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EMPIRICAL RESEARCH

Friendship Attachment Style Moderates the Effect of Adolescent Exposure to Violence on Emerging Adult Depression and Anxiety Trajectories

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Abstract Exposure to violence during adolescence is associated with increased risk behaviors and mental health problems in adulthood. Friendship attachment during adolescence may, however, mitigate the negative effects of exposure to violence on trajectories of depression and anxiety in young adulthood. In this study, we used growth curve modeling to examine associations between exposure to violence and mental health outcomes, followed by multigroup analyses with friendship attachment as the moderator. The sample was drawn from a longitudinal study (12 waves; 1994–2012) of 676 (54% female) urban high school students. We found strong positive associations between exposure to violence during adolescence and later self-reported depressive and anxiety symptoms. Notably, securely attached adolescents reported faster decreases in mental health symptoms as a function of violence relative to their insecurely attached peers as they transitioned into adulthood.

Keywords Exposure to violence · Friendship attachment · Depression · Growth model · Adolescence

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Introduction

Adolescents in the United States are at an increased risk of being exposed to violence, either as a witness or a victim, in their homes, schools, or communities (Buka et al. 2001; Finkelhor et al. 2015). Exposure to violence in adolescence may have implications for trajectories of anxiety and depressive symptoms in adulthood. On average, symptoms of depression and anxiety begin to peak during early adolescence, and experience a decline later in adolescence and early emerging adulthood (Adkins et al. 2009; Eisman et al. 2015). However, researchers have shown that youth exposed to violence have an increased risk for negative mental and physical health outcomes in adulthood (Boynton-Jarrett et al. 2008; Mrug and Windle 2010; Russell et al. 2016; Schilling et al. 2007). Violence exposure may impact an adolescent's ability to effectively cope with stressors, in turn affecting symptoms of anxiety and depression in adulthood (Sullivan et al. 2007; Wright et al. 2013). Indeed, Wright et al. (2013) found that exposure to violence is associated with the adoption of a host of negative coping strategies, such as drug use and antisocial behavior, in adulthood. Thus, it is important to look at how exposure to violence during adolescence may impact trajectories of anxiety and depressive symptoms in adulthood, as well as consider any mitigating influences that can protect against the harmful influence of exposure.

Youth Exposure to Violence

Violence is the second leading cause of death for adolescents and young adults aged 15 to 24 (CDC 2013). Adolescents under the age of 25 are also most at-risk for witnessing or perpetrating violence (Finkelhor et al. 2015; Snyder and Sickmund 2006). A national survey found that

40% of youths aged 17 or younger have been exposed to at least one form of violence in their lifetime (e.g., physical assault or abuse; Finkelhor et al. 2015). However, disproportionately high rates of violence exposure exist for adolescent males, ethnic minorities, and urban residents relative to their female, white, and rural counterparts (Buka et al. 2001; Crouch et al. 2000; Mrug et al. 2016; Stein et al. 2003; Voisin 2007). Moreover, adolescents who are exposed to violence in one setting are also more likely to experience multiple sources of violence (e.g., community and family violence), as well as co-occurring violent events (e.g., simultaneously witnessing violence and being victimized; Finkelhor et al. 2015; O'Donnell et al. 2002; Saunders 2003). Fitzpatrick et al. (2005) and Kitzmann et al. (2003) each found that as compared to a single exposure, multiple exposures and sources of violence could have additive effects that lead to poorer mental health outcomes, including anxiety and depression. Because youth in urban contexts are more likely exposed to repeated events from multiple sources of violence compared to their rural counterparts (Buka et al. 2001), research addressing exposure to violence in an urban context needs to consider both repeated exposures to violence as well as multiple sources of exposure (Turner et al. 2010). Further, much of the current literature is drawn from cross-sectional data or from retrospective accounts of violent experiences; thus, long-term associations between cumulative exposure to violence and anxiety and depression in at-risk populations are not yet fully understood.

Exposure to Violence and Trajectories of Depression and Anxiety

A robust literature documents a variety of negative outcomes associated with youth exposure to violence, including posttraumatic stress disorder (Jaycox et al. 2002; Stevens et al. 2013), aggression (Ozer 2005; Sullivan et al. 2006), negative school outcomes (Ozer 2005), substance use (Sullivan et al. 2006) and antisocial behaviors (Sousa et al. 2011). Adolescence is a time in which individuals become more cognitively and emotionally independent from their parents and caregivers (Steinberg 2005) as well as having drastic transformations occur in brain structure and functioning, specifically in regions involving psychosocial functioning (Konrad et al. 2013). Thus, adolescence may a developmental period in which individuals are particularly vulnerable to negative effects of external stressors (Steinberg 2005; Petchel and Pizzagalli 2011). Indeed, several studies have shown that exposure to stress and violence in adolescence (e.g., poverty, physical assault) leads to an increased risk of psychological distress later in life (Evans and English 2002; Lupien et al. 2009). This risk is even greater among adolescents who experience multiple forms of stress, such as growing up in poverty and frequent exposure to violence (Evans and English 2002).

