

Young adults, generally defined as ages 18 to 25, are increasingly recognized as a separate subpopulation worthy of study. These years are critical in terms of maturation, change, and establishment of trajectories that can have lifelong repercussions¹. Compared to the literature on exposure to violence among children and adolescents, less is known about how exposure to violence affects young adults. Greater knowledge of such effects is especially important because inequality can become more acute during the transition from childhood to adulthood among those who are already marginalized or disadvantaged.

One type of violence faced by young adults is community violence, generally defined as exposure to, or witnessing, intentional acts of interpersonal violence committed in public areas by individuals who are not intimately related to the victim. Many young adults who live in urban areas are exposed to a substantial amount of community violence. McDonald and Richmond² found that urban adolescents have high rates of community violence exposure (CVE) with more than 85% witnessing some form of violence in their lifetime, and as many as 69% reporting direct victimization. Depending on how ETV before age 18 is measured, up to 55% of urban adolescents have been exposed to some form of violence in their lifetime³. Lifetime CVE has been associated with an increased risk for substance abuse and sexual risk-taking.⁴ Often this exposure to violence is found as an independent health risk factor regardless of one's gender, race and ethnicity, other mental health diagnoses, and family circumstances.

It is important to discern the impact of ETV across a person's lifetime. This raises questions about whether contemporary ETV or ETV earlier in childhood has a greater influence on current substance use and HIVTRB in young adulthood. As such, our project explored gender differences and the effects of exposure to violence before and after age 18 on subsequent drug use and HIVRTB. Specifically, the study identified the forms of violence that had the greatest impact on drug use and HIVRTB among young adult men and women, and then compared the effects of ETV in childhood with exposures to community violence that occurred after age 18.

2. Background

2.1 Gender Differences and Violence

ETV before age 18 has been shown to affect males and females differently. In general, adolescent males are exposed to more violence throughout their lives.^{5,6} There are gender differences in early childhood exposure to violence and later health outcomes, particularly related to cortisol reactions, with males having an increased chance of maladaptive cortisol functioning and father's support increasing the impact of early exposure to violence.⁷ These gender-based differences to exposure to violence have informed this study.

Adolescent exposure to violence also influences long-term mental health outcomes in males and females, but the effects differ by gender with males experiencing more acute mental health problems and females having longer term effects.⁸ Further, while males are exposed to more violence, effects of exposure to violence may be more detrimental for girls regarding the trauma-related outcome of dissociation, which has clinical implications for gender-sensitive treatment.⁶ Exposure to violence among middle and high school males has been strongly associated with externalizing problem behaviors such as delinquency, while females exposed to violence were more likely to exhibit internalizing symptoms indicative of post-traumatic stress disorder.⁹ Additionally, females exposed to violence were also more likely than males to use problem-focused coping (for example, social support) as an adaptive strategy.

2.2 Exposure to Violence and Subsequent Substance Use

Adolescent violence exposure is related to substance abuse, including into adulthood.^{5,8,10–15} The relationship between ETV and substance use has been found to be generally cumulative with each incidence of violence exposure increasing the likelihood of subsequent substance abuse.^{10,13} Adolescents who have been exposed to violence are more likely to report using tobacco and marijuana than their peers with no exposure.¹⁶ Children who witnessed violence in childhood, compared to those who did not, were 3 times more likely to inject drugs in adulthood, with males 7 times more likely than females to inject drugs.¹⁷ Further, children who experienced neglect and emotional abuse were more likely to mismanage prescription pain relievers later in life.¹⁷

There are gender differences in the types of violence experienced by males and females which are also related to long-term substance use outcomes. Adult females are more likely to experience adverse substance use outcomes if they consistently witnessed parental violence or experienced general violence as adolescents, while males are more likely to experience adverse substance use outcomes if they are exposed to neighborhood violence as adolescents.¹¹ Experiencing intimate partner violence (IPV) as adolescents was a predictor of substance abuse as adults for female, but this relationship was not found for males.¹⁴ Another study on the effects of exposure to violence on adolescent substance use found that females who had been directly victimized engaged in more frequent binge drinking than males.¹⁸ Other research shows that males may be more likely than females to use substances due to a higher likelihood of exposures to stressful environments where violent activities and drug-related activities occur.¹² Such exposure may promote substance use as well as increase the likelihood for engaging in violence.

2.3 Exposure to Violence and HIVRTB

Across several studies, ETV has been shown to increase the likelihood of risky sexual behaviors. Extensive and cumulative violence exposure was associated with overall unsafe sex, inconsistent condom use, and more sexual partners, which are characteristics of risky sex.¹⁹ Studies that compared adolescents who had experienced or witnessed violence to those who had not, found those who had experienced violence were more likely to report risky sexual behaviors¹⁶. Adolescents exposed to violence, but not witnessed violence, were 2 to 4 times more likely than either adolescents who only witnessed violence or those

without any exposure to violence to report early initiation of intercourse, intercourse with strangers, multiple partners, or partners with multiple partners, or to have positive test results for sexually transmitted diseases (STDs) ¹⁶. Experiencing physical violence has also been associated with not being HIV tested in the last 6 months. ¹⁵ In another study linking CVE to HIV sexual risk behaviors among African American adolescents, Voisin ^{20,21} found that the relationship between sexual risk behaviors and CVE were linked to negative perceptions of peer attitudes about safer sex.

There are also gender differences in HIVRTB after experiencing violence. A longitudinal study of African American girls from a low socioeconomic background and who were seeking mental health treatment, found that childhood ETV was associated with an increased likelihood of sexual risk taking behavior that persisted over time ^{19,21}. Adolescents and young adult females are also more likely than males to engage in risky sexual behaviors if they experience violence in childhood. ²¹ A study of 508 adult patients (mean age 28) who received services from a publicly funded health clinic, found that higher levels of community violence were associated with more episodes of unprotected sex with non-steady partners for women, and more sexual partners for men ²².

