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Relationships among Childhood Trauma, Posttraumatic Stress Disorder and Dissociation in Men Living with HIV/AIDS

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Abstract

This study examined the relationships among dissociation, childhood trauma and sexual abuse, and posttraumatic stress disorder (PTSD) symptoms in HIV-positive men. Data was collected from 167 men enrolled in a randomized clinical trial (Project RISE) that examined a group therapy intervention to decrease HIV-related risk behavior and trauma-related stress symptoms. Participants completed the Trauma History Questionnaire, the Impact of Event Scale - Revised, and the Stanford Acute Stress Reaction Questionnaire. Overall, 35.3% of the participants reported having experienced childhood sexual abuse (CSA). A total of 55.7% of the sample met diagnostic criteria for PTSD. The intensity of dissociative symptoms that participants endorsed was positively associated with experience of childhood sexual abuse ($r = .20, p < .01$). Dissociative symptoms were also positively associated with specific PTSD symptoms, notably hyperarousal ($r = .69, p < .001$). Hierarchical regression indicated that hyperarousal symptoms account for more of the variance in dissociation than childhood sexual abuse. These results suggest that childhood sexual abuse may be involved in the development of dissociative symptoms in the context of adulthood stress reactions. Furthermore, the pattern of the association between dissociation and PTSD is consistent with the possibility of a dissociative PTSD subtype among HIV-positive men.

Keywords

HIV/AIDS; dissociation; child abuse; sexual abuse; physical abuse; posttraumatic stress disorder

Dissociative experiences, characterized by lack of awareness of surroundings, emotions, identity and memories, are relatively common in the population at large (Ross, Joshi, & Currie, 1990) and are particularly notable and ubiquitous among populations with psychiatric illness (Putnam et al., 1996). Although dissociative experiences can play a role in pleasant, everyday experiences (Butler & Palesh, 2004), they are most often linked with experiences of traumatic stress, and the impact of childhood abuse on development of later dissociative symptoms has been well-established (Mulder, Beautrais, Joyce, & Fergusson, 1998). There is also evidence that dissociative symptoms are associated with compulsive sexual behavior (Chaney & Chang, 2005), substance abuse (Seedat, Stein, & Forde, 2003),

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and other risk behaviors such as crossing police barricades to get closer to a firestorm (Koopman, Classen & Spiegel, 1996). Evidence suggests that dissociative symptoms are associated with diagnoses of Post-Traumatic Stress Disorder (PTSD; Ginzburg et al., 2006; Ginzburg, Butler, Saltzman, & Koopman, 2009) as well as with dysregulation of the HPA axis (Koopman et al., 2003).

Previous evidence has suggested that people living with HIV (PLH) are exposed to high levels of traumatic stress (Gore-Felton & Koopman, 2002; Kimerling et al., 1999), and that histories of sexual and physical abuse are particularly prevalent in HIV-positive populations (Kalichman et al., 2002; Martinez, Israelski, Walker, & Koopman, 2002; Martinez, Hosek, & Carleton, 2009; Welles et al., 2009). Exposure to traumatic events is related to sexual and other risk behavior that may facilitate transmission of HIV (Briere & Runtz, 1987; Cavanaugh & Classen, 2009; Gore-Felton et al., 2006; Gore-Felton & Koopman, 2002; Holmes, 1997; Kalichman et al., 2002; Sachs-Ericsson, Cromer, Hernandez, & Kendall-Tackett, 2009; Welles et al., 2009) and as such is a target for interventions designed to reduce HIV transmission rates. Dissociation, as a specific symptom of trauma, may be related to sexually risky behavior in those exposed to childhood sexual abuse (Zurbriggen & Freyd, 2004). In addition, PLH with a history of childhood abuse who report experiencing symptoms of traumatic stress are less likely to access appropriate medical care (Martinez et al., 2002; Meade, Hansen, Kochman & Sikkema, 2009) and have more adverse health issues (Kimerling et al., 1999; Leserman et al., 2002). As PLH experience higher levels of PTSD symptoms, they report increased levels of dissociative and other acute stress reactions to stressful life events, suggesting that HIV-positive populations may be sensitized to experience elevated stress reactivity to new stressors (Koopman et al., 2002). Thus PLH are an important population to study in the context of development of traumatic stress symptoms and dissociation, both because PLH are more likely to be exposed to traumatic events and because their response to trauma has implications both for reducing HIV transmission risk and for improving health outcomes.

