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The Moderating Role of Attachment on the Association between Childhood Maltreatment and Adolescent Dating Violence

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Abstract

Approximately twenty percent of female and ten percent of male adolescents report violence in their dating relationships and there is a significant association between dating violence in adolescence and later perpetration of intimate partner violence (IPV) in adulthood. Identification of factors associated with dating violence can inform intervention and prevention efforts. This study was designed to examine the associations of early childhood maltreatment experience and involvement in adolescent dating violence. It also aimed to identify the moderating effect of insecure attachment styles on these associations.

One hundred fifty adolescent who participated in a larger longitudinal study on prenatal drug exposure participated in this study. Participants completed self-report measures of childhood maltreatment at a standard follow-up visit between the ages of 15–19 years. Approximately 18 month later, they completed questionnaires on their attachment styles and level of dating violence perpetration and victimization.

Hierarchical regression modeling revealed a significant main effect for childhood abuse but not insecure attachment on perpetration and victimization of dating violence. Avoidant attachment significantly moderated the relationship between childhood abuse exposure and dating violence: For adolescents who reported an avoidant attachment style, an increase in the level of experienced childhood maltreatment predicted significantly higher increases in victimization by dating violence, compared to those did not have avoidant attachment.

Results suggest adolescents with child maltreatment history and avoidant attachment styles may be at higher risk for involvement in dating violence and support intervention efforts for fostering attachment relationship to attenuate the association between early exposures to maltreatment and involvement in dating violence later.

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Introduction

Adolescent dating violence is a significant public health concern in the United States. Dating violence is defined as the “violence committed by a person who is or has been in a social relationship of a romantic or intimate nature with the victim (U.S. Department of Justice, 2016).” It includes physical, psychological, emotional, and sexual violence as well as harassing, stalking, or threatening a current or former partner (CDC, 2016). National samples indicate that rates of physical or sexual dating violence rates among adolescents range from 10–20% for males and females (Eaton, Davis, Barrios, Brener, & Noonam, 2007; Vagi, Olsen, Basile, & Vivolo-Kantor, 2015). When verbal violence is included rates increase to 30.5% (Haynie et al., 2013). Several studies indicate that involvement in dating violence among adolescents is significantly associated with mental health problems including depression, posttraumatic stress, substance abuse, or antisocial behaviors (CDC, 2016; Glass et al., 2003; Volpe, Hardie, & Cerulli, 2012). It is also a significant predictor of intimate partner violence (IPV) perpetration and victimization in adulthood (Gomez, 2011).

Although there are similarities between dating violence in adolescence and adult IPV, there are differences. Adolescent females may be less likely to be financially dependent on their male partners compared to females in an adult romantic relationship (Mulford & Giordano, 2008). Also, adolescents have less experiences in romantic relationships and are more likely to be influenced by peer attitudes and behaviors than adults. This can lead to a lack of constructive communication, more use of aggressive behaviors, or more use of poor coping strategies when conflicts, frustration, or disagreement emerge (Mulford & Giordano, 2008). Due to these differences, studying adolescent dating violence specifically is important, and identifying variables that predict and moderate dating violence perpetration and victimization among adolescents could promote the development of more effective prevention and intervention approaches to intervene in the trajectory of dating violence, mental health problems, and later involvement in adult IPV.

Childhood Maltreatment and Dating Violence

Various longitudinal and cross-sectional studies on self-reported experiences with physical maltreatment and punishment by a parent or caregiver during childhood or adolescence demonstrate an increased risk of physical dating violence perpetration for males (Edwards, Dixon, Gidycz, & Desai, 2014; Lavoie et al., 2002; Simons, Burt, & Simons, 2008) and males and females (Ehrensaft et al., 2003; Foshee et al., 2005). Further, in a study with students from 19 universities across the United States, Richards and colleagues (2016) documented that childhood experience of sexual abuse, witnessing interparental violence, and witnessing violence outside the home were related to increased odds of being both a victim and offender of interpersonal violence. Studies also suggest an association of childhood exposure to abuse, neglect, and witnessing violence with aggression or involvement in dating violence among younger adolescents. For example, Hamby and colleagues (2012) reported that caregiver-perpetrated physical abuse was closely associated with dating violence victimization among adolescents aged 12 to 17.

Research has revealed potential gender differences in occurrence of dating violence, and/or in the association between childhood maltreatment and dating violence, but findings are inconsistent. Some studies have found no gender differences in dating violence perpetration (Marshall & Rose, 1990) or victimization (Taylor & Mumford, 2016) overall. However, several studies reported that males were more often the perpetrators of dating violence than females (Lane & Gwartney-Gibbs, 1985; Rennison, 2001), while other reported females were more aggressive towards their partners than males (Malik, Sorenson, & Aneshensel, 1997). Some studies have examined the specific types of dating violence and gender. For example, studies found that while males were more likely to perpetrate sexual violence compared to females (Foshee, 1996; Hokoda et al., 2012), females were more likely to perpetrate physical dating violence compared to males (Hokoda et al., 2012; Taylor & Mumford, 2016). Other studies reported that the frequencies of being victimized psychologically or verbally were higher among females than males (Hokoda et al., 2012; Reidy et al., 2016). Wekerle and colleagues (2009) reported that emotional abuse in childhood was associated with the perpetration and victimization of dating violence for male adolescents, and with dating victimization for female adolescents. Cascardi (2016) found that childhood maltreatment and witnessing violence were directly associated with dating violence victimization among female adolescents. In keeping with the previous research, we hypothesized that, higher exposure to childhood maltreatment would be associated with increased rates of dating violence victimization and perpetration in adolescence. Given the inconsistency in findings related to gender in adolescents and young adults (Capaldi & Langhinrichsen, 2012), we included it as a preliminary predictor of dating violence perpetration and victimization but did not have a directional hypothesis.

Several recent studies have indicated that the association between childhood physical abuse and young adult dating violence may be accounted for by other correlated risk factors such as lower socioeconomic status, exposure to other types of childhood trauma, substance use, or antisocial or impulsive traits (Jennings et al., 2013; Jennings et al., 2014; Tomsich et al., 2015; Tomsich, Jennings, Richards, Gover, & Powers, 2017). In the current study sample, a high percentage of youth were exposed to prenatal drug exposure and low maternal education. Both these factors have been found to be associated with childhood maltreatment (Ajdukovi , Rajter, & Rezo, 2018; Budd, Heilman, & Kane, 2000; Kelley, 1994; Prindle, Hammond, & Putnam-Hornstein, 2018).