2.4 Exposure to Violence and Combined Substance Use and HIV Risk

Risky health behaviors often co-occur in adolescents and young adults exposed to violence. Voisin ²³ found in a study of multiethnic youth who were victims of community violence that as young adults they were 4 times more likely to engage in sex after drug use, engage in group sex and to have had sex without a condom than those who have not been exposed to violence. Research has also found that adolescents who had witnessed violence were more likely to report drinking alcohol or using drugs before sex (OR, 6.2; 95% CI, 3.0–12.9) compared with adolescents who had not been exposed to violence ¹⁶.

3. Theoretical Framework

The theory guiding this research suggests that there is a direct relationship between exposure to violence, substance use, and HIVRTB. These risk factors have been shown to co-occur and have a cumulative effect on young adults' health outcomes. Voisin's ^{23,24} research reports that youth who have been exposed to higher rates of CVE engage in higher rates of sexual risk behaviors and substance use than those who have not been exposed to CVE.

The major objective of our study is to explore gender differences in the effects of exposure to violence before and after age 18 on drug use and HIV risk behaviors. To date the ETV literature has often been based on 25 to 30 item "scales" that add together a wide range of exposure to very different sorts of violence (e.g., being a victim of physical, sexual, or criminal violence, witnessing these and/or political violence). However, it is conceptually unlikely that all of the individual violence items in these scales have impacts on the wide range of outcomes and behaviors that can be examined as dependent variables. It is also methodologically unlikely that they would have equally weighted effects on the outcomes, which is what one assumes in adding or averaging across the items. Given this, it would be important for the literature to begin to 1) identify the major dimensions of ETV (e.g., assessing factors that seem to represent being a direct victim of physical violence versus

witnessing physical violence or experiencing direct sexual violence); 2) identify which of these ETV factors have strong or important effects on the specific outcomes of interest; and, 3) to explore the gender differences in ETV. Factor analysis is one method to address the first objective and stepwise regression can be used to address the second. Specifically, our study identified the forms of violence that had the greatest impact on drug use and HIVRTB among young adult males and females. Furthermore, we compared the effects of ETV in childhood with exposures to community violence since age 18. The purpose of this analysis is to clarify prior mixed findings on correlates of violence exposure and substance use and HIVTB by specifying violence types and analyzing these outcomes for gender differences.

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4. Methods

The data presented here are primary data collected from a larger longitudinal study on exposure to violence, immune functioning, and HIV risk behaviors. One component of the study collected survey data on exposure to childhood violence before age 18 (See Appendix C). The second component collected survey data on community exposure to violence since age 18 (See Appendix D). Only selected survey data relevant to the present study are discussed here. The full study entailed a comprehensive survey about participants' exposure to violence, adverse life experiences, discrimination, socioeconomic characteristics, current health problems and symptoms, drug use, and HIV risk behaviors. The study was designed to capture the experiences of economically and socially disadvantaged young adults. To qualify for inclusion, respondents had to be between the ages of 18 and 25 as of their most recent birthday, self-identified as African American or Black, test as HIV negative, and currently live in one of the predominantly socially and economically disadvantaged wards in Washington, DC.

4.1 Recruitment Process and Incentives

Because the targeted population is hard to reach, community-based and venue-based sampling in addition to respondent-driven techniques were utilized. Venue-based sampling techniques have been successfully used in several research studies to obtain large and diverse random samples of young, minority participants. We used a venue-based sampling technique^{1,25} developed by the Centers for Disease Control and Prevention (CDC) to generate a random sample of African American young adults aged 18 to 25 in our target areas. Potential participants were recruited from community-based venues that attracted or served the participants in the target areas. Recruitment was done by a street team of researchers, led by an experienced community-based researcher.

The recruitment director and street team members all had established ties to the communities and were familiar with the population. Existing networks and a multipronged approach were utilized. Flyers were posted in locations that served the population (e.g., recreation centers, metro stations, barbershops, and hair salons). Recruiters also made direct phone calls to agencies that served the population and made in-person outreach visits to several locations around Washington, DC to encourage enrollment. Once an appointment for study participation was made, the recruiter would follow up with text and phone call reminders.

Word of mouth also became a popular way of recruiting participants, particularly because of the incentive offered. In some cases, a respondent would have another person with them who met the criteria and wanted to participate. When this occurred, all efforts were made to accommodate the request or reschedule the person for a different day.

4.2 Study Location and Data Collection Procedure

This study was approved by Howard University's Office of Regulatory Research Compliance. Written informed consent was obtained from the participants before they took part in this study. Data collection took place at the Howard University Hospital in Washington, DC. A street team member would meet the arriving participants outside the hospital and escort them through the study process. Consenting participants were given a \$50 pre-paid Visa card upon completion of the survey.

4.3 Measure Descriptions

The first survey questionnaire included questions on exposure to violence in childhood, defined as beginning when a participant is born and continuing through the age of 17. This scale contained 34 questions that asked participants to respond to circumstances that might have happened during their childhood. The response options were 1 time up to 7 times and a "prefer not answer" option. This scale has the test-retest reliability coefficient of 0.90 and Cronbach's $\alpha = 0.85$.^{26,27}

The second survey was a self-report questionnaire on exposure to community violence that the participant may have experienced, seen, or heard as an adult since turning 18. This was measured by 35 items. The responses were never, once or twice, a few times, many times, or prefer not to answer. This scale has the internal consistency 0.85, test-retest reliability 0.90, and Cronbach's $\alpha = 0.61, 0.79, \text{ and } 0.86$.^{1,28}

Outcome variables were derived from scales on the CDC Youth Risk Behavior Surveillance System (YRBSS). The CDC developed this survey in collaboration with federal, state, and private-sector partners for use in a national survey for the YRBSS. The questions, which are tied to national health objectives, focus on priority health-risk behaviors that result in the most significant mortality, morbidity, disability, and social problems during both youth and adulthood.²⁹ Questions on ATOD use, and HIV/AIDS risk behaviors were utilized in this study. Table 1 describes the scales used for questions on alcohol, tobacco use, and illegal drug use for this analysis.