Internalizing outcomes in adolescence and emerging adulthood may be particularly noteworthy to study given the lasting effects of depression and anxiety as adolescents transition into adulthood (Meadows et al. 2006). Researchers have documented the negative association between exposure to violence and anxiety and depression (Brown et al. 1999; Edleson 1999; Foster et al. 2008; Holt and Espelage 2005). For instance, Foster et al. (2008) found that exposure to violence in childhood was associated with depressive symptoms in emerging adulthood. Previous exposure to assault and violent behavior by parents has also been linked to depression in young adulthood (Brown et al. 2007). Researchers have similarly documented that elementary and middle school students, as well as high school adolescents, who witnessed exposure to violence at school were more likely to exhibit psychological trauma symptoms, including post-traumatic stress, anxiety and depression (Flannery et al. 2004). Further, African–American adolescents between the ages 13 and 22 residing in low-income neighborhoods in Chicago who were exposed to higher rates of community violence were at an increased risk of poor mental health outcomes (Voisin et al. 2016). Additionally, female adolescents who witnessed parental violence or who were exposed to community violence were more likely to report the use of mental health services in adulthood (Franzese et al. 2014). Findings from these studies support a positive distal association between earlier exposure to violence and later depressive and anxiety outcomes. However, the majority of the literature does not account for variability in changes or trajectories of depression over time due to their retrospective or cross-sectional designs.

Friendship Attachment

According to attachment theory, infants and children form early socioemotional bonds with caregivers that inform later behavior, emotion, and cognition (Ainsworth 1989; Bowlby 1980; Mikulincer and Shaver 2007). Infants form either a secure or insecure attachment bond with their caregivers, depending on the level of security and warmth received in their recurrent interactions with caregivers (Ainsworth 1989). Secure attachment is characterized by the ability to form trusting and healthy relationships, while insecure attachment is generally characterized by difficulty forming and maintaining such relationships and falls under the dimensions of 'avoidant' and 'anxious' (Mikulincer and Shaver 2007). These attachment bonds create future working models of relationships that impact expectations of relationships with parents (Ainsworth 1989) and peers (Furman et al. 2002). Those who are more 'avoidant' are generally uncomfortable with interdependence and tend to be withdrawn, while those who are

more 'anxious' tend to engage in emotional dependence behaviors and maintain a fear of rejection (Ainsworth 1989; Mikulincer and Shaver 2007).

As individuals transition into adolescence, these early bonds also likely impact how one attaches to peers (Mikulincer and Shaver 2007). A meta-analysis conducted by Gorrese and Ruggieri (2012) found a significant correlation between caregiver attachment and peer attachment in adolescence. Moreover, Furman et al. (2002) found among their sample of youths aged 16–19, attachment to parental figures and peers were relatively similar. For instance, youths who reported a secure attachment to parents were also likely to report secure attachment to peers and vice versa (Furman et al. 2002). Friendship attachment during adolescence is also posited to be important for psychosocial development across the life-course (Ainsworth 1989; Bowlby 1980; Welch and Houser 2010). Individuals generally begin to rely more on peer networks than parents or caregivers for socioemotional support throughout adolescence (Raja et al. 1992). For instance, researchers have found that internal working models of friendship, or peer attachment, during adolescence are associated with mental health development and functioning in adulthood (Furman et al. 2002; Mothander and Wang 2014). This may be because those who form secure attachment to peers are more likely to develop and utilize adaptive coping strategies (e.g., peer support) to deal with stressors, and thus be less likely to show signs of psychological distress in response to stressors (Ognibene and Collins 1998; Wright et al. 2013).

Peer attachment security is also associated with the ability to form close relationships with peers while also maintaining autonomy to explore the world (Allen et al. 2007), and with the development of adaptive emotional regulation skills to handle conflict and other stressful situations (Allen et al. 2007). For instance, Muris et al. (2001) found that adolescent boys and girls who reported having a secure friendship attachment orientation were more likely to trust their peers and not feel alienated as compared to adolescents who reported having an avoidant or anxious attachment orientation. Moreover, several studies have found that adolescents who have secure attachment to peers are less likely to report negative mental health outcomes in adulthood (Cook et al. 2016; Meadows et al. 2006). Conversely, attachment insecurity during adolescence is associated with an increase in externalizing behaviors, and poorer psychosocial health among adolescents, including depressive symptoms (Miller et al. 2002; Pascuzzo et al. 2013; Cook et al. 2016).

Friendship Attachment and Exposure to Violence

It is likely that attachment to peers in adolescence plays a role in the development of trust, coping strategies, and social skills that, in turn, foster later emotional development. However, there is no existing research, to our knowledge, that shows to link between friendship attachment and exposure to violence. Social support is often seen as a mediator of the association between attachment and psychosocial health and there is some research in this area that could help inform understanding of the association between friendship attachment and exposure to violence. For example, several researchers have found a beneficial impact of peer social support on depressive and anxiety symptoms later in adulthood (Brown et al. 2007; Raja et al. 1992). Moreover, researchers have found that social support moderates the association between exposure to violence in adolescence and depressive and anxiety symptoms. Holt and Espelage (2005) found that 7^{th} to 12^{th} graders exposed to dating violence were significantly more likely to report anxiety and depressive symptoms as compared to those not exposed to dating violence; however, symptoms among those exposed to dating violence were significantly less likely if youth reported social support (Holt and Espelage 2005). Additionally, a study on adolescents between the ages of 12 and 17 found that those who were a victim to multiple forms of violence were more likely to report internalizing symptoms, and that social support moderated this association (Guerra et al. 2016). Currently, there is limited longitudinal research that looks at trajectories of depression and anxiety from adolescence into adulthood as a function of violence, and how friendship attachment may moderate these trajectories over time.