Prenatal drug exposure.—There is limited research investigating the link between prenatal drug exposure and *adolescent* aggression, especially in the context of dating relationships. Instead, research on prenatal drug exposure has revealed a potential link between prenatal drug exposure and aggression in general, but findings are varied. A study revealed no significant adverse effects of prenatal cocaine exposure on mental or behavioral development in children of up to two years of age (Frank et al., 2002). However, a review of the literature by Ackerman, Riggins, and Black (2010) revealed that children under the age of seven with high levels of prenatal cocaine exposure had greater externalizing behavior problems (including aggression) than children with low or no prenatal cocaine exposure. Another study reported that adolescents prenatally exposed to drugs showed higher aggressive behavior compared to non-exposed adolescents (Buckingham-Howes,

Oberlander, Kim, & Black, 2012). No studies have examined whether prenatal exposure to drugs are associated with dating violence, therefore the current study preliminarily seeks to illuminate the association among prenatal drug exposure (particularly cocaine) and aggressive behavior in the context of dating relationships.

Socioeconomic status.—Studies on the relationship between socioeconomic status and dating violence are inconsistent. While some studies have shown that low socioeconomic status is not related to perpetration and victimization in dating relationships among adolescents (Taylor & Mumford, 2016), others reported significant association between them. For example, low socioeconomic status, which was measured by maternal education and occupation was reported to be related to inflicting and receiving dating violence among male adolescents (O’Keefe, 1998). Findings from the National Longitudinal Study of Adolescent Health showed that boys with at least one college-graduate parent had lower odds of physical and/or psychological violence victimization (Halpern, Oslak, Young, Martin, & Kupper, 2001). Foshee et al. (2008) found that maternal education was negatively correlated with moderate physical dating violence. Similarly, low education level of mothers significantly predicted onset of victimization from sexual dating violence among female adolescents (Foshee, Benefield, Ennett, Bauman, & Suchindran, 2004). Given that prior studies have found associations between parental education (especially mother’s) and adolescent dating violence and it has been used as a measure of socioeconomic status in past studies of dating violence (Dardis, Dixon, Edwards, & Turchik, 2015), the current study includes maternal education as a preliminary predictor for involvement in dating violence.

Childhood Maltreatment, Attachment Insecurity and Dating Violence

Attachment theory, first introduced by Bowlby (1982), hypothesized that infants are born with an intrinsic drive to seek proximity to caretakers in times of danger or threat. This attachment system protects infants from harm, alleviates stress, and provides comfort. There is significant evidence that exposure to maltreatment in childhood hinders the development of a secure and healthy attachment (Briere, Runtz, Eadie, Bigras, & Godbout, 2017; Finzi, Ram, Har-Even, Shnit, & Weizman, 2001). Interactions with attachment figures that are available and responsive promote a secure attachment style with positive mental representations of the self and others. This secure attachment results in low levels of anxiety and avoidance. An individual with secure attachment shows high self-esteem with the balance between intimacy with others and self-autonomy. They use constructive emotion-regulation strategies aimed at relieving stress and maintaining positive and supportive relationships (Mikulincer & Shaver, 2011). However, the interactions with attachment figures who are unavailable, unresponsive, or abusive promote insecure attachment styles. These early attachment styles also evolve with experiences during childhood and adolescence, and affect attachment representation in adulthood (Bowlby, 1982). Importantly, studies have found strong associations between childhood attachment classifications and adult attachment (Waters et al., 2000).

Adult attachment orientation has four prototypes: secure, preoccupied, fearful (anxious), and dismissing (avoidant) (Allison, Bartholomew, Mayselless, & Dutton, 2008; Bartholomew & Horowitz, 1991). Fearful attachment consists of both high anxiety and avoidance, showing

low self-esteem and fear of rejection while being dependent on others. Preoccupied attachment type indicates a person with high anxiety and low avoidance, who is dependent on others and demands reassurance for self-worth from others. Individuals with dismissing attachment are low in anxiety but high in avoidance. They are compulsively self-reliant, showing discomfort with close relationship, while downplaying their need for others. These adult attachment orientations influence attachment styles in romantic relationships (Fraley & Davis, 1997). Adults with these insecure attachment types use less constructive coping strategies in the face of stress (Bowlby, 1982) which affects the expression and regulation of emotions, including anger.

Studies have found associations between insecure attachment styles and subgroups of adult IPV perpetrators indicating an association between attachment style and violence in men (Holtzworth-Munroe & Meehan, 2004; Roberts, Wolfer, & Mele, 2008). In particular, research has revealed that anxiously attached men use IPV as a means to gain proximity and attention from their partner, while avoidant men use IPV to push their partner away and maintain distance (Allison et al., 2008). However, as aforementioned, while attachment styles have been more thoroughly studied in the context of adult relationships, research on attachment styles in adolescent dating relationships has been more limited and would benefit from further study. Some research suggests that in adolescent dating relationships, insecure attachment styles do not directly predict aggression (Feiring, Deblinger, Hoch-Espada, & Haworth, 2002), but may amplify, attenuate, or mediate the association of other factors with dating violence. One study documented that anxious attachment style moderated the association between exposure to family aggression (i.e. inter-parental and parent-child aggression) and perpetration of physically aggressive behavior in a dating relationship among male high-school students (Grych & Kinsfogel, 2010). Those with high exposure to family aggression and high anxious attachment had greater perpetration of dating violence. Similarly, an avoidant attachment style moderated that association among female students. Exposure to family aggression was associated with perpetration of abuse among females with high avoidant attachment, while no association was found among those with low avoidance (Grych & Kinsfogel, 2010). Another study indicated that attachment anxiety mediated the association between parental maltreatment and dating perpetration for female university students (Lee, Reese-Weber, & Kahn, 2014). Since prior associations between childhood maltreatment and insecure attachment styles in late adolescence and adulthood have been noted in prior studies (Finzi et al., 2001; Gauthier, Stollak, Messé, & Aronoff, 1996), and there is some limited research indicating attachment insecurity may moderate the association between childhood abuse and adolescent dating violence, this study aimed to explore associations among childhood maltreatment, attachment styles, and dating violence perpetration and victimization in a high risk, community sample of late teens, and to identify the moderating role attachment style may play on the association of childhood maltreatment and later adolescent dating violence perpetration and victimization.

The Current Study

This study aims to 1) assess the association of childhood exposure to abuse and neglect with perpetrating and/or being victimized by dating violence in an at-risk community sample; and

2) examine the moderating effect of insecure attachment style on the association between childhood exposure to abuse and neglect and adolescent dating violence 18 months later.