Additional variables on risk behaviors were drawn from the Health and Relationships Survey³⁰, (See appendix A) which assesses behaviors and attitudes related to HIV prevention. Past reliability in HIV risk factors ranged from .86 to .91³⁰. We made a conceptual distinction that the Health and Relationship Survey questions be divided into two categories, knowledge about HIV and vulnerabilities to HIV.

4.4 Data Analysis

The first step was to perform a factor analysis to determine the most salient factors representing types of violence to which young adults in the sample were exposed to before

and after age 18. Preliminary analysis included data from the entire study population of 440 African American men and women. It included a 34-item scale of childhood exposure to violence, and a 35-item scale of community exposure to violence in adulthood. In our analyses, we did not calculate means for the items included in the 34-item childhood exposure to violence and 35-item CVE scales. Doing so assumes that all the items in each scale fall on a single dimension, which is statistically implausible for a large number of items. The factor analyses instead assume that each scale is measuring several dimensions or types of childhood exposure to violence and CVE in adulthood. Identifying the different dimensions of violence represented by these items allows for an analysis of how each type of violence affects current drug use and contributes to an understanding of the effects that exposures to different forms of violence have on risky health behaviors.

For predictor variables, a factor analysis was also conducted on 23 items measuring knowledge and perceptions of risk behaviors and 8 items of vulnerability to HIV infection from the Health and Relationship Survey (See Appendix A). This analysis was conducted to determine which items were most important for identifying different dimensions of HIVRTB. No factors were produced for the original YBRSS ATOD items. We computed the mean of the items and produced scales for alcohol use, tobacco use, marijuana use, the number of times used alcohol, tobacco, and marijuana, and the age at which one first used these substances. We then entered the scales in the regression analyses, as opposed to the individual factors.

The resulting rotated factors representing childhood exposure to violence and CVE as adults were regressed in a stepwise procedure upon dependent variable indices and factors representing substance abuse and HIVRTB. It is expected that the factors that have the strongest effects on specific substance abuse and HIVRTB outcomes will vary by gender. Therefore, separate regressions were run for males and for females. The same ETV factors were entered into step-wise regressions for men and for women so the different factors that have effects on which outcomes for women and for men can be examined. The additional variance explained by each ETV factor that entered the stepwise regression for a given dependent variable was calculated, and also the percentage that this represented of the total variance explained (adjusted R^2) by the regression. Regressions where the adjusted R^2 was less than 0.075 (7.5%) were dropped from further analysis. The mean percentage of the variance that each ETV factor explained across the regressions with R^2 s greater than 0.075 was then calculated and used as an indicator of the relative strength or importance of each ETV factor in explaining a range of outcomes. All analyses were undertaken using SPSS v22.

5. Results/Findings

5.1 Descriptive Statistics

The majority of the recruits were female (52.3%) and between 18 and 21 years of age (52.0%). Most lived in an apartment (26.1%) or a house (33.2%) that someone else rented or owned. Another 28.6% rented their own apartments, and 5.7% indicated that they were homeless. Almost all of the recruits lived either in Ward 7 (32.5%), Ward 8 (37%), or Ward 5 (23.6%); only 7% lived in other wards. Six in 10 recruits (60%) completed high school or

had a GED, 11.8% had attended or completed college, and 8.2% had attended vocational or trade schools. One in five (20%) did not finish high school. Over 90% of recruits (92.5%) had an income under \$30,000 in the past year; nearly four in five (77.5%) had an income under \$15,000.

Substantial proportions of the respondents experienced violence as children: 32.7% saw a parent get hit by another parent or by a boyfriend or girlfriend; 41.6% saw someone close to them murdered; 31% indicated that grown-ups in their lives hit, beat, kicked, or physically hurt them; 30% said a group of kids or a gang hit or attacked them; 29% said a boyfriend/girlfriend or a date slapped or hit them; and 20% indicated that grown-ups they knew touched their private parts or forced them to have sex.

Our data showed that as adults, half (50%) of the participants had heard the sound of gunfire outside or near their home; 44% had seen someone else being threatened with serious physical harm in real life. As adults, 66% reported that they saw people using or selling drugs in real life; 36% said they had been asked to get involved in aspects of selling or distributing illegal drugs.

Regarding sexual behaviors, about 41% reported they don't like having sex with condoms, 50% said that most of their friends use condoms, and 70% of the participants said that those who do use condoms are responsible (70%). About one-third (34%) said that using condoms takes the fun out of having sex, 34% said that if you ask your partner to use a condom, he or she will think you do not trust them. Almost two-thirds (62%) reported that they thought they had no chance of getting HIV/AIDS, however, 46% thought their friends had a chance of getting HIV/AIDS. (See descriptive table with characteristics of the sample in Appendix B).

5.1.1 Factor Analysis—The factor analyses suggested that the childhood exposure to violence scale measured six distinct factors or types of violence: having witnessed violence, childhood sexual abuse, personal attacks, witnessing violence among adults, direct violence from peers and adults, and having witnessed murder. Seven community violence factors emerged: direct personal violence, having experienced gun use or witnessing violent deaths, involvement in drug sales or physical violence, feeling unsafe in different settings (e.g., home, neighborhood, school), having witnessed or considered suicide, having carried a weapon, and having seen a murder or suicide. (See the factor loadings in Appendices C and D)

Factors for knowledge of HIV risk factors, practices in using condoms, knowledge of HIV transmission, reasons for not using condoms, perceptions of personal vulnerability to HIV, and perceptions of people who use condoms emerged from factor analyses of the Health and Relationship Survey scales (see Table 2).