Attachment and Poor Mental Health

An increased vulnerability for negative mental health outcomes in adulthood is associated with poor attachment relationships early in life (Sroufe 2005). Although there is limited empirical literature surrounding friendship attachment and later mental health outcomes, it is likely that vulnerability to depression occurs over several developmental stages, and may be associated with a person's ability to effectively cope with stressful situations. Indeed, adolescence is a period in which young people typically report elevated levels of both depression and anxiety relative to younger children and adults (Meadows et al. 2006). Morley and Moran (2011) provide a theoretical and empirical link between attachment style established early in life, and the presence of depressive symptoms in adulthood. The authors posit that the vulnerability for poor mental health outcomes among individuals with a more insecure attachment style is related to the breakdown of their attachment functioning, their tendency to distance themselves from others, and also their tendency to ineffectively deal with stressful situations (Morley and Moran 2011). The authors also posit that

insecure attachment established during infancy and early adulthood is associated with the development of negative cognitive representations of the self during late adolescence. In turn, these negative cognitive representations extend into adulthood, and are associated with depression vulnerability throughout adolescence and into adulthood.

Attachment and Anxiety

Like depression, researchers also posit an increased risk for anxiety-related symptoms and disorders among individuals who develop insecure attachment orientations early in life (Mikulincer and Shaver 2007). Bowlby (1980) reasoned that secure attachment failure early in development can lead individuals to be mistrustful of the world, and therefore less able to effectively negotiate stressful situations. This, in turn, can increase the risk for anxiety-related symptoms and disorders throughout adolescence and adulthood (Mikulincer and Shaver 2007). Supporting this mechanism, Muris and colleagues (Muris et al. 2001) found that insecure adolescents tend to report higher amounts of anxiety and other internalizing symptoms as compared to adolescents who classify as having a secure attachment style to their parents and peers. Moreover, several researchers have found that individuals with an anxious attachment style during infancy were more likely to experience anxiety-related symptoms and disorders later in life (Warren et al. 1997; Lee and Hankin 2009).

Exposure to Violence and Resilience

Although exposure to violence in adolescence may increase one's risk for symptoms of depression and anxiety in adulthood, not every individual exposed will experience these outcomes. Nevertheless, attachment theory focuses on one's vulnerability rather than factors that may allow an individual to be resilient in the face of stress exposure. According to Fergus and Zimmerman's (2005) theory of adolescent resilience, some adolescents may possess individual qualities and/or resources that allow them to mitigate harmful effects of stress. These come in the form of individual qualities (e.g., self-efficacy) and external resources (e.g., social support; Fergus and Zimmerman 2005) that serve to lessen the potentially negative effects of stress exposure, including depression and anxiety. The resources garnered from having a secure attachment style may increase resilience to violence exposure during adolescence. In other words, it may be that secure attachment to peers helps to protect against anxiety and depression in adulthood after exposure to violence. Indeed, researchers have found that adolescents who develop secure attachments to peers are less likely to experience mental health problems in adulthood (Cook et al. 2016). Further, a longitudinal study carried out by Cook et al. (2016) found that those who remained securely attached to their peers from ages 16 to 17 reported lower levels of depressive symptoms in adulthood on average, as compared to those who maintained an insecure attachment to peers. Thus, secure attachment may serve as a protective factor against increasing trajectories of anxiety and depression for adolescents exposed to violence.

The Current Study

In the current study, we examine the moderating effect of friendship attachment style on the association between exposure to violence during adolescence and subsequent mental health outcomes through adulthood. Despite a large body of literature documenting the negative ramifications of youth exposure to violence, very little is currently known about the key factors that may buffer the negative effects of exposure to violence during adolescence on trajectories of anxiety and depression throughout adulthood, outcomes associated with exposure that may be particularly detrimental, and any moderators of risk that can mitigate the negative effects of exposure to violence, particularly among minority youth residing in urban areas. Friendship attachment during adolescence may be one important factor in mitigating the negative effects of exposure to violence on trajectories of depression and anxiety. Thus, we sought to understand the moderating effect of friendship attachment style on the association between adolescent exposure to violence and young adult depressive and anxiety symptomology.

Given that exposure to violence has been associated with an increased likelihood for depression and anxiety (Evans and English 2002; Lupien et al. 2009), we hypothesized that increasing higher levels of exposure to violence through early and late adolescence would be associated with increasing trajectories of depression and anxiety during the transition to adulthood and through early adulthood. Moreover, because previous studies have shown that social support, a common correlate of attachment, is a moderator of the association between trajectories of exposure to violence and trajectories of anxiety and depression (Guerra et al. 2016; Holt and Espelage 2005), we also hypothesized that attachment avoidance and attachment anxiety during late adolescence would moderate this association in such a way that adolescents who were more anxious or avoidant in their attachment style would experience greater stress from experiencing violence as compared to adolescents who were more secure, and thus have faster increasing trajectories of depression and anxiety.

Method

Participants

The sample was drawn from a longitudinal study of urban high school students. Ninth grade students ($N = 850$; 50% Female; $M_{age} = 14.9$ years at baseline) were recruited from the four largest public high schools in Flint, Michigan. Because the original study focus was high school dropout and substance use, participants had to have a grade point average of 3.0 or below and not be diagnosed by the schools with a developmental or learning disability to be eligible to participate in the study. The sample was predominantly African–American (80.1%) with smaller proportions identifying as White (16.8%) and mixed African–American and White (3.1%). Participants were interviewed from 1994–1997 (study waves 1–4; average ages 14–17 years), 1999–2003 (waves 5–8; average ages 19–23 years) and from 2008–2012 (waves 9–12; average ages 29–32 years). Most participants came from working-class households, with slightly under 26% reporting their biological parents were married.