Study hypotheses were a) gender, maternal education and prenatal drug exposure would be significantly associated with adolescent dating violence and; b) a higher level of childhood exposure to abuse and neglect would be associated with a higher level of perpetration of dating violence reported approximately 18 months after retrospective reports of childhood maltreatment; c) an insecure type of attachment would moderate the relationship between childhood maltreatment experience and the later perpetration of dating violence while controlling for gender, prenatal exposure to drugs and maternal education; d) a higher level of childhood maltreatment would be associated with a higher level of victimization of dating violence; and e) an insecure type of attachment would moderate the relationship between childhood maltreatment experience and later reports of dating victimization while controlling for gender, prenatal exposure to drugs and maternal education.

Methods

Participants

Participants in this study were drawn from a longitudinal study of the emotional and cognitive development of cocaine-exposed and non-cocaine-exposed children (Mayes, Molfese, Key, & Hunter, 2005; Chaplin, Fahy, Sinha, & Mayes, 2009; see Chaplin et al., 2009 and Chaplin et al., 2010 for full descriptions of the study). Mothers of the current study participants were recruited for the original study over a five-year period from women admitted to the postpartum ward and from women registering for prenatal care at a large urban hospital in the northeastern United States. The women's center at the hospital primarily served inner-city women and provided care to a low-income population. The mothers and 372 children in the larger study were followed from birth with bi-annual assessments.

Participants (adolescents who are children of the originally recruited mothers) for this study were eligible if they were between the ages of 15 and 18 at the time of study initiation, agreed to complete study questionnaires, and indicated they had started dating. One hundred fifty adolescents from the larger cohort completed the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1997) at a standard follow-up visit for the larger study. This was considered time 1 for this study. The mean age of the adolescents at time 1 was 16.67 (0.93) with 77 males and 73 females. Approximately 18 months later, those adolescents attended a follow-up visit (time 2) and agreed to complete attachment and dating violence measures. Sixty eight percent of participants completed time 2 measures. There was no significant association between age at Time 1 and our study variables.

Procedure

Adolescent participants were administered a measure of childhood maltreatment at a standard visit (conducted every 6 months) between the ages of 15–18 years. They completed a computerized survey that included measures to assess childhood exposure to abuse and neglect. Then they completed questionnaires about their involvement in dating relationships,

their experiences of dating violence, and their attachment styles approximately 18-months after they reported on childhood maltreatment. These visits were all conducted at the study research offices using computerized surveys. Adolescents were compensated \$50 for their participation and transportation costs. Informed consents and assents were obtained, and the study protocol was approved by the university's Institutional Review Board.

Measures

Perpetration of and victimization by dating violence.—Conflicts and violence in dating relationships were measured using the Conflict in Adolescent Dating Relationships Inventory (CADRI; Wolfe et al., 2001a). The CADRI assesses aggression in dating relationships through a series of 50 items (25 items each for perpetration and victimization; $\alpha = .95$) in which respondents rate the frequency of perpetration of and victimization by aggressive acts with a current or former partner (if the respondent was not dating at the time of the survey). The measure assesses: physical abuse, threatening behavior, verbal/emotional abuse, sexual abuse, and relational aggression (e.g., For perpetration: I pushed, shoved, or shook him/her, I threatened to hit him/her or throw something at him/her, I said things just to make him/her angry, I forced him/her to have sex when h/she didn't want to, and I said things to his/her friends about him/her to turn them against him/her; For victimization: He/she pushed, shoved, or shook me, He/she threatened to hit me or throw something at me, He/she said things just to make me angry, He/she forced me to have sex when I didn't want to, and He/she said things to my friends about me to turn them against me). Each subscale is composed of three to ten items rated on a scale from "never (1)" to "often (4)." Subscales represent the means for each scale. The mean scores for each of the subscales were added to create two total dating violence variables (for dating violence perpetration and dating violence victimization), with higher scores indicating greater abuse. Internal consistency reliability of the perpetration scale and the victimization scale for the current sample was good, with Cronbach's alpha of .74 and .80, respectively.

Childhood maltreatment.—Childhood exposure to abuse and neglect was measured using the CTQ. The CTQ includes five subscales: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect, with 25 questions on a five-point Likert scale ranging from "never true (1)" to "very often true (5)." Scores on each subscale ranged from 5 (no history of abuse or neglect) to 25 (very extreme history of abuse or neglect). The CTQ has demonstrated high test-retest reliability with a correlation of .88 (Bernstein, Fink, Handelsman, & Foote, 1994). For the purposes of this study, the subscales of the CTQ were added to create a CTQ total score, indicating both the frequency and breadth of childhood maltreatment experiences. The CTQ total score had a high internal consistency reliability of .84.

Attachment.—Adolescent/adult attachment was measured using the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991). This measure consists of four statements, each relating to a different attachment style (secure, preoccupied, anxious/fearful, and avoidant/dismissing). Participants are instructed to select the statement that best describes them or the way they generally are in close relationships. Participants are then instructed to rate the extent to which they think each relationship corresponds to their

general relationship style from 1 (“not at all like me”) to 7 (“very much like me”). Each participant received a categorical score corresponding to the most fitting attachment style. Bartholomew and Horowitz (1991) reported that convergent validity was demonstrated by modest correlations within each dimension across self-report, family interview, and peer interview measures; the average within-dimension correlation was .43. The average test-retest correlation for this measure is .51 (Scharfe & Bartholomew, 1994). Three dichotomous variables represented the insecure attachment style: anxious/fearful, preoccupied, and avoidant/dismissing.