Regression Findings by Gender

5.1.2.1 Substance Use: There are variations in the most salient factors for males and females when exposed to different types of violence in their lifetime. For males, community violence factors of witnessing gun use or seeing violent deaths, and current feelings of a lack

of safety, along with experiencing violence among adults before age 18 were the strongest predictors of general substance use as a young adult. Each of these factors explained over half of the variance in the substance use outcome in which they were included. For men, feeling unsafe in different milieus explained 78.2% of the variance in the number of ATOD use and experiencing gun use or seeing a violent death accounted for 68.8% of the variance in marijuana use and 68.8% of the variance in alcohol use. Among men, exposure to violence among adults in childhood explained 58.4% of the total variance in ATOD use that is causing problems, and 52.1 % in tobacco use.

For females, direct personal violence as adults and participating in illicit activities like drug sales or physical violence as adults each explained over half of the variance of the equations in which they were included. Females had 81.8% ($\beta=.245$) of the variance in ATOD problem behaviors explained by direct exposure to personal violence. Additionally, direct exposure to personal violence explained 86.6% ($\beta=.460$) of variance if alcohol use, 74.6% ($\beta=.445$) of the variance in ATOD use events, 74.9% ($\beta=-.438$) of the variance in age of first ATOD use. Participating in illicit activities like drug sales or physical violence explained 69.4% ($\beta=.426$) of the variance in marijuana use.

Direct exposure to or witnessing violence before age 18 affected men and women differently. Exposure to violence as an adult explained a mean of 55.2% of the total variance in the regression equations in which it appeared for men, but it was weaker for women explaining a mean of 18.2% of the total variation in their equations. Witnessing a murder or suicide before age 18 was a moderately strong factor in the regressions for men, explaining 15.7% of the total variance, but this type of violence was not strong enough to appear among factors for women.

Other feelings and behaviors affected men and women differently as well. Feeling unsafe in different milieus as an adult was a far stronger factor for men, explaining a mean of 78.2% of the total variance across their regressions, compared to 4.2% in the female regressions. Having carried a weapon as an adult was moderately important for both men and women, explaining 27.1% and 14.9% of the total variance respectively. For men, having carried a weapon as an adult had its greatest influence on tobacco use, explaining 47.8% ($\beta=.345$) of its total variance. In contrast, among women, having carried a weapon as an adult, had its strongest influence on marijuana use, in which it explained 13.3% ($\beta=.246$) of the total variance. Having witnessed or considered suicide as an adult explained 23% of the variance in the regression for men, and none for the women. Feeling unsafe in different settings had an especially strong influence on male lifetime ATOD use, explaining 78.2 % ($\beta=.287$) of the variance.

Witnessing or considering suicide as an adult did not reach the threshold of explaining at least 0.075% of the variance and thus, was not included in any models for either gender in this analysis. Females' feelings of lack of safety also did not reach the threshold and was not included in any of the models. These two factors were not sufficient predictors of substance use outcomes among this population. None of the ETV factors reached the threshold of inclusion in models predicting alcohol use or tobacco use among young adult women. Similarly, none of the ETV factors predicted age at first ATOD use among young adult men.

The regressions in Table 3 show that the four strongest regression models for women were YRBSS scale items involving ATOD, lifetime ATOD use ($R^2=0.361$), age at first ATOD use ($R^2=0.295$), alcohol use ($R^2=0.264$) and marijuana use ($R^2=0.256$). The strongest regressions for men were marijuana use ($R^2=0.257$), tobacco use ($R^2=0.219$) and alcohol use ($R^2=0.213$).

5.1.2.2 HIV Risk Behavior: In addition to their important role in explaining ATOD factors among women, ETV factors also influenced women's knowledge of HIVRTB. Among women, exposure to direct personal violence as adults explained 65.8% ($\beta = -.257$) of the total variance in the model for behaviors that obviate a need to worry about HIV. Exposure to gun use or seeing violent deaths as an adult explained 76.5% ($\beta = -.312$) of the total variance explained in women's attitude towards condom practices and 34.2% ($\beta = .218$) of the variance in women's attitudes towards HIV. Women also had 23.5% ($\beta = -.177$) of total variation in their attitude toward condom that was explained by exposure to witnessing murder before age 18.

Among men, exposure to gun violence or seeing violent deaths as an adult explained 38.2% ($\beta = -.243$) of the total variance in attitude towards condom practices and 19.8% ($\beta = .276$) of the total variance explained in conditions that preclude the need to worry about contracting HIV. Among men, childhood sexual abuse accounted for 36.5% ($\beta = .216$) of the total variance explained in conditions that obviate the need to worry about contracting HIV. About 14.7% ($\beta = -.227$) of the variance in having seen a murder or suicide as an adult and 19.6% ($\beta = .276$) of a personal attack before age 18 was explained by the same factor of a perception of not needing to worry about contracting HIV.

5.2 Discussion

This paper identified and explored how different forms of violence have varying impacts on substance abuse and HIVRTB outcomes for men and women before and after age 18. Research has established that exposure to community violence as an adult can predict current drug use and sexual risk behaviors. Comparing exposures to violence in childhood with exposures to community violence as adults allows for a better understanding of how context impacts these associations. Our findings contribute to the current research and show statistical significance for exposure to different types of childhood violence and community violence after age 18 with drug use and sexual risk behaviors by gender.