Missing data

Fifty participants (4.9%) who did not complete a depression or anxiety measure at any data collection point between Wave 5 and Wave 12 (on average, ages 19–32) were excluded from the final analytic sample. In addition, we excluded 124 participants (14.5%) for whom peer attachment data at Wave 4 (approximately age 17) were not available. The final analytic sample ($N = 676$) was 54% female and averaged 14.5 years ($SD = 0.62$) in Year 1. Individuals across the attachment change categories were equally likely to be present at the final data collection ($\chi^2(1) = 0.02$, $p = 0.89$) indicating that attrition was not associated with peer attachment.

Procedure

From years 1994–1997, structured, face-to-face 50–60 min interviews were conducted with students in private school settings. From years 2003–2008, interviews were conducted in a community setting or by telephone. Participants completed a paper-and-pencil questionnaire about alcohol and substance use, sexual behavior, and other sensitive information (e.g., ethnic identity and perceived discrimination) after the interview. Data pertaining to all constructs included in the current study were recorded by the trained interviewer. Respondents were informed that all information was confidential and subpoena protected. Interviewers were trained community members and college students, most of whom were native to the area. Analyses on a broad range of variables from the larger study showed no effects by interviewer race or gender (Zimmerman and Schmeelk-Cone 2003). At the request of the participating schools, we utilized passive consent for parents and written assent for participating students. The study had a low refusal rate ($n = 9$) and represented 92% of eligible youth enrolled in the public high schools. Additional study details are reported elsewhere (Zimmerman and Schmeelk-Cone 2003).

Measures

Depressive symptoms

We utilized a six-item subscale of the full Brief Symptom Inventory (BSI) to measure depressive symptoms (Derogatis and Melisaratos 1983). The six items referred to symptoms experienced in the past week (e.g., feeling no interest in things, feeling hopeless about the future) and were rated on a Likert scale ranging from 1 (*not at all uncomfortable*) to 5 (*extremely uncomfortable*). In a validation study of the BSI, Derogatis and Melisaratos (1983) found that the depression subscale had strong internal consistency, $\alpha = 0.85$, and good test-retest reliability, .84, indicating that the depression subscale is reliable. Others have found similar estimates in different populations (Khalil et al. 2011). Cronbach alphas for depression items in our sample ranged from .83 to .87 across waves 5–12.

Anxiety symptoms

Anxiety symptoms were also measured with a six-item subscale from the BSI (Derogatis and Melisaratos 1983). The six items referred to symptoms in the past week (e.g., nervousness or shakiness inside, spells of terror or panic) and were measured using the same five-point Likert scale as depressive symptoms. Cronbach alphas for these items ranged from .80 to .84 across waves 5–12.

Adolescent exposure to violence

Three scales assessed participants' observed or experienced violence in their home or community during adolescence (study waves 1–4; approximately ages 14–17): observed violence, victimization, and family conflict. To create a cumulative measure of exposure to violence, we summed all three subscales across each wave for each participant. All bivariate correlations between scales were significant at each wave ranging between 0.09 and 0.57. The highest correlations were observed between the constructs (e.g., observed violence) in adjacent waves.

Observed violence

Two items assessed exposure to violence through observations of violent behavior. Participants reported the number of times they had seen someone commit a violent crime where someone was hurt, and the number of times they had seen someone get shot, stabbed, or beaten up in the last 12 months (Richters and Saltzman 1990). The response options for the two items ranged from 1 = '0 times' to 5 = '4 or more times.'

Victimization

Three items represented exposure to violence through reported instances of being the victim of the violent behavior of others. Participants reported the number of times they had been threatened; physically assaulted; or had something taken from them by physical force in the 12 months prior to the questionnaire. The response options ranged from 1 = '0 times' to 5 = '4 or more times.'

Family physical violence

Five items assessed exposure to violence through reported levels of fighting and acting out in the individual's family (Moos and Moos 1981). Participants indicated how often: they fought in their family; family members got so angry they threw things; family members lose their tempers; family member criticize each other; and family members hit each other in anger ($\alpha = 0.77$–0.81). The response options included 1 = Hardly ever, 2 = Once in a while, 3 = Sometimes, 4 = Often. Because only two items among the scale may be thought to represent physical violence (i.e., members throw things and hit in anger), the analyses used a two-item 'family violence' scale.

Friendship attachment

Internal working models of friendship were assessed using a modified version of Hazan and Shaver's (1987) Adult Attachment Classifications. This forced-choice item parallels the attachment styles identified by Ainsworth et al. (2014) and has been used measure attachment to romantic partners in older participants (Hazan and Shaver 1987). This measure is related to individual adaptation and relationship functioning for participants of different ages and socioeconomic backgrounds (Stein et al. 1998). Participants were asked to choose which of the following three statements best described their feelings concerning a close friend and were reminded to read all three possibilities before choosing the one they agreed with most:

Secure

I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don't often worry about being abandoned by my friends or about someone getting too close to me.

Insecure-avoidant

I am somewhat uncomfortable being close to others. I find it difficult to trust them completely, difficult to allow myself to depend on them. I am nervous when anyone gets too close, and often close friends want me to share more than I feel comfortable sharing.

Insecure-resistant

I find others are reluctant to get as close to me as I would like. I often worry that my closest friends don't really care about me or won't want to stay my friends. I want to get very close with my friends and this desire sometimes scares them away.

We combined avoidant and resistant attachment styles into a single *insecure group* ($n = 431$) and youth who reported secure working models were included in the *secure group* ($n = 245$) based on past research and theoretical grounds (Miller et al. 2002; Cook et al. 2016).