Prenatal drug exposure.—Data related to the drug-exposure status of each participant was taken from data collected as part of the original longitudinal study (Mayes et al., 2005). This data was collected and coded as follows at the time of enrollment in the original study. Self-report information about lifetime substance use and usage within the 30 days prior to enrollment during the mother’s pregnancy was collected from a detailed interview based on the Addiction Severity Index (McLellan, Luborsky, Woody, & O’Brien, 1980). Interviews were conducted either during the first prenatal visit or immediately following delivery. Urine samples for toxicology were obtained from all women several times throughout the pregnancy (for women receiving prenatal care) and/or at delivery. Every study participant and her infant had a urine screen at the time of delivery. Standard urine screening for drug level or metabolites of cocaine (e.g., benzoylecgonine), opioids, benzodiazepines, and tetrahydrocannabinol (THC) was performed using the Abbott TDx system (Abbott Diagnostics, Abbott Park, IL) and the recommended cutoff levels. A urine sample was rated as positive if the quantity of drug or metabolite was ≥ 300 g/mL (Poklis, 1987). The Abbott TDx System is an automated system used for quantification of toxic/abused drugs in urine. It allows research teams to assess both presence of and level of drug. Mothers were considered to be in the prenatal drug exposure group if they reported substance use during pregnancy (even if the urine toxicological results were negative). Infants were also considered exposed if the mothers did not report substance use during pregnancy, but the urine toxicological results were positive. Opiate use was an exclusionary criterion for participation in the long-term follow-up of prenatal cocaine exposure, thus they could not be included in the current study. Prenatal drug exposure was defined by three categories: 1) women in the cocaine-using group typically also used combinations of alcohol, tobacco, and/or marijuana, and use of one or more of these three drugs was not an exclusion criterion. This group was defined as cocaine and-other-drug-using; 2) no-cocaine but other drug exposed was defined as no cocaine-exposure but other drugs or alcohol defined as alcohol, tobacco or marijuana only and no other drugs; and 3) no-drug exposure of any kind including alcohol, tobacco and marijuana.

Maternal education.—Mothers of adolescent participants self-reported their level of education in order to represent their social and economic status. This variable was coded as a binary variable representing either less than a high school education (0) or a high school education and above (1) because there were very few mothers with more than a high school education in the sample.

Analysis

First, descriptive statistics and preliminary bivariate analyses were conducted between the study's demographic (e.g. age, gender, and race), prenatal drug exposure, mother's education, childhood exposure to abuse or neglect and outcome variables. We also examined whether there were significant differences in those variables between participants who completed outcome measures at Time 2 and those who did not. Next, two-stage hierarchical regression models were used to assess the association of these variables to dating violence perpetration and victimization. The standardized childhood maltreatment experience and attachment style were entered in the first step of the hierarchical regression model: two attachment types (*avoidant/dismissing and anxious/fearful*) were included as dummy variables (*reference category: adolescent with secure attachment*).¹ Preoccupied attachment style (high anxious and low avoidance) was excluded from the final analysis because a very small number of adolescents reported this attachment type. Next, two interaction terms, one between avoidant attachment style and childhood maltreatment experience and the other between anxious attachment styles and childhood maltreatment were entered at the second step to determine whether an avoidant or anxious attachment style moderated the association of childhood trauma with perpetration of dating violence. This process was repeated to create separate models for dating violence victimization. For hierarchical regression models, missing values were handled by Multiple Imputation by Chained Equations (MICE) that does not require normal distribution of variables (Royston & White, 2011).²

Results

Preliminary Analysis

Adolescents in the sample were primarily African American (84.7%), followed by Caucasian (6.7%), Hispanic (3.3%), other (3.3%), and multiracial (2.0%). Regarding prenatal drug exposure, 74.7% of study participants experienced prenatal drug exposure (either cocaine and (an) other drug(s) [59%] or alcohol, tobacco, and/or marijuana [15%]) 25.3% did not. The majority of participants (68.7 %) responded that their mother held at least high school or equivalent diploma, while the remaining held less than a high school education.

The average age of respondents at the time of their first date was 14.03 ($SD = 2.744$). Physical abuse in childhood was endorsed by 35%, physical neglect by 62%, and childhood sexual abuse by 15% of the sample. On average, they reported 5 boyfriends or girlfriends ($SD = 5.151$) since they started dating. Adolescents described their dating relationships as (multiple responses could be selected): going out in male/female groups (18.7%), dating with different people (23.3%), dating one person without any definite commitment (26.0%), dating one person exclusively (37.3%). Three percent of the participants said they were engaged. Overall, 85% of participants reported experiencing at least one instance of verbal

¹Since gender, prenatal drug exposure and maternal education were not significantly associated with outcomes in either model, to preserve power, we removed the first step from the final models presented. Results were similar with and without the covariates entered at step 1.

²We conducted the same analysis without missing data imputation. The results attained from the list-wise deletion method were very similar with those of MICE method.

violence, 33% indicated being victims of physical and 41% of sexual violence in their dating relationships, while 83% reported some perpetration of verbal violence, 31% of physical and 35% of sexual violence. Multicollinearity issues among variables was not detected. There was not a significant difference in age, gender, ethnicity, drug exposure, mothers' education or child maltreatment history between participants who completed questionnaire of dating violence involvement at time 2 and those did not ($n = 49$).

Prenatal drug exposure, gender, race/ethnicity, maternal education, attachment and dating violence

Descriptive statistics for study variables are presented in Table 1. Adolescents reported their attachment styles in four categories: 42 (43.3%) had avoidant/dismissing attachment style, 22 (22.7%) had anxious/fearful type, and only 7 (7.2%) held preoccupied type; 26 (26.8%) reported a secure attachment type (table 1). There was no significant relationship between gender and attachment style ($\chi^2: 3.047, df=3, p=0.385$). Bivariate analyses were conducted to examine the association among variables.

There was no significant association between prenatal drug exposure and attachment style ($\chi^2: 5.277, df= 6, p=0.509$) nor maternal education and attachment style ($\chi^2: 2.550, df= 3, p= 0.466$). Further, gender, age, race, maternal education and prenatal drug exposure were not significantly associated with childhood history of maltreatment, perpetration nor victimization of dating violence (for perpetration: $r = -0.167\sim 0.092, t = -1.552$ (gender), $F = 243.272(99)$ (race), $p > 0.05$; for victimization: $r = -0.160\sim 0.091, t = .634$ (gender), $F=313.564(97)$ (race), $p > 0.05$). Since gender, age, race/ethnicity, maternal education and prenatal drug exposure were not significantly associated with our outcome variables and were not significant predictors in step 1 of our planned regression models, to preserve power, they were excluded from presented hierarchical regression models. In addition, we excluded preoccupied attachment style due to very small number of adolescents ($n = 7$) with this attachment type. Only avoidant/dismissing, anxious/fearful, and secure attachment styles were included in the subsequent analysis.

Attachment and Child Maltreatment Models Hierarchical Regression Models

Prior to conducting our hierarchical multiple regression, an appropriate sample size was calculated based on anticipated effect size, conventionally desired statistical power level, and probability level (Soper, 2017). With the average social psychological effect size of .21 (Richard, Bond, & Stokes-Zoota, 2003) and the five predictors to be included in the models, the final sample size of the hierarchical regression models was adequate. In addition, the correlations among each predictor and the level of dating violence were examined. This examination did not reveal a strong association (above .6) between the predictors and the perpetration of dating violence or between the predictors and victimization by dating violence.