An important and unresolved diagnostic debate in the field of traumatic stress focuses on the relationship between dissociative symptoms and PTSD. Bremner (1999) has suggested that there may be two types of acute responses to traumatic stress, one in which dissociative symptoms predominate and another that is characterized more by intrusions. Additional research has begun to support Bremner's theory (Ginzburg et al., 2006; Koopman et al., 2004; Lanius, Bluhm, Lanius, & Pain, 2006; Pain, Bluhm, & Lanius, 2009), indicating that these different subtypes may necessitate different clinical interventions. Previous research has found that while 70% of individuals diagnosed with PTSD report a syndrome characterized by hyperarousal, a specific cluster of PTSD symptoms that includes tension, watchfulness, and reactivity to stress, another 30% report hypoarousal and dissociative symptoms when confronted with acute stress (Lanius et al., 2010; Pain et al., 2009). However, some individuals report a mixed presentation, experiencing emotional hyperarousal accompanied by physiological hypoarousal when confronted with acute stress (Ginzburg et al., 2006; Pain et al., 2009).

No studies have looked specifically at the relationship between childhood abuse and dissociation in PLH exposed to trauma. Given the reactivity to acute stress experienced by PLH, as well as the importance of PTSD symptoms in predicting sexual risk behavior and disease progression among PLH, it is important that research identify both distal precursors to stress reactivity (i.e., childhood abuse), as well as proximal manifestations of stress reactivity in daily life (i.e., dissociation). To clarify the different correlates and manifestations of responses to trauma generally and to childhood abuse in particular, the current study examined the associations among dissociative symptoms in response to an acute stressor, PTSD symptoms, and exposure to childhood physical and sexual abuse in

adult men living with HIV/AIDS. We hypothesized that HIV-positive men exposed to childhood sexual abuse would report higher levels of PTSD and dissociative symptoms than those not exposed to childhood sexual abuse, and that sexual abuse would be more related to dissociative symptoms than other forms of childhood trauma. Consistent with the concept of a dissociative subtype of PTSD, we also hypothesized that symptoms of dissociation would be more prevalent in those diagnosable with PTSD, but would also be most strongly associated with specific symptoms of PTSD, namely hyperarousal symptoms. Correlates of acute stress response in PLH could provide targets for clinical and HIV prevention interventions with this population.

Method

Participants

The sample for the current study consisted of 167 men living with HIV in the Bay Area of California. All participants were enrolled in a randomized clinical trial (Project RISE) that was designed to decrease HIV-related risk behavior and trauma-related stress symptoms using a group intervention format. Criteria for inclusion in this larger study were: 1) age 18 or older, 2) documentation of an HIV diagnosis, 3) endorsement of recent sexual activity, 4) evidence, as assessed by self-report, of psychological and behavioral functioning that would permit participation in the intervention groups and 5) report of experiencing at least one hallmark symptom of PTSD (i.e., avoidance, re-experiencing, or hypersarousal). Analyses for the current study were cross-sectional and utilized baseline data collected before participants were randomized to intervention groups. The sample was 38.3% Caucasian, 29.9% African-American, and 22.8% Hispanic/Latino, with smaller percentages of participants of other ethnic backgrounds. Over two-thirds (70.6%) reported annual household incomes under \$20,000. The average age of participants was 45 (range: 23–67) and the majority (62.3%) reported a gay sexual identity. See Table 1 for more information summarizing this sample's demographic characteristics.