For example, compared to males, females reported significantly higher effects from direct personal violence, drug sales and physical violence as an adult. Direct personal violence since age 18 had a strong impact on women's current marijuana use. Drug sales and physical violence had a strong impact on women not being worried about contracting HIV, the number of times ATOD were used, and problems associated with ATOD use. This suggests that women may respond differently to violence that is interpersonal. In contrast, exposure to direct types of personal violence, experiences of gun use, or seeing a violent death had considerably greater effects upon marijuana use for men than for women, while the same factors had a strong impact on women's condom use. Feeling unsafe in different environments had a strong impact on the number of times men used ATOD.

Our findings highlight the importance of examining gender differences in childhood violence and community violence as an adult on drug use and sexual risk factors, which points to the need for trauma-informed programs that are tailored to gender. We have identified the specific kinds of violence that are most likely to impact drug use and sexual risk behaviors that leave one vulnerable to HIV and how these differ between women and men. The results from this study support prior findings that violence exposure over the life course is related to substance abuse into adulthood.^{5,10–15} Particularly as it relates to the differences in effects across gender.^{7,8,11,14} It also supports prior findings that ETV affects sexual behaviors and risk for HIV.^{4,15,21}

The current study clarifies the relative importance of different ETV factors. Prior studies have often been uneven in their use of ETV factors. They often focused primarily on physical violence, and combined witnessing and being a victim of violence as part of their association.^{4,5,7,8,11,31} ETV factors have typically been divided into categories based on geography and location of violent event³¹, specified consistency of violence exposure in the neighborhood or from parents^{8,11}, focused on neighborhood exposures to violence¹², focus on the Adverse Childhood Experience index or a similar index which combines multiple types of trauma in some analyses^{13,21}, or focused on intimate partner violence.¹⁵ Additionally, Hedtke and colleagues¹⁰ and Wilson and Donenberg²² separated witnessing violence and experiencing sexual and physical assault in their models, but focused on women and used these variables as predictors of mental health, substance use, or sexual risk outcomes. By showing how different dimensions of witnessing and experiencing violence affect a range of substance use and HIV outcomes, this study specifies the strongest factors predicting those outcomes across genders. Results show that ETV must be understood as composed of multiple factors rather than a single scale representing witnessing all types of physical violence or experiencing all types of violence, or as part of a larger trauma scale.

5.3 Limitations

This study produced a rich dataset on exposure to violence in a high-risk sample of African American young adults. The findings should be understood in the context of this study and be interpreted cautiously. Because the sampling method employed non-probability techniques, the study's results are not generalizable. Additionally, some potential respondents did not want to take an HIV screening test, which presented a recruitment challenge and may have introduced bias into the sample. Data quality challenges that are routinely associated with measuring sensitive topics were also encountered. Recall bias involving exposures to violence in childhood could also have influenced the reporting of some items.

6. Implications for Future Research

Despite limitations, the current study serves as a guide to develop future research that considers gender differences in health outcomes related to violence exposure. It provides support for the continued exploration of how exposure to violence impacts women and men differently. Next steps in this research could include an examination of how different types of exposure affect an individual's drug and alcohol use. One could also identify gender

differences in coping strategies related to violence exposure and explore the impact of childhood violence on the likelihood of exposure to violence as an adult. Such findings can be used to design trauma-informed social and support services for adolescents and young adults, establish the need for violence prevention programs in urban settings, and increase our awareness of the long-term effects of childhood exposure to violence.

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Appendix

Appendix A:

Health & relationship survey questions: HIV/AIDS knowledge and perceived vulnerability to HIV infection

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1. If you love and trust someone, you don't have to worry about getting HIV from them.
 2. You can tell whether someone has HIV or AIDS by the way they look.
 3. Only people who are homosexual or who use drugs really have to worry about getting HIV.
 4. If you know a person very well, you don't have to use condoms to protect yourself against HIV from them.
 5. You don't have to use a condom for HIV protection if you are in a relationship with just one person, even if that person has had unprotected sex with other people.
 6. If your boyfriend or girlfriend is not a drug user, you don't need to worry about getting HIV from them.
 7. You can tell by the way a person acts if you can get HIV or AIDS from them.
 8. It's more important to use condoms in one-night stands and flings than in real relationships.
 9. Using latex condoms (rubbers) during sex can protect you from getting HIV.
 10. Vaseline or baby oil should never be used with condoms.
 11. You can safely store condoms in your wallet for at least two months.
 12. Not having sexual intercourse (sex in which a penis is put into a vagina or rectum) can help protect you from getting HIV.
 13. Women with HIV can give it to their babies through breast milk.
 14. You can get HIV by sharing a needle with someone who has it.
 15. "Pulling out" before male ejaculation prevents the spread of HIV.
 16. There is nothing a mother who has HIV or AIDS can do to protect her baby from getting it.
 17. If you have sex and take an HIV test the next day, it will tell you for sure if you have HIV.
 18. Some people have gotten HIV by sharing forks, knives, or drinking glasses with a person who has AIDS.
 19. You are less likely to get HIV from oral sex than from anal sex.
 20. You are just as likely to get HIV from kissing an infected person as from having sex with them.
 21. There is medicine that completely cures AIDS.
 22. The most important time to use condoms with someone is when you have sex with them for the first time.
 23. Making sure you don't have a lot of sex partners will protect you from HIV.
 24. What do you think are your friends' chances of getting HIV or AIDS?

25. What do you think are your own chances of getting HIV/AIDS?
26. How afraid are you of getting HIV/AIDS?
27. I don't like having sex with condoms.
28. People who use condoms are very responsible.
29. Condoms take all the fun out of sex
30. If you want to use a condom, your partner might think you don't trust them.
31. Most of my friends use condoms if they have sex.

Appendix B.

Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Childhood Violence: Witnessed Violence	440	-3.46057	2.07914	.0000000	.91569575
Childhood Violence: Sexual Abuse	440	-4.71404	2.02358	.0000000	.89046886
Childhood Violence Personal Attacks	440	-2.73569	1.65183	.0000000	.84886706
Childhood Violence: Violence among Adults	440	-3.66430	2.64972	.0000000	.81915198
Childhood Violence: Violence from Peers and Adults	440	-3.87243	2.04156	.0000000	.80337099
Childhood Violence: Witnessed Murder	440	-2.54063	1.92342	.0000000	.81321331
Community Violence: Direct Personal Violence	314	-1.51954	5.18617	.0688793	.99496296
Community Violence: Experienced Gun Use or Saw Violent Deaths	314	-2.21930	3.11303	-.1758270	.79931687
Community Violence: Drug Sales or Physical Violence	314	-2.81744	3.86013	-.0554122	.85378264
Community Violence: Feels Unsafe in Different Milieus	314	-.75368	4.26352	-.0117611	.86976423
Community Violence: Witnessed or Considered Suicide	314	-1.41349	3.21133	-.0375775	.81762003
Community Violence: Has Carried Weapon	314	-1.85595	4.18501	.0138248	.83270105
Community Violence: Has Seen Murder or Suicide	314	-3.15129	3.70788	.0591187	.77781073
YRBSS: Alcohol Use	184	-.82899	2.79288	.1404872	.95056840

	N	Minimum	Maximum	Mean	Std. Deviation
YRBSS: Tobacco Use	163	-.94883	1.87954	.1529071	.80631722
YRBSS: Marijuana Use	440	-.99459	1.37758	.0000000	.85664281
YRBSS: Number of Times Used ATOD	440	-.28585	6.09414	.0000000	.94290592
YRBSS: Age First Used ATOD	137	-2.73672	.92159	-.0317844	.86406520
HIV: Practices in Using Condoms	440	-1.54659	1.85674	.0000000	.95588290
HIV: Knowledge of Risk Factors	440	-3.11119	1.44233	.0000000	.96237799
HIV: Knowledge of How Transmitted	440	-2.98498	2.52022	.0000000	.91124076
HIV Risks: Why Do Not Use Condoms	440	-1.68454	1.38282	.0000000	.91994412
HIV Risks: Personal Vulnerability to HIV	440	-.96234	2.56838	.0000000	.95621660
HIV Risks: Perceptions of People who Use Condoms	440	-1.38333	2.01466	.0000000	.80290535

Appendix C:

Factor loading exposure to childhood (before age 18) violence scale

Childhood Violence Scale Items	Rotated Factor Matrix ^a					
	ChildSexAbuse	PersonalViol	AdultViol	Peer/AdultViol	WittnViol	WittnMurder
Did anyone use force to take something away from you that you were carrying or wearing?	.172	.484	.291	.065	.167	.102
Did anyone steal something from you and never give it back?	.074	.569	.005	.111	.220	.002
Did anyone ever break or ruin any of your things on purpose?	.112	.585	.112	.064	.247	-.015
Did anyone hit or attack you on purpose WITH an object or weapon?	.121	.629	.187	.098	.013	.243
Did anyone hit or attack you WITHOUT using an object or weapon?	.121	.566	.050	.229	.155	-.043
Did someone start to attack you, but for some reason, it didn't happen?	.138	.485	.242	.245	.122	.068

Childhood Violence Scale Items	Rotated Factor Matrix ^a					
	ChildSexAbuse	PersonalViol	AdultViol	Peer/AdultViol	WittnViol	WttmMurder
Did anyone try to kidnap you?	.322	.196	.572	.094	.020	.093
Were you hit or attacked because skin color, religion, physical problem, where family comes from, gay?	.316	.192	.465	.221	.105	.157
Grown-up in your life hit, beat, kick, or physically hurt you in any way?	.333	.286	.252	.383	.072	.033
Did you get scared or feel really bad because grown-ups in your life called you names, said mean things to you, or said they didn't want you?	.255	.225	.343	.503	.140	.061
Did you get neglected?	.297	.147	.601	.319	.212	.003
Did a parent ever take, keep, or hide you to stop you from being with another person?	.194	.213	.422	.255	.261	-.036
Did a group of kids or a gang hit, jump, or attack you?	.199	.261	.139	.396	.243	.125
Did any kid, even a brother or sister, hit you?	.169	.250	.117	.340	.407	.015
Did any kids try to hurt your private parts on purpose by hitting or kicking you there?	.316	.285	.359	.287	.217	.158
Did any kids, even a brother or sister, pick on you by chasing you or grabbing your hair or clothes or by making you do something you didn't want to do?	.339	.214	.327	.487	.181	.050
When you were a child, did you get scared or feel really bad because kids were calling you names, saying mean things to you, or saying they didn't want you around?	.311	.208	.247	.485	.266	.011
Did a boyfriend or girlfriend or a date ever slap or hit you?	.366	.163	.110	.522	.198	.036
Did a grown-up YOU KNOW touch your private parts when you didn't want it or make you touch their private parts? Or did a grown-up YOU KNOW force you to have sex?	.688	.146	.064	.443	.158	.049

Childhood Violence Scale Items	Rotated Factor Matrix ^a					
	ChildSexAbuse	PersonalViol	AdultViol	Peer/AdultViol	WittnViol	WtttnMurder
Did a grown-up you did NOT KNOW touch your private parts when you didn't want it, make you touch their private parts or force you to have sex?	.666	.122	.078	.340	.147	.122
Did another child or teen make you do sexual things that you did not want to do?	.693	.165	.291	.142	.196	.085
Did anyone TRY to force you to have sexual intercourse, but it didn't happen?	.704	.176	.247	.116	.229	.036
Did anyone make you look at their private parts by using force or surprise, or by "flashing" you?	.580	.114	.317	.119	.243	.066
Did anyone hurt your feelings by saying or writing something sexual about you or your body?	.592	.104	.433	.182	.231	.071
Did you do sexual things with anyone 18 or older, even things you both wanted?	.478	.194	.206	.228	.233	.091
Did you SEE one of your parents get hit by another parent, or their boyfriend or girlfriend?	.213	.235	.142	.095	.511	.026
How about slapped, punched, or beat up?						
Did you SEE your parent hit, beat, kick, or physically hurt your brothers or sisters, not including a spanking on the bottom?	.316	.163	.299	.031	.569	-.051
Did you SEE anyone get attacked on purpose WITH a stick, rock, gun, knife, or other thing that would hurt?	.082	.116	.105	.185	.729	.057
Did you SEE anyone get attacked or hit on purpose WITHOUT using a stick, rock, gun, knife, or something that would hurt?	.174	.128	.043	.123	.754	.043
Did anyone steal something from your house that belonged to your family or someone you live with? Things like a TV, stereo or a car?	.122	.180	.066	.075	.655	.007
Was anyone close to you murdered, like a	.112	.075	.085	.141	.621	.192