Perpetration of dating violence.—A two-stage hierarchical multiple regression model was constructed with perpetration of dating violence as the dependent variable (Table 2, Model 1, Figure 1). Childhood maltreatment experience, an avoidant/dismissing attachment style, and an anxious/fearful attachment style were entered at the first stage. These three

variables accounted for 10.5% of the variance in dating violence perpetration. Variables included successfully predicted reports of perpetration of dating violence 18 months from report of childhood maltreatment ($F(3,115.7) = 2.93, p < .05$). A higher level of childhood maltreatment experience significantly predicted an increased level of dating violence perpetration 18 months later ($\beta = .275, p < .01$).

At the second stage, two interactions between avoidant/dismissing attachment and standardized total childhood maltreatment experience and between anxious/fearful attachment and childhood maltreatment experience accounted for a significant amount of additional variance in the perpetration of dating violence ($R^2 = .123, F(2,97.3) = 5.35, p < .01$). In this model, standardized total childhood maltreatment was no longer significantly correlated with the perpetration of dating violence. It indicated that childhood maltreatment experience did not predict the level of dating violence perpetration for adolescents with secure attachment type (reference category). However, the two interaction terms were not statistically significant ($p > .05$), showing no moderation effect of avoidant/dismissing or anxious/fearful attachment style on the association between childhood maltreatment and dating violence perpetration.

Predictors of victimization by dating violence.—Similarly, a two-stage hierarchical multiple regression model was calculated with dating violence victimization as the dependent variable (Table 3, model 2, Figure 2). Childhood maltreatment experience and an avoidant/dismissing and an anxious/fearful attachment style accounted for 21.0% of variation in dating violence victimization at the first stage. Variables in the model significantly predicted victimization by dating violence ($F(3,116.9) = 7.31, p < .001$). Higher levels of childhood maltreatment history significantly predicted an increased level of dating violence victimization 18 months later ($\beta = .427, p < .001$).

The addition of two interactions between avoidant/dismissing attachment and standardized total childhood maltreatment experience and between anxious/fearful attachment and maltreatment accounted for a significant amount of additional variance in victimization by dating violence ($R^2 = .079, F(2,103.6) = 4.07, p < .05$). Similar to the model of perpetration, standardized total childhood maltreatment was no longer significantly correlated with the victimization of dating violence, indicating that participants' levels of childhood maltreatment experience did not predict their level of victimization by dating violence 18 months later for adolescents with secure attachment style (reference category). Additionally, the interaction between avoidant attachment and standardized total child maltreatment experience was significant ($\beta = .338, p < .05$), suggesting that the effect of childhood maltreatment experience on dating violence victimization for avoidant/fearful attached adolescents was different from the corresponding effect for securely attached adolescents (Figure 2). For participants who reported an avoidant/dismissing attachment style, an increase in the level of childhood maltreatment experience predicted higher increases in victimization by dating violence, compared to those who reported a secure attachment style.

Discussion

Consistent with prior findings, exposure to childhood maltreatment was a significant predictor of perpetration and victimization of dating violence 18 months after reports of childhood maltreatment, showing consistent results with prior studies (e.g., Wekerle et al., 2009; Wekerle & Wolfe, 1998; Whitfield, Anda, Dube, & Felitti, 2003). This association could be explained by prior research indicating that adolescents with maltreatment backgrounds report more hostility, lower problem-solving self-efficacy, and more aggression with peers and dating partners than do non-maltreated adolescents (Wolfe et al., 2001b; Gil-Gonzalez et al., 2007). However, it is also clear that not all adolescents and adults who experience childhood maltreatment become perpetrators or victims of relationship violence. Other studies have indicated that other factors play a significant role in this association (e.g. exposure to other traumas, substance use, socioeconomic hardships) (Jennings et al. 2014; Tomsich et al., 2015). Our findings supported the potential importance of a secure attachment in preventing dating violence. For those with secure attachment, a history childhood maltreatment was not significant in the model. There was a significant moderating role of an avoidant/dismissing attachment in this pathway from the exposure to childhood maltreatment to the involvement in dating violence victimization. This is consistent with prior findings (e.g., Grych & Kinsfogel, 2010) documenting that attachment insecurity moderated the association between exposure to childhood maltreatment and later dating violence reports.

Interestingly, unlike Grych and Kinsfogel (2010), we did not find the moderation effect of insecure attachment styles on the relationship between childhood maltreatment experience and dating violence perpetration. In addition, we did not find anxious attachment to have either a direct association or a moderation effect on victimization by dating violence. Instead these findings were specific to avoidant attachment only. There may be several reasons for these differences in findings. First, there are differences in samples. Unlike Grych and Kinsfogel (2010), the current sample was a lower SES and higher distress sample with most adolescents born with prenatal drug exposure to single mothers who were in their late adolescence at the time of attachment assessment. The homogeneity of our sample allows for examination of factors specific to this population given the lack of range of maternal education/SES for example that accounted for differences in dating violence in other studies (Jennings et al., 2013). The method of assessment of attachment was also different. Our study required participants to select an attachment style that best captured their behavior in romantic relationships during their late teens, whereas Grych and Kinsfogel (2010) used a multiple item measure that assessed anxious and avoidant attachments only. Our anxious (fearful) attachment category was defined as high anxiety and high avoidance. We were not able to examine how high anxiety and low avoidance (preoccupied type) may moderate these relationships. It may be that the combination of anxiety with lack of avoidance is important to the moderation found in the prior study. Previous studies have found differences in relationship violence and the patterns of this violence based on type of insecure attachment (Babcock, Jacobson, Gottman et al., 2000). Further examination of maltreatment types (e.g. physical, sexual, neglect) and different insecure attachment styles (fearful, dismissing, preoccupied) would be particularly important in future studies.

It is also possible that our results were impacted by the age of the participants. Prior studies examining attachment and dating violence have included younger adolescents, while this study assessed relationship attachment and dating violence in late adolescence (ages 17–19). Some studies have found increased dating violence in older adolescents and young adults compared to both earlier adolescence (Hokoda, Del Campo, & Ulloa, 2012; Taylor & Mumford, 2016) and older adults (Birditt & Fingerma, 2003) and that males and female adolescents in this age range are equally likely to be involved in violence in their relationships (Capaldi, Noble, Shortt, & Kim, 2012). The association of avoidant attachment to dating violence victimization has also been shown to be associated with conflict resolution styles. Individuals with avoidant attachment styles are more likely to withdraw or use conflict to try to withdraw from their partners, at the same time they may attribute more conflict engagement to their partner. This dyadic communication pattern may be related to higher vulnerability to victimization among teen partners, especially those with avoidant attachment (Bonach, et al., 2017).