Procedure and Measures

Approval was obtained from Stanford University's institutional review board to conduct the current study and all participants provided informed consent regarding collection, maintenance, and use of data they provided. Using an audio-computer assisted self interview (ACASI) format, each participant completed baseline measures that assessed demographic and medical characteristics, in addition to measures of interest to the current study.

Experiences of childhood trauma were assessed using the Trauma History Questionnaire (THQ; Green, 1996), which assesses 24 different types of trauma, ranging from hearing news of a loved one's death to being attacked with a gun or other weapon, as well as the ages at which these events occurred. Following the recommendation of Green (1996), we summed the total number of types of traumatic events that participants had experienced before age 16 as a proxy for childhood trauma history, excluding three items assessing experiences of childhood sexual abuse, which were calculated separately. Thus childhood trauma was treated as a continuous variable that ranged from 0 to 21 types of traumatic events experienced and demonstrated good reliability in the current study ($\alpha = .71$). Experience of childhood sexual abuse was assessed by three items on the THQ assessing forced oral, anal, or vaginal intercourse; unwanted sexual touching; and other forced sexual experiences. Participants were classified as having been exposed to childhood sexual abuse if they endorsed any forced intercourse, sexual touching, or other forced sexual experience before the age of 16. Thus experience of childhood sexual abuse was treated as a dichotomous variable.

PTSD symptoms were assessed using the Impact of Event Scale – Revised (IES-R; Weiss & Marmar, 1995), which has demonstrated good psychometric properties among diverse populations in previous studies (e.g., Creamer, Bell, & Failla, 2003). The IES-R includes subscales measuring the three symptom clusters of PTSD: namely, Avoidance, Intrusion, and Hyperarousal. Distress related to specific symptoms is rated from 0 (none) to 4 (extremely). In the current study, the IES-R demonstrated good reliability overall ($\alpha = .94$), and the individual symptom subscales also demonstrated good reliability ($\alpha = .84 - .89$). The IES-R has a recommended clinical cutoff score of 33; those scoring above 33 on the scale are likely to meet diagnostic criteria for PTSD (Creamer et al., 2003). Participants were dichotomized based on whether their overall scores exceeded the clinical cutoff, indicating a potential diagnosis of PTSD; in addition, their subscale scores for specific symptoms of PTSD were calculated.

Acute dissociative symptoms in response to recent stressful life events were assessed using the Stanford Acute Stress Reaction Questionnaire (SASRQ; Cardeña, Koopman, Classen, Waelde, & Spiegel, 2000). This questionnaire has demonstrated good psychometric properties with populations exposed to a variety of stressful events (Cardeña et al., 2000). The SASRQ-Dissociation subscale includes 10 items, rated on a 0 (low) to 5 (high) scale, measuring dissociative symptoms of numbness, lack of awareness of surroundings, derealization, depersonalization, and amnesia. Notably, in the current version of the questionnaire, participants were asked to recall the most stressful event they had experienced in the past month and then answer to what extent they had experienced the symptoms above in response to that event. Thus the SASRQ Dissociative subscale measured dissociative response to acute stressful events the participants were experiencing in their daily lives. For the current study, the subscale was examined both in terms of total score, ranging from 0 to 50, and in terms of dichotomous presence (ratings of 3 and higher) and absence (lower than 3) of specific symptoms. The SASRQ-Dissociation subscale had good reliability in the current study ($\alpha = .90$).

Data Analysis

Descriptive statistics were computed for demographic characteristics as well as all questionnaires included in the current study. Then Pearson correlation coefficients were computed to examine the bivariate associations between experiences of childhood sexual abuse and childhood trauma, PTSD symptoms, and acute dissociative symptoms. Next, we constructed a hierarchical regression equation to examine the relative contribution of childhood sexual abuse, childhood trauma, and PTSD symptoms to endorsement of dissociative symptoms by men living with HIV. We entered the predictors in three blocks: in the first block we entered the dichotomous variable for experience of childhood sexual abuse and the score on the childhood trauma scale; in the second block we entered the dichotomous variable for diagnosis with PTSD based on the IES-R total score; and in the third block we entered the IES-R subscale scores, to see whether specific PTSD symptoms predicted additional variance in dissociation above and beyond a diagnosis of PTSD. All statistical analyses were performed using SPSS 17.0 (SPSS Inc., Chicago, IL).