Childhood Violence Scale Items	Rotated Factor Matrix ^a					
	ChildSexAbuse	PersonalViol	AdultViol	Peer/AdultViol	WtttnViol	WtttnMurder
friend, neighbor or relative?						
Did you see someone murdered in real life, regardless of whether or not you knew them?	.157	.124	.109	.062	.432	.687
Were you ever some place in real life where you could SEE or HEAR people being shot, bombs going off, or street riots?	.118	.156	.052	.126	.609	.270
Were you ever in the middle of a war where you could hear real fighting with guns or bombs?	.212	.125	.113	.096	.488	.430

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

Appendix D:

Factor loading exposure to community violence as an adult (since age 18) scale

Community Violence Scale Items	Rotated Factor Matrix ^a						
	Personal Violence	Guns Or Death	Drugs & Physical Violence	Feeling Unsafe	Carry weapon	Suicide	Seen Murder Suicide
How many times have you seen other people using or selling drugs in real life?	.015	.501	.532	.002	.084	.058	.121
How many times have you yourself actually been asked to get involved in any aspect of selling or distributing illegal drugs?	.256	.240	.503	.037	.159	.028	.208
How many times have you yourself actually been in a serious accident where you thought that you or someone else would get hurt very badly or die?	.440	.210	.487	.000	.076	.026	.151
How many times have you yourself actually been at home when someone has broken into or tried to force their way into your home?	.675	-.048	.373	.071	-.050	.004	.127
How many times have you yourself actually been picked-up, arrested, or taken away by the police?	.481	.168	.430	-.021	.076	.043	.003
How many times have you yourself actually been threatened with serious physical harm by someone?	.328	.259	.680	-.013	.016	.061	-.043
How many times have you seen someone else being threatened with serious physical harm in real life?	.211	.536	.601	.027	.006	.082	.017

Community Violence Scale Items	Rotated Factor Matrix ^a						
	Personal Violence	Guns Or Death	Drugs & Physical Violence	Feeling Unsafe	Carry weapon	Suicide	Seen Murder Suicide
How many times have you yourself been slapped, punched, or hit by someone?	.261	.319	.603	.066	.054	.120	-.049
How many times have you yourself actually been robbed or mugged?	.581	.057	.472	.036	.036	-.012	-.007
How many times have you seen someone else getting beaten up or mugged in real life?	.368	.404	.437	.010	.051	.069	-.047
How many times have you seen someone else being sexually assaulted, molested, or raped in real life?	.712	.064	.263	.013	-.021	.073	.058
How many times have you yourself actually been sexually assaulted, molested, or raped?	.532	.085	.261	.029	-.025	.321	.126
How many times have you actually seen someone carrying or holding a gun or knife in real life?	.161	.701	.319	-.009	-.019	.162	.021
How many times have you yourself heard the sound of gunfire outside when you were in or near your home?	.105	.750	.282	-.001	-.041	.153	-.061
How many times have you yourself heard the sound of gunfire outside when you were in or near your workplace	.447	.493	.150	.013	-.001	.079	-.033
How many times have you seen or heard a gun fired in your home?	.611	.289	.083	-.014	.163	-.039	-.082
How many times have you actually seen a seriously wounded person after an incident of violence in real life?	.446	.639	.139	-.037	.207	-.045	-.050
How many times have you yourself actually been attacked or stabbed with a knife?	.683	.222	.148	.082	.178	-.007	.038
How many times have you yourself actually been shot with a gun?	.789	.124	.072	.055	.218	.005	.055
How often have you seen someone else get shot with a gun in real life?	.624	.476	.135	.051	.216	.023	.049
How many times have you seen a dead person somewhere in the community?	.491	.487	.094	.120	.227	-.021	.323
How many times have you seen someone commit suicide in real life?	.526	.120	.047	.110	.211	.071	.495

Community Violence Scale Items	Rotated Factor Matrix ^a						
	Personal Violence	Guns Or Death	Drugs & Physical Violence	Feeling Unsafe	Carry weapon	Suicide	Seen Murder Suicide
How many times have you only heard about someone committing suicide in real life?	.163	.505	.263	.042	-.026	.135	.373
How many times have you seen someone being killed by another person in real life?	.477	.257	.006	.100	.091	.161	.352
How many times have you heard about someone you knew being killed by another person?	.132	.623	.171	.042	.083	.081	.224
How many times have you yourself been chased by gangs or individuals?	.456	.301	.179	.120	.307	.028	.110
Have you ever carried any kind of weapon such as a gun, knife, or club?	.082	.279	.378	.058	.430	.146	-.009
Have you ever attacked someone with a weapon with the idea of seriously hurting or killing them?	.178	.003	.139	.091	.645	.078	.018
Are you currently a member of a gang or crew?	.132	-.001	-.062	.036	.573	.171	.067
Have you ever seriously thought about or considered suicide?	-.002	.140	.129	.020	.165	.746	-.011
Have you ever attempted suicide or tried to kill yourself?	.078	.136	.034	.023	.159	.777	.079
Feeling safe at current home or place where you sleep?	0.42	-.004	-.015	.626	.046	.056	-.083
Feeling safe at current church or place of worship?	.055	-.076	-.056	.683	.076	-.001	.092
Feeling safe at current work or place of employment?	.005	-.046	.086	.573	.043	-.046	.097
Feeling safe in neighborhood/community?	.074	.272	.042	.553	-.020	.048	-.034

Extraction Method: Principal Axis Factoring.