The moderation of attachment style is important to prevention and intervention efforts targeting dating violence. Assessing adolescents who are at risk for dating violence due to early exposure to childhood maltreatment for insecure attachment difficulties, particularly avoidant attachment patterns, may allow for identification of adolescents at highest risk for dating violence. Integration of attachment assessment into clinical assessments for adolescents would help identify those at risk and allow for initiation of interventions. Further, these findings support clinical interventions that foster attachment relationships to combat the impact of early childhood abuse and exposure to domestic violence (Lieberman, Ghosh Ippen, & Van Horn, 2006; Toth, Maughan, Manly, Spagnola, & Cicchetti, 2002). The findings also suggest possible reasons why many dating violence prevention programs that are didactic in nature with video and role play sessions delivered in group settings have had mixed results (Jennings et al., 2017). Classroom delivery of curricula based on reducing primarily female victimization without significant focus on the risk factors or deficits, dyadic dynamics, and developmental context that may result in dating violence may be hindering the impact of such programs (Capaldi et al., 2012; Jennings et al., 2017).

These data support the need for consideration of intertwined relationships among childhood maltreatment history, attachment styles, and involvement in dating violence to improve effectiveness of school-based service programs for dating violence prevention. Foshee and colleagues (2005) found a significant impact of their school-based dating violence prevention program, *Safe Dates*, across 5 years of follow-up. Importantly, for severe violence perpetration, the program effectiveness was moderated by whether an adolescent had engaged in severe dating violence prior to program participation. In other words, if an adolescent was already engaging in severe dating violence, they were likely to continue this behavior following the program. In addition, later study indicated that the effect of dating abuse prevention programs was moderated by the amount of children's exposure to domestic violence (between their mother and her partner; Foshee et al., 2015). Therefore, those adolescents who have different characteristics (e.g. experience of prior involvement in dating violence, exposure to childhood maltreatment or witnessing violence) may require a different approach. Moreover, further examination and consideration of attachment styles in romantic relationships for adolescents may provide a better understanding of the outcomes

of this intervention. For example, the educational and communication skill-building approach in intervention programs may work well for adolescents who simply do not know how to communicate well or understand what a healthy relationship looks like, but not for those with insecure attachment styles. Those adolescents may benefit from intervention that helps them understand their attachment patterns, ways those patterns may be hindering their relationships, and development of new skills for healthy communication and tolerating closeness or separation in relationships. For those who have significant trauma related symptoms, a trauma focused intervention may be most appropriate. Thus, intervention programs or treatment targeting specific risk factors based on empirical studies will help the field best serve adolescents who have unhealthy romantic relationships. This type of early targeting of those at greatest risk with differential intervention approaches may have the greatest impact on the trajectory of adolescent dating violence and later IPV.

Our findings also revealed no association between prenatal drug exposure on either perpetration or victimization of adolescent dating violence. This is consistent with several prior studies that have reported lack of association of prenatal drug exposure with later childhood and adolescent maladaptive behaviors (e.g., Lagasse et al., 2006). It may be that other factors associated with prenatal drug exposure, such as more negative parenting environments with lack of appropriate, nurturing, non-violent care (Hans, 2002) are more important to dating violence outcomes than prenatal drug exposure itself. Our sample also included a larger number of adolescents prenatally exposed to drugs, especially cocaine, but excluded opiates. Future studies that include a range of prenatal exposure will provide greater clarity on whether prenatal drug exposure is associated with adolescent dating violence.

Although other studies reported a gender difference in attachment styles (Grych & Kinsfogel, 2010), we did not find differences in gender and attachment style in our sample. Other studies have also found interactive effects among gender, attachment types, maltreatment history, and involvement in dating relationships (Wekerle & Wolfe, 1998), we did not find gender differences in our sample. It did not have a significant bivariate association with dating violence, showing consistent results with some prior studies (Marshall & Rose, 1990; Taylor & Mumford, 2016) and a growing indication that gender differences are not as strong in adolescent populations (Capaldi et al., 2012). Further studies that examine gender difference in the moderating role of attachment insecurity in the association between childhood maltreatment and dating violence involvement are recommended to provide greater direction in intervention and prevention efforts.

Limitations and future directions

This study was among the first to examine adolescent reports of their childhood maltreatment histories and the association with later-self reports of romantic attachment style and dating violence 18 months later among a community (non-college drawn) sample of adolescents that included many participants prenatally exposed to cocaine. However, the study has some important limitations that must be considered when interpreting the findings. The study utilized a somewhat small and relatively homogenous sample of adolescents: majority were African American, prenatally exposed to cocaine, within limited age range,

and mothers with a high school education. Therefore, these results cannot be generalized to a larger, more heterogeneous population of adolescents.

Although prior studies have reported variation in the effect of childhood maltreatment on dating violence by types of maltreatment (e.g., Briere & Runtz, 1990), this study did not differentiate the types of maltreatment that adolescents experienced in childhood, due to small sample size. In addition, this study used the CADRI to assess aggression in dating relationships which includes physical abuse, threatening behavior, verbal/emotional abuse, sexual abuse, and relational aggression. Future studies with different operationalizations of aggressive behaviors, such as sexual or physical injuries, or fear would be beneficial to identify gender patterns in adolescent dating violence (Hamby & Turner, 2013). Studies that examine age differences between partners could also inform potential power differential and how age differences between partners may be associated with victimization or perpetration of dating violence. The current study used a level of maternal education as a proxy indicator of SES. Although it is commonly used as an indicator in previous studies (See Bradley and Corwyn, 2002 for review), future research could benefit from the inclusion of other objective measures such as income level or employment status.

Assessment of attachment style was also limited to requiring adolescents to select one style that best described their approach to romantic relationships. It may be that a more nuanced assessment of attachment compiled from a set of items or coding attachment interviews would lead to different findings. Given the importance of teens relationships to their primary caregivers, future studies might also assess attachment to primary caregivers to provide information about whether the nature of attachment to the primary caregiver plays a role both in how teens characterize their intimate or dating relationship attachments and the association with dating violence.