Results

Prevalence of Childhood Sexual Abuse and Trauma

Overall, 35.3% of the participants reported having experienced childhood sexual abuse (CSA). Nearly one-quarter of participants (23.4%) had been forced to have anal, oral, or vaginal sex against their will before the age of 16, and a similar number (22.8%) had been touched in a sexual manner by others or were made to touch others in a sexual manner by

force or threat. Another 11.4% had experienced other incidents of forced sexual contact before age 16 that did not fit into the above types.

The number of traumatic events experienced in childhood (before age 16) ranged from 0 to 11 with a mean of 2.73 (s.d. = 2.68). Over half of participants (56.3%) had experienced two or more traumatic events in childhood. The most common non-sexual traumatic experiences in childhood included being beaten, spanked, or injured by a family member, endorsed by 26.3% of the sample; being robbed, endorsed by 23.4% of the sample; and having something taken by force, endorsed by 22.1% of the sample.

Prevalence of PTSD Symptoms

Participants reported high levels of PTSD symptoms, with a mean score on the IES-R of 35.23 (s.d. = 18.82). This score falls above the recommended clinical cutoff score of 33 (Creamer et al., 2003). In fact, a total of 55.7% ($N = 93$) of participants met diagnostic criteria for PTSD using the clinical cutoff score for the IES-R, while 44.3% ($N = 74$) of participants did not meet criteria for PTSD on the IES-R.

Prevalence of Dissociative Symptoms

The most frequently experienced dissociative symptoms and the percentage of the sample endorsing each were: emotional numbing, 64.1%; derealization, 56.9%; and lack of awareness of surroundings, 55.1%. Depersonalization was reported by 46.7% and amnesia for important aspects of the stressful event was reported by 29.3% of the sample. See Table 1 for descriptive statistics for all variables included in the study.

Bivariate Relationships among Childhood Trauma, PTSD, and Dissociative Symptoms

Experience of childhood sexual abuse was positively correlated with overall PTSD symptoms ($r = .19, p < .05$), intrusions ($r = .23, p < .01$), hyperarousal ($r = .20, p < .05$), and dissociative symptoms ($r = .20, p < .01$). Childhood trauma was positively correlated with childhood sexual abuse ($r = .53, p < .01$), overall PTSD symptoms ($r = .17, p < .05$), intrusions ($r = .19, p < .01$), and hyperarousal ($r = .22, p < .05$), but not correlated with dissociative symptoms. The intensity of dissociative symptoms was strongly positively correlated with PTSD symptoms ($r = .70, p < .001$). Examination of a scatterplot revealed that although individuals reporting few PTSD symptoms also reported few dissociative symptoms, there was considerable variability in the level of dissociation among individuals with high levels of PTSD. See Table 2 for bivariate associations between variables in the current study.

Given the high correlation between predictor variables (i.e., symptoms of trauma, diagnosis with PTSD), as well as the outcome variable of dissociative symptoms, we centered all continuous predictor variables around their means before entering them into the regression model in order to reduce multicollinearity.