Friendship support

We used five Likert scaled items to measure friend support at the baseline. Example items included: I rely on my friends for emotional support; my friends are good at helping me solve problems (Procidano and Heller 1983). Higher scores indicated more support ($\alpha = 0.82$).

Covariates

We controlled for sex and age in all analyses because researchers have reported that rates of depressive and anxiety symptoms are influenced by these factors across the life course (Meadows et al. 2006). In addition, we controlled for baseline levels of depression and anxiety.

Analytic Strategy

We fit a series of latent growth curve models and a pair of growth mixture models to examine the moderating effect of attachment style on the association between adolescent exposure to violence and depression trajectories in emerging and early adulthood. Model 1 reports unconditional depression outcomes from M_{age} 19–32, followed by Model 2 which incorporates a time predictor scaled such that the

intercept coincides with age 19. The models include random effects for the intercept (Models 1 and 2) and slope (Model 2 only) to examine variation in depression outcomes between individuals. Models 3 and 4 add covariates of depression trajectories, with Model 4 introducing the exposure to violence predictor.

Model 5 utilizes a mixture distribution to allow both securely and insecurely attached individuals at wave 4 to have distinct depression trajectories. Finally, Model 6 integrates the same covariates as Model 4 to examine the effect of adolescent predictors on adult depression trajectories.

In models 7–12 we ran a parallel series of models with anxiety trajectories as the outcome variable. The functional form and covariates in these models were identical to models 1–6.

Results

Descriptive Statistics

Tables 1 and 2 contain bivariate correlations between each wave of the depression and anxiety outcome variables, respectively, with covariates included in the models.

Depression

Unconditional models

Models 1 and 2 report significant between-person variability in both the initial levels ($M_{age} = 19$) levels of depression, as well as changes in depression over time, respectively. On average, self-reported depression levels decreased from M_{age} 19 to M_{age} 32 ($B_1 = -0.02$ (.00); Table 2).

Conditional models

Models 3 and 4 integrate fixed-effect predictors of both initial levels of depression and changes in depression level over time. As seen in Table 2, Model 3, only baseline ($M_{age} = 14$) levels of depression emerged as a significant predictor of either $M_{age} = 19$ depression levels or changes in depression over time. Higher baseline depression was positively associated with levels of depression at M_{age} 19, but with slightly lower levels of depression over time.

Exposure to violence also emerged as a significant predictor of both $M_{age} = 19$ and trajectories of depression levels (Table 2, Model 4). Similar to baseline depression, exposure to violence was associated with higher initial depression levels, but also to decreases in depression over time. Examination of the standardized coefficients revealed that, on average, exposure to violence had a similar

Table 1 Descriptive statistics and correlations—depression

	M(SD)	*N*=	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Depression (Wave 5)	1.76 (0.72)	569	1													
2. Depression (Wave 6)	1.67 (0.69)	631	0.58***	1												
3. Depression (Wave 7)	1.74 (0.71)	570	0.49***	0.59***	1											
4. Depression (Wave 8)	1.74 (0.74)	579	0.48***	0.578***	0.56***	1										
5. Depression (Wave 9)	1.66 (0.73)	342	0.48***	0.40***	0.48***	0.45***	1									
6. Depression (Wave 10)	1.66 (0.73)	398	0.37***	0.40***	0.36***	0.45***	0.67***	1								
7. Depression (Wave 11)	1.64 (0.76)	410	0.38***	0.32***	0.31***	0.40***	0.54***	0.56***	1							
8. Depression (Wave 12)	1.55 (0.68)	370	0.45***	0.41***	0.41***	0.45***	0.60***	0.61***	0.59***	1						
9. Wave 1 Age (years)	14.50 (0.62)	850	0.03	0.02	0.08	−0.05	−0.02	−0.02	−0.01	0.01	1					
10. Sex	–	850	−0.13**	−0.12**	−0.15**	−0.09*	−0.20***	−0.11*	−0.11*	−0.14**	0.11***	1				
11. Race	–	850	−0.05	−0.01	−0.02	−0.05	0.05	0.01	−0.01	−0.02	−0.03	0.01	1			
12. Anxiety (Wave 1)	1.60 (0.62	845	0.33***	0.22***	0.30***	0.24***	0.27***	0.23***	0.024***	0.22***	−0.16***	0.05	−0.03	1		
13. Depression (Wave1)	1.65 (0.69)	849	0.37***	0.31***	0.36***	0.24***	0.25***	0.25***	0.21***	0.19***	−0.21***	0.09*	0.01	0.72***	1	
14. Friend Support	3.14 (0.95)	846	0	0.01	0.04	0.06	0.06	0.02	0.07	0.03	−0.25***	−0.7*	−0.07	0.10**	0.05	1
15. Cumulative Exposure to Violence	1.57 (0.45)	850	0.21***	0.20***	0.26***	0.15***	0.13*	0.11*	0.10*	0.10	0.13***	0.19***	0.03	0.30***	0.32***	−0.10**

Pearson product moment correlations with the exception of sex and race, which are point-biserial

Males are coded as 1, females as the referent. African Americans are coded as 1, non-African Americans as the referent

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table 2 Descriptive statistics and correlations—anxiety