The current study relied on retrospective self-reports of childhood maltreatment, self-reported attachment style, and self-reported dating violence, without any other data sources. Research by Jouriles, McDonald, Garrido, Rosenfield, and Brown (2005), for example, indicated that one-time retrospective reports of aggression in adolescent romantic relationships under-reported the prevalence of physical aggression and threatening behavior compared to cumulative reports. Future studies would be enhanced by a larger, more diverse sample, use of more inclusive criteria for both maltreatment history and dating violence, assessment of other contextual variables such as temperament, impulsivity and exposure to other types of adversity and trauma (e.g. community or school violence) and use of multiple sources from diverse informants.

Conclusions

Adolescents' reports of exposure to abuse and neglect were significantly associated with their reports of perpetration and victimization of adolescent dating violence 18 months later, and adolescents who had a history of childhood maltreatment who identified with an avoidant/dismissing romantic attachment style were significantly more likely to report victimization by violence in their dating relationships. Prevention of adolescent dating violence may be helped by early identification and intervention with adolescents exposed to childhood abuse who show signs and symptoms of avoidant/dismissing attachment.

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Highlights

- Childhood maltreatment assessed in mid-adolescence predicted dating violence victimization and perpetration 18 months later.
- The link between childhood maltreatment and dating violence victimization was moderated by avoidant attachment style.
- Those with high childhood maltreatment histories and avoidant attachment reported the most dating violence victimization.
- Prenatal Exposure to cocaine was not associated with dating violence victimization or perpetration.

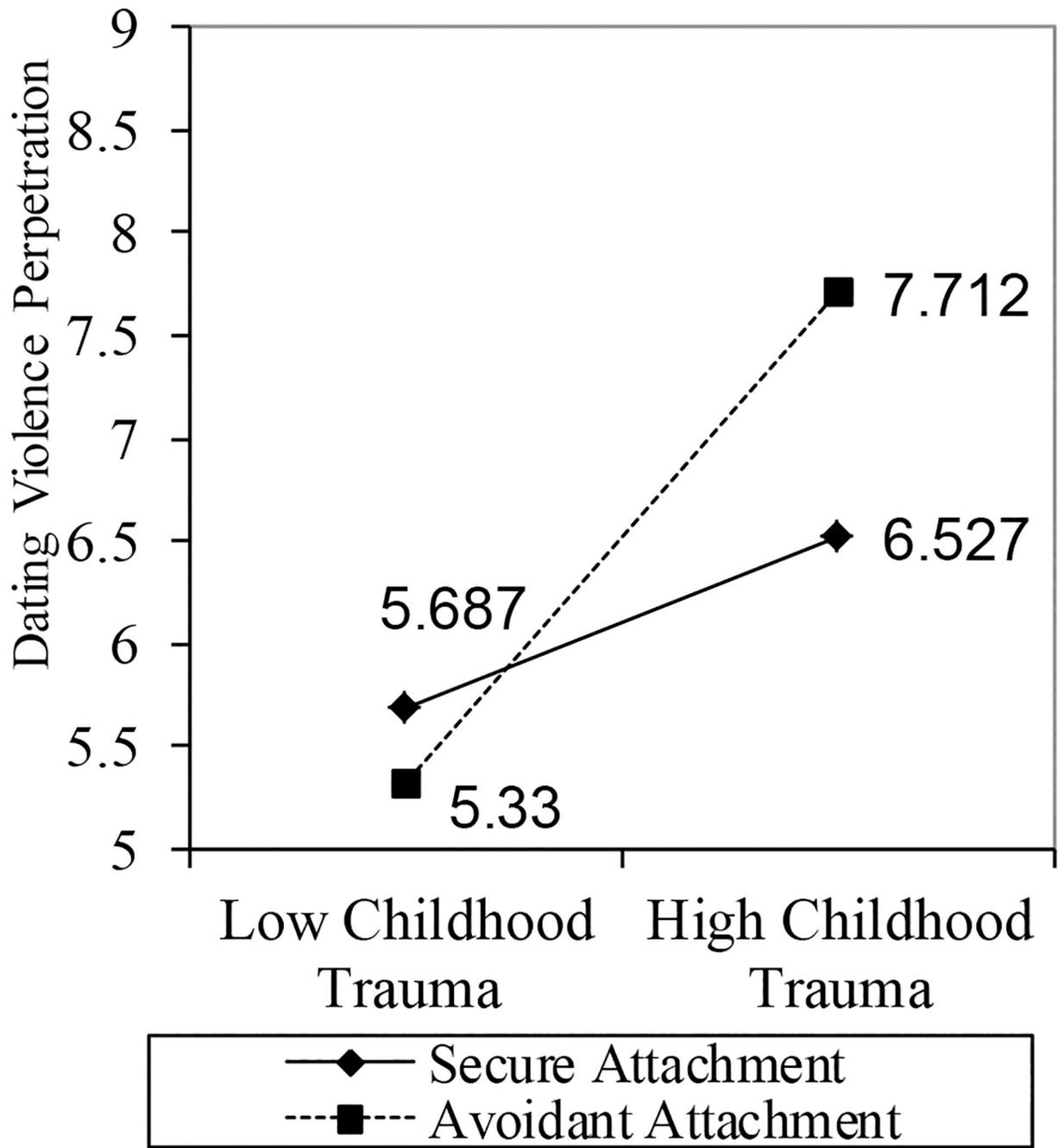


Figure 1. Moderating effect of avoidant attachment (CTQ and DV Perpetration)* interaction is not significant