Explaining Variance in Dissociative Symptoms

Childhood sexual abuse was significantly associated with dissociation as measured by the SASRQ ($\beta = .19, p < .05$), while childhood trauma was not significantly associated with dissociation ($\beta = .02, p > .05$). The relationship between childhood sexual abuse and dissociative symptoms remained significant when the dichotomous variable representing diagnosis of PTSD was entered into the model, though a diagnosis of PTSD was also significantly related to dissociative symptoms ($\beta = .59, p < .001$). When specific symptoms of PTSD were entered into the model, however, the association of childhood sexual abuse with dissociation became non-significant ($\beta = .11, p > .05$), as did the association of diagnosis of PTSD ($\beta = .06, p > .05$), while symptoms of hyperarousal ($\beta = .51, p < .001$)

and avoidance ($\beta = .20, p < .05$) were significantly associated with dissociation. See Table 3 for results of the hierarchical regression equation.

Discussion

Dissociative symptoms in response to proximal acute stressors were common in this sample of men living with HIV, and these symptoms are strongly and positively associated with PTSD symptoms. However, the variability found in dissociative symptoms among individuals with high levels of PTSD and the lack of dissociative symptoms among individuals with low levels of PTSD are consistent with the possibility of a dissociative subtype of PTSD.

The finding that high levels of dissociative symptoms were associated with childhood sexual abuse in HIV-positive men suggests that distal childhood maltreatment may be involved in the later development of dissociative symptoms, and that these symptoms may be triggered in the context of adult stress reactions. Sexual abuse appears to have a more profound effect on development of dissociative symptoms in men than general childhood trauma, as evidenced by the non-significant relationship between general childhood trauma and dissociation. In samples of the general population, the betrayal, confusion, and loss of security engendered by childhood sexual abuse are catalysts for the development of later dissociation (Mulder, Beautrais, Joyce, & Fergusson, 1998), and it seems likely that this same mechanism exists for HIV-positive men. However, the association between childhood sexual abuse and dissociation became non-significant in a model incorporating specific symptoms of trauma. It may be that among HIV-positive men, and perhaps among men in general, childhood sexual abuse leads most often to later diagnoses of PTSD, and dissociation occurs within the context of this post-trauma syndrome. It is interesting to note that while dissociative symptoms were more evident among those with PTSD, a diagnosis of PTSD became a non-significant predictor of dissociation in the hierarchical regression model after accounting for specific symptoms of PTSD. Rather, it was the specific symptoms of PTSD, namely hyperarousal and avoidance symptoms, which showed a much stronger association with dissociation. This is consistent with previous findings that hyperarousal is most reliably associated with dissociation in populations exposed to trauma (Sterlini & Bryant, 2002). However, longitudinal analyses will be necessary to further elucidate the causal relationships between these variables, as this cross-sectional study can come to no conclusions regarding the precursors or development of dissociative symptoms.

The bulk of physiological and brain imaging literature to date has cited hyperarousal and dissociation as separate responses to traumatic stress, responses that can in fact distinguish a dissociative subtype of PTSD from one marked primarily by physiological arousal and cognitive intrusions (Lanius et al., 2010; Pain et al. 2009). From the perspectives of individuals diagnosed with PTSD, however, these processes may not be separate and may in fact be fundamentally linked. As the current study found that men living with HIV who reported more symptoms of trauma also reported more symptoms of hyperarousal, it may be that PLH diagnosable with a dissociative subtype of PTSD subjectively experience high levels of emotional arousal (e.g., feeling constantly watchful or on guard), at the same time that they physiologically and cognitively disengage, become hypoaroused, and dissociate after being exposed to an acute stressor. It may even be that dissociation is a learned physiological response, developed after exposure to repeated or early-onset (i.e., childhood) traumatic stressors in an attempt to regulate extreme emotional and physiological arousal (Ginzburg et al., 2006). Further studies are needed to parse the exact relationship between the temporal course of hyperarousal and dissociative symptoms. In addition, future studies should test this relationship in other samples exposed to traumatic stress, including women living with HIV who have experienced trauma.