^a. Rotation converged in 17 iterations.

Rotation Method: Varimax with Kaiser Normalization a.

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Table 1.

Scales produced by the original items on YRBSS

YRBSS Questions	Scales
During the past 30 days, about how many days did you have at least one drink of alcohol?	Alcohol Use
During the past 30 days, what was the most drinks you had in one day?	
During the past 30 days, about how many days did you have 5 or more drinks of alcohol within a couple of hours?	
During the past 30 days, about how many days did you have at least one drink of alcohol at work? If you are not currently working, select "Does Not Apply".	
During the past 30 days, about how many days did you smoke at least one cigarette?	Tobacco Use
During the past 30 days, on the days you smoked, about how many cigarettes did you smoke <u>per day</u> ?	
Have you ever smoked cigarettes daily, that is, at least one cigarette every day for 30 days?	
During the past 30 days, about how many days did you use chewing tobacco, snuff, or dip, such as Redman, Levi Garrett, Beechnut, Skoal Bandits, or Copenhagen?	
During the past 30 days, about how many days did you smoke cigars, cigarillos, or little cigars?	Marijuana Use
During the past 30 days, about how many days did you use marijuana?	
During the past 30 days, how many times did you use marijuana at work? If you are not currently working, select "Does Not Apply".	
During the past 30 days, on the days you smoked, how many marijuana cigarettes did you smoke in one day?	
During your whole lifetime, about how many days have you had at least one drink of alcohol?	Lifetime ATOD
Have you ever smoked a cigarette, cigarillo, or cigar?	
During your whole life, about how many times have you used marijuana?	
About how old were you when you had your FIRST drink of alcohol other than a few sips?	Age at first ATOD Use
During the past 30 days, about how many days did you have at least one drink of alcohol?	
About how old were you when you FIRST tried marijuana?	
How old were you when you FIRST tried any form of cocaine, including powder, crack, or freebase?	ATOD Problems
How old were you when you FIRST tried any form of sniffing glue or breathing the contents of aerosol spray cans, or inhaled any paints, sprays, or gases to get high?	
How old were you when you tried any form of heroin for the FIRST time?	
How old were you when you tried any other type of illegal drug, such as LSD, PCP, ecstasy, mushrooms, speed, or ice for the FIRST time?	

Factor analyses on exposure to childhood violence and community violence scales, and for drug use and HIV risk behaviors scales (and rotated sums of squared loadings)

Table 2.

EXPOSURE TO CHILDHOOD VIOLENCE		PERCENTAGE	ADULT EXPOSURE TO COMMUNITY VIOLENCE	PERCENTAGE	YRBSS ATOD *	PERCENTAGE	RISK BEHAVIORS (HEALTHY RELATIONSHIP)	PERCENTAGE
Witnessed violence	Childhood sexual abuse	12.8%	Direct personal violence	16.5%	Alcohol use	*	No need to about HIV if...	24.1%
		12.4%	Having experienced gun use or witnessing violent deaths	12.4%	Tobacco use	*	Condom practice	22.3%
Personal attacks	Witnessed violence among adults	8.3%	Involvement in drug sales or physical violence	9.9%	Marijuana use	*	Knowledge of HIV transmission	15.6%
		7.2%	Feeling unsafe in different setting (e.g., home, school)	4.5%	Number of times used substance as at first substance use	*	Reasons for not using condoms	21.6%
Direct violence from peers and adults	Witnessed a murder	7.1%	Witnessed or considered suicide	4.2%			Personal vulnerability to HIV	20.6%
		2.9%	Carried a weapon	4.1%			Perceptions of people using condoms	13.8%
			Witnessed a murder or suicide	2.4%				

* No factors were produced for YRBSS. Scales were produced computing the mean of the items in the survey.

Table 3.

Regressions for exposure to community and childhood violence on drug use and HIV risk factors by gender

Factors (Independent Variables)	Mean % of total Variance Explained		Marijuana Use		No HIV worries		Alcohol Use		Lifetime ATOD		YRBSS Age 1st ATOD Use		YRBSS Tobacco Use		Condom Practices		YRBSS ATOD Problems	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
R ²																		
F ²																		
CVE: Direct Personal Violence	39.5																	
CVE: Experienced Gun Use or Saw Violent Deaths	42.3																	
CVE: Has Carried Weapon	27.1																	
CVE: Drug Sales or Physical Violence	26.6																	
			19.01	18.85	10.04	11.65	8.99	15.91	9.18	23.00	-	-	9.62	4.78 ²	9.43	10.54	7.92 ³	14.33
CVE: Feels Unsafe in Different Milieus	78.2																	
CVE: Witnessed or Considered Suicide	23																	
CVE: Has Seen Murder or Suicide	0																	
CV: Violence among Adults	55.2																	
CV: Childhood Sexual Abuse	36.5																	
CV: Witnessed Murder	9.3																	
CV: Personal Attacks	20.2																	
CV: Witnessed Violence	15.6																	

YRBSS- Youth Risk Behavior Surveillance System (U.S. Centers for Disease Control & Prevention)

CVE: Community Violence Exposure as an adult

CV: Childhood Violence Exposure before age 18

¹Significance of F=0.000 unless otherwise noted

²Significance of F=0.033

³Significance of F= 0.001