	M(SD)	*N*=	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Anxiety (Wave 5)	1.62 (0.65)	570	1													
2. Anxiety (Wave 6)	1.61 (0.66)	633	0.49***	1												
3. Anxiety (Wave 7)	1.70 (0.64)	574	0.49***	0.53***	1											
4. Anxiety (Wave 8)	1.62 (0.63)	575	0.41***	0.49***	0.50***	1										
5. Anxiety (Wave 9)	1.59 (0.72)	342	0.39***	0.33***	0.41***	0.43***	1									
6. Anxiety (Wave 10)	1.55 (0.66)	398	0.32***	0.37***	0.32***	0.44***	0.66***	1								
7. Anxiety (Wave 11)	1.61 (0.74)	410	0.28***	0.25***	0.31***	0.40***	0.57***	0.56***	1							
8. Anxiety Wave 12)	1.50 (0.65)	370	0.34***	0.36***	0.42***	0.37***	0.54***	0.56***	0.55***	1						
9. Sex	–	850	−0.10*	−0.08	−0.11**	−0.08	−0.16**	−0.16**	−0.05	−0.12*	1					
10. Wave 1 Age (years)	14.50 (0.62)	850	0.05	0.06	0.09*	0.01	0.02	0.03	−0.01	0.06	0.12***	1				
11. Race	–	850	−0.15***	−0.05	−0.08	−0.08	−0.01	−0.07	−0.05	−0.03	−0.03	0.01	1			
12. Anxiety (Wave 1)	1.60 (0.62	845	0.36***	0.28***	0.34***	0.22***	0.29***	0.20***	0.24***	0.26***	−0.16***	0.05	−0.03	1		
13. Depression (Wave 1)	1.65 (0.69)	849	0.36***	0.26***	0.34***	0.18***	0.26***	0.21***	0.21***	0.22***	−0.21***	0.09*	0.01	0.72***	1	
14. Friend Support	3.14 (0.95)	846	−0.02	0.04	0.04	0.01	−0.01	0.02	0	−0.01	−0.25***	−0.07*	−0.07	0.1**	0.05	1
15. Cumulative Exposure to Violence	1.57 (0.45)	850	0.23***	0.23***	0.33***	0.21***	0.15**	0.08	0.18***	0.17***	0.13***	0.19***	0.03	0.30***	0.32***	−0.10**

Pearson product moment correlations with the exception of sex, which are point-biserial

Males are coded as 1, females as the referent. African Americans are coded as 1, non-African Americans as the referent

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

magnitude of effect on depression at $M_{age} = 19$ ($\beta_{0\text{exposure to violence}} = 0.25$; $\beta_{0\text{baseline depression}} = 0.32$). In contrast, baseline depression levels were much stronger predictors of depression slopes relative to exposure to violence ($\beta_{1\text{exposure to violence}} = -0.17$; $\beta_{1\text{baseline depression}} = -0.33$). Females in the sample also reported higher levels of depression at $M_{age} = 19$.

Growth mixture models

Model 5 in Table 3 displays the unconditional depression trajectories of those securely vs. insecurely attached at age 18. On average, insecurely attached respondents reported higher levels of depression at $M_{age} = 19$, although they also reported slightly faster decreases in depression levels over time. We found significant variation in the intercepts and slopes for both securely and insecurely attached adolescents. Model 6 reintroduced covariates for both $M_{age} = 19$ depression levels as well as changes in depression over time. For securely attached youth, sex, baseline depression and exposure to violence predicted higher $M_{age} = 19$ depression levels. Only exposure to violence, however, predicted depression trajectories from $M_{age} = 19–32$. In contrast, baseline depression levels was the only covariate associated with either $M_{age} = 19$ depression for insecurely attached youth, while both baseline depression and anxiety each predict insecure attached youth's depression trajectories. Model 6 provided the best overall fit to the data, explaining significant variation in $M_{age} = 19$ depression for both groups, as well as significant slope variation for the insecurely attached youth. In both cases, significant variability remaining in intercepts and slopes suggests additional exploration may be warranted.

Anxiety

Unconditional models

Models 7 and 8 report significant between-person variability in both the initial levels ($M_{age} = 19$) levels of anxiety as well as changes in anxiety over time. On average, self-reported anxiety levels decreased from $M_{age} = 19$ to $M_{age} = 32$ (B1 = −0.01 (.00); Table 4).

Conditional models

Models 9 and 10 integrate fixed-effect predictors of both initial levels of anxiety and changes in anxiety level over time. Race, baseline levels of anxiety, and baseline levels of depression each emerged as a significant predictor of $M_{age} = 19$ anxiety levels (Table 4, Model 9). Relative to White and mixed White and African–American participants, African–American respondents reported lower levels of

Table 3 Depressive symptom trajectory models ages 20–32

Parameter	Model 1	Model 2	Model 3	Model 4
Fixed effects				
Intercept	1.68 (0.02)***	1.74 (0.03)***	1.09 (0.58)	1.02 (0.57)
Time		−0.01 (0.00)***	−0.03 (0.07)	−0.02 (0.07)
Depression Intercept				
Sex			0.07 (0.05)	0.11 (0.05)*
Age			−0.00 (0.04)	−0.02 (0.04)
Race			−0.02 (0.06)	−0.02 (0.06)
Baseline anxiety			0.07 (0.07)	0.03 (0.06)
Baseline depression			0.29 (0.06)***	0.26 (0.06)***
Friend support			−0.00 (0.03)	0.01 (0.03)
Exposure to violence				0.27 (0.06)***
Depression slope				
Sex			0.01 (0.01)	0.01 (0.01)
Age			0.00 (0.01)	0.00 (0.01)
Race			0.00 (0.01)	0.00 (0.01)
Baseline anxiety			0.01 (0.01)	0.02 (0.01)*
Baseline depression			−0.02 (0.01)***	−0.02 (0.01)**
Friend support			0.00 (0.00)	−0.00 (0.00)
Exposure to violence				−0.02 (0.01)*
Random effects				
μ_{oj}	0.24 (0.02)***	0.30 (0.03)***	0.24 (0.02)***	0.23 (0.02)***
μ_{1j}		0.002 (0.000)***	0.002 (0.000)***	0.002 (0.000)***
Cov (τ_{00}, τ_{11})		−0.01 (0.00)***	−0.01 (0.00)***	−0.01 (0.00)**
N=	676	676	676	676
Fit indices				
-2LL	−3244.15	−3161.72	−3099.53	−3089.12
AIC	6508.30	6349.44	6249.06	6232.23
RMSEA [90%CI]	0.08 [0.07, 0.09]	0.04 [0.02, 0.05]	0.03	0.03
CFI/TLI	0.84/0.87	0.97/0.97	0.98/0.96	0.97/0.97
Intercept R^2			0.19 (0.04)***	0.23 (0.04)***
Slope R^2			0.07 (0.04)	0.09 (0.04)*