Although the findings in this study have important implications for diagnosing subtypes of PTSD, some limitations must be noted. First, the sample consisted of HIV-positive men recruited from the Bay Area of California, and the specificity of the population sampled may limit generalizability of findings. However, the fact that we replicated findings from other samples in a sample of HIV-positive men speaks to the potentially global nature of the link between childhood trauma, trauma symptoms and dissociation, and to the importance of attending to dissociative subtypes of PTSD. Second, the findings are based on a measure of dissociative symptoms (the SASRQ) that specifically assesses dissociative symptoms experienced in response to a recent stressor. This relatively narrow focus on dissociation may limit generalizability to other types of dissociative experiences. Future research might incorporate multiple measures of dissociation so as to capture the multifaceted nature of these symptoms. The current study was cross-sectional in nature, and so no conclusions can be drawn regarding causal relationships between variables. Finally, it is necessary to address the accuracy of participant response to trauma questionnaires, as it may be difficult for some participants to accurately recall and report experiences of childhood sexual and physical abuse. As the measures of trauma exposure, trauma symptoms, and dissociative symptoms were all self-report, all were subject to participant response bias. Future studies using multiple assessment methods, including brain imaging and psychophysiological measures, are needed.

The current study found that childhood trauma is related to trauma symptoms and to dissociative experiences among HIV-positive men. Given the many negative psychosocial correlates of dissociation in the population at large and in individuals with chronic illness specifically, additional research is needed to examine the prevalence, etiology, and sequelae of dissociative stress responses and their relationship to PTSD among HIV-positive persons. Additional research is also needed to further delineate dissociative subtypes of PTSD, particularly as they occur in other specific segments of the population. The findings of such studies can be used to inform future HIV prevention efforts with individuals reporting a history of childhood trauma, as well as clinical care of those experiencing dissociative symptoms in the context of chronic illness.

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Table 1

Summary of participants' demographic characteristics and descriptive statistics for variables of interest (N = 167).

Variable	N	%
Race/Ethnicity		
African-American	50	29.9
Latino	38	22.8
Caucasian	64	38.3
Other	15	9.0
Income		
Under \$20,000	118	70.6
\$20,000 or over	49	29.4
Education		
High School or less	62	37.1
More than High School	105	62.9
Sexual Orientation		
Heterosexual	38	22.8
Gay	104	62.3
Bisexual	25	15.0
Scale	Mean	SD
Childhood trauma experiences (THQ)	2.73	2.68
PTSD symptoms (IES-R)	35.23	18.82
Avoidance	12.25	7.01
Intrusion	13.89	7.63
Hyperarousal	9.09	5.93
Dissociation (SASRQ subscale)	17.59	12.18

Table 2
Bivariate associations among childhood sexual abuse, childhood trauma, PTSD and dissociative symptoms (N = 167).

	1	2	3	4	5	6	7
1. Childhood Sexual Abuse	1.00						
2. Childhood Trauma	.27**	1.00					
3. PTSD Diagnosis	.19*	.17*	1.00				
4. Avoidance	.10	.06	.73**	1.00			
5. Intrusions	.23**	.16*	.78**	.70**	1.00		
6. Hyperarousal	.20*	.21**	.78**	.71**	.87**	1.00	
7. Dissociation	.20*	.12	.59**	.60**	.64**	.69**	1.00

Note.
* $p < .05$ (two-tailed);
** $p < .01$ (two-tailed)

Table 3

Hierarchical regression predicting variance in dissociative symptoms using childhood sexual abuse, childhood trauma, and PTSD symptoms ($N = 167$).

Variable	β , Step 1	β , Step 2	β , Step 3
Step 1: $R^2 = .04^*$			
Childhood Sexual Abuse	.19 [*]	.18 ^{**}	.09
Childhood Trauma	.05	.01	-.05
Step 2: $\Delta R^2 = .34^{**}$			
PTSD Diagnosis		.59 ^{**}	.06
Step 3: $\Delta R^2 = .13^{**}$			
Avoidance			.18 [*]
Intrusions			.03
Hyperarousal			.49 ^{**}

Note. Final $R^2 = .51$;

^{*} $p < .05$ (two-tailed);

^{**} $p < .01$ (two-tailed)