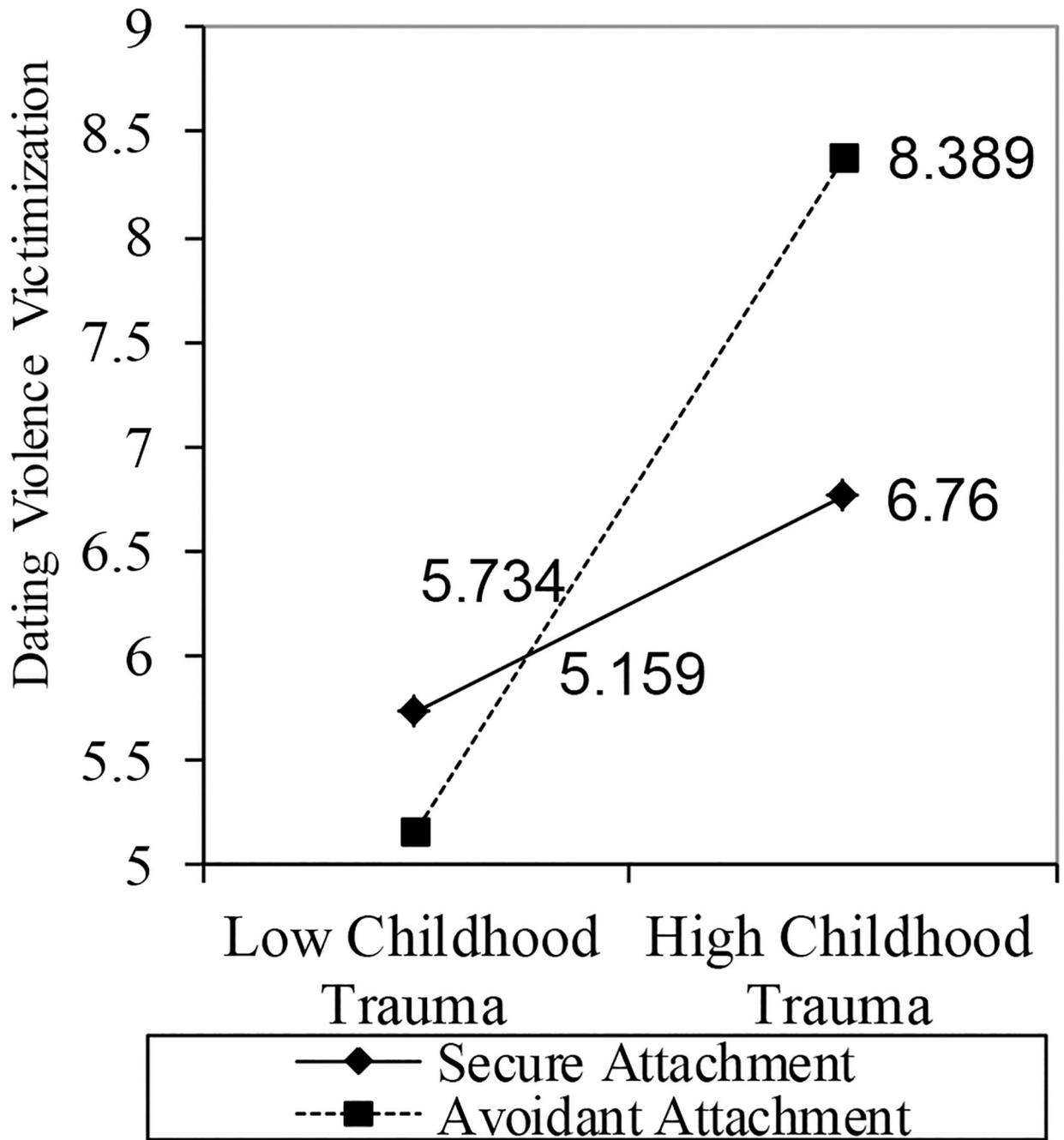


Figure 2.
Moderating effect of avoidant attachment(CTQ and DV Victimization)

Table 1.

Descriptive Statistics for Study Variables (N=150*)

Variables		<i>N</i>	<i>%</i>
Gender	Female	73	48.7
	Male	77	51.3
Race	White	10	6.7
	Black	127	84.7
	Hispanic	5	3.3
	Biracial	3	2.0
	Other	5	3.3
Drug exposure	No	38	25.3
	Yes – drug	23	15.3
	Yes – drug and cocaine	89	59.3
Mother's education	>high school	103	68.7
	<high school	47	31.3
Attachment type	Secure	26	26.8
	Anxious / Fearful	22	22.7
	Preoccupied	7	7.2
	Avoidant / dismissing	42	43.3

Variables	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Age Time 2	101	18.37	.86	17	20
Age Time 1	150	16.67	.93	15	19
Time interval between DV and CTQ (months)	102	17.44	1.51	13	23
Total Dating Violence Perpetration	100	6.45	1.57	5	11.70
Total Dating Violence Victimization	98	6.59	1.80	5	13.77
Verbal Violence Victimization	100	1.81	.65	1	3.30
Verbal Violence Perpetration	100	1.76	.61	1	3.40
Physical Violence Victimization	101	1.26	.53	1	3.50
Physical Violence Perpetration	101	1.27	.56	1	3.75
Sexual Violence Victimization	102	1.23	.35	1	2.75
Sexual Violence Perpetration	102	1.19	.33	1	3.00
Total Child Trauma Questionnaire	140	36.15	9.56	25	78.00

Note: DV = Dating Violence; CTQ = Childhood Trauma Questionnaire

* The numbers of samples are different depending on variables.

Table 2.

Hierarchical Regression Analysis for Variables Predicting Dating Violence Perpetration in Dating Relationships (n=143¹)

Model 1. Dating Violence Perpetration							
Variable	Step1 ²			Step2 ³			β
	B	SE	β	B	SE	β	
(constant)	6.155	***	.314	6.107	***	.308	
Child maltreatment	.568	**	.207	.275	.420	.421	.204
<i>Avoidant</i> Attachment	.384		.398	.123	.414	.377	.133
<i>Anxious</i> Attachment	.312		.436	.087	.325	.429	.091
Child maltreatment * <i>Avoidant</i>				.771	.520	.269	
Child maltreatment * <i>Anxious</i>				-.693	.543	-.202	
R ² Change			.105			.123	
Sig. F Change			.037			.006	

Note:

¹ 7 cases with preoccupied attachment type were removed from the final model.

² F(3,115.7) = 2.93, p<.05;

³ F(5,119.0) = 4.24, p<.05.

*** p<.001,

** p<.01, and

* p<.05.

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Table 3.

Hierarchical Regression Analysis for Variables Predicting Dating Violence Victimization in Dating Relationships (n=143)

Model 2. Dating Violence Victimization						
Variable	Step1 ¹			Step2 ²		
	B	SE	β	B	SE	B
(constant)	6.373	***	.3362	6.247	***	.326
Child maltreatment	1.001	***	.2148	.427	.513	.415
<i>Avoidant</i> Attachment	.410		.4242	.116	.527	.397
<i>Anxious</i> Attachment	.154		.4648	.038	.251	.454
Child maltreatment * <i>Avoidant</i>				1.102	*	.518
Child maltreatment * <i>Anxious</i>				-.116		.568
R ² Change			.201			.079
Sig. F Change			.000			.020

Note:

¹F(3,116.9) = 7.31, p <.001;

²F(5,121.5) = 6.47, p <.000.

*** p <.001,

** p <.01, and

* p <.05

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