Fixed effects are unstandardized regression coefficients

LL log-likelihood, *AIC* Akiake information criterion, *RMSEA* root mean square error of approximation, *CFI* comparative fit index, *TLI* Tucker Lewis index

Males and non-African American are referent categories for sex and race, respectively

*$p < 0.05$, **$p < 01$, ***$p < 0.001$

anxiety at $M_{age} = 19$. Higher baseline levels of depression and anxiety were each positively associated with levels of anxiety at $M_{age} = 19$. No covariates in model 9 predicted changes in anxiety scores over time.

Exposure to violence emerged as a significant predictor of both $M_{age} = 19$ and trajectories of anxiety levels (Table 4, Model 10). Exposure to violence was associated with higher initial anxiety levels, but also decreases in anxiety over time. Examination of the standardized coefficients revealed that, on average, exposure to violence had a larger magnitude of effect on both $M_{age} = 19$ anxiety and anxiety trajectories compared to baseline levels of anxiety ($\beta_{0\text{exposure to violence}} = 0.28$; $\beta_{0\text{baseline anxiety}} = 0.24$ and $\beta_{1\text{exposure to violence}} = -0.18$; $\beta_{1\text{baseline anxiety}} = 0.05$, respectively). When exposure to violence was included in the model, participant sex also emerged as a significant predictor, with females reporting higher levels of anxiety at $M_{age} = 19$ relative to males.

Growth mixture models

Model 11 in Table 5 displays the unconditional anxiety trajectories of those securely vs. insecurely attached at age 17. On average, insecurely attached respondents reported higher levels of anxiety at $M_{age} = 19$, but they reported similar decreases to the secure group in anxiety levels over time. We also found significant variation in the intercepts and slopes for both securely and insecurely attached adolescents. Model 12 reintroduced covariates for both $M_{age} = 19$ anxiety levels as well as changes in anxiety over time.

Table 4 Depressive symptoms trajectory moderated by friendship attachment style

Parameter	Model 5		Model 6	
	Secure	Insecure	Secure	Insecure
Fixed effects				
Intercept	1.64 (.03)***	1.90 (0.04)***	1.12 (0.66)	0.82 (1.08)
Time	−0.01 (0.00)***	−0.02 (0.01)**	−0.02 (0.07)	−0.00 (0.17)
Depression intercept				
Sex			0.12 (0.06)*	0.07 (0.08)
Age			−0.03 (0.04)	−0.00 (0.07)
Race			−0.04 (0.07)	0.01 (0.12)
Baseline anxiety			0.07 (0.08)	−0.06 (0.10)
Baseline depression			0.14 (0.07)*	0.39 (0.09)***
Friend support			0.01 (0.03)	0.03 (0.05)
Exposure to violence			0.34 (0.08)***	0.11 (0.10)
Depression slope				
Sex			0.00 (0.01)	0.02 (0.01)
Age			0.00 (0.01)	−0.00 (0.01)
Race			0.01 (0.01)	−0.01 (0.02)
Baseline anxiety			0.01 (0.01)	0.04 (0.01)**
Baseline depression			−0.01 (0.01)	−0.04 (.01)**
Friend support			−0.00 (0.00)	−0.00 (.01)
Exposure to violence			−0.03 (0.01)*	−0.01 (.02)
Random effects				
μ_{oj}	0.27 (0.03)***	0.33 (0.05)***	0.22 (0.03)***	0.23 (0.04)***
μ_{1j}	0.002 (0.000)***	0.003 (0.001)**	0.002 (0.000)***	0.002 (0.001)**
Cov (τ_{00}, τ_{11})	−0.01 (0.00)***	−0.01 (.01)	−0.01 (0.00)**	−0.01 (0.01)
N=	431	245	431	245
Fit indices				
-2LL	−3111.98		−3042.57	
AIC	6275.95		6193.15	
RMSEA [90%CI]	0.04 [0.03, 0.06]		0.03	
CFI/TLI	0.96/0.96		0.95/0.94	
Intercept R^2	0.17 (0.04)**		0.29 (0.07)**	
Slope R^2	0.11 (0.06)$^+$		0.16 (0.07)*	

Fixed effects are unstandardized regression coefficients. Males and non-African American are referent categories for sex and race, respectively

LL log-likelihood, *AIC* Akiake information criterion, *RMSEA* root mean square error of approximation, *CFI* comparative fit index, *TLI* Tucker Lewis index

*$p < 0.05$, **$p < 01$, ***$p < 0.001$

For securely attached youth, race, baseline anxiety, and exposure to violence predicted higher $M_{age} = 19$ anxiety levels. Only exposure to violence, however, predicted anxiety trajectories from $M_{age} = 19$– 32. In contrast, baseline *depression* levels were the only covariates associated with either $M_{age} = 19$ anxiety or anxiety trajectories for insecurely attached youth. Model 12 provided the best overall fit to the data, explaining significant variation in $M_{age} = 19$ anxiety for both groups, as well as significant slope variation for the securely attached youth. In both cases, the significant variability remaining in intercepts and slopes suggests that additional exploration may be warranted (Table 6).

Sensitivity Analysis and Alternative Considerations

Our results indicate enduring associations between prior exposure to violence and depression and anxiety trajectories. As noted, because only two items among the original Moos & Moos Family Conflict subscale may be thought to represent physical violence, our exposure to violence variable was constructed using a two-item 'family physical violence' scale. As a check, we re-ran both series of models with an exposure to violence measure constructed from all five family conflict scale items. We observed no meaningful changes to model fit or point estimates related to exposure to violence.

Table 5 Anxiety symptoms trajectory models ages 20–32

Parameter	Model 7	Model 8	Model 9	Model 10
Fixed effects				
Intercept	1.60 (0.02)***	1.65 (0.02)***	0.75 (0.48)	0.67 (0.47)
Time		−.01 (0.00)***	−0.05 (0.07)	−0.04 (0.07)
Anxiety intercept				
Sex			0.05 (0.04)	0.09 (0.04)*
Age			0.03 (0.03)	0.01 (0.03)
Race			−0.12 (0.06)*	−0.12 (0.06)*
Baseline anxiety			0.21 (0.06)***	0.17 (0.06)**
Baseline depression			0.12 (0.05)*	0.08 (0.05)
Friend support			−0.02 (0.02)	−0.01 (0.02)
Exposure to violence				0.30 (0.05)***
Anxiety slope				
Sex			0.01 (0.01)	0.01 (0.01)
Age			0.00 (0.01)	0.00 (0.01)
Race			0.01 (0.01)	0.01 (0.01)
Baseline anxiety			0.00 (0.01)	0.00 (0.01)
Baseline depression			−0.01 (0.01)	−0.01 (0.01)
Friend support			−0.00 (0.00)	−0.00 (0.00)
Exposure to violence				−0.02 (0.01)*
Random effects				
μ_{oj}	0.18 (0.02)***	0.21 (0.02)***	0.16 (0.02)***	0.15 (0.02)***
μ_{1j}		0.002 (0.000)***	0.002 (0.000)***	0.002 (0.000)***
Cov (τ_{00}, τ_{11})		−0.01 (0.00)***	−0.01 (0.00)***	−0.01 (0.00)**
Fit indices				
-2LL	−3083.20	−3006.05	−2938.59	−2920.86
AIC	6186.40	6038.10	5927.18	5895.71
RMSEA [90%CI]	0.07 [0.06, 0.08]	0.03 [0.01, 0.04]	0.02	0.02
CFI/TLI	0.82/0.85	0.98/0.98	0.98/0.97	0.98/.97
Intercept R^2			0.16 (0.04)***	0.29 (0.05)***
Slope R^2			0.07 (0.04)	0.05 (.03)$^+$

Fixed effects are unstandardized regression coefficients. Males and non-African American are referent categories for sex and race, respectively

LL log-likelihood, *AIC* Akiake information criterion, *RMSEA* root mean square error of approximation, *CFI* comparative fit index, *TLI* Tucker Lewis index

*$p < 0.05$, **$p < 01$, ***$p < 0.001$

Further, our operationalization of cumulative exposure to violence was informed by recent research on the construct (Margolin et al. 2010; Turner et al. 2017). That said, alternative operationalizations of exposure to violence were possible. In a second alternative analysis, we re-ran Models 4 and 10 that included exposure to violence defined (a) as a separate fixed effect for each form of violence exposure (observed violence, victimization and family physical violence) and (b) using growth curve modeling, where the intercepts and trajectories of adolescent exposure over the four adolescent waves were included as predictors.

In the case with separate exposure predictors, both family violence and victimization were significant predictors of emerging and young adult depression intercepts (i.e., $M_{age} = 19$), but not depression trajectories. Observed violence alone was not a significant predictor of either depression intercepts or slopes. In contrast, only adolescent victimization significantly predicted anxiety intercepts. We found 'marginal' (i.e., $p < 0.10$) associations between adolescent victimization and depression slopes, as well as marginal associations between observed victimization and both anxiety intercepts and slopes.

When exposure to violence intercepts and trajectories were used as predictors in the models, cumulative exposure to violence *intercepts* were positively associated with adult depression trajectory intercepts (i.e., $M_{age} = 19$ depression), and negatively associated with adult depression slopes. Cumulative exposure to violence *trajectories* were positively associated with adult depression intercepts. Similarly, exposure to violence intercepts (but not slopes) predicted both higher anxiety at $M_{age} = 19$, as well as faster decreasing slopes in emerging and early adult. These results parallel Models 4 and 10 presented here, predicting depression and anxiety trajectories, respectively.

Table 6 Anxiety symptoms trajectory moderated by friendship attachment style

Parameter	Model 11		Model 12	
	Secure	Insecure	Secure	Insecure
Fixed effects				
Intercept	1.59 (0.03)***	1.75 (0.04)***	1.21 (0.93)	0.69 (2.03)
Time	−0.01 (0.00)***	−0.01 (0.01)*	−0.05 (0.13)	−0.12 (0.30)
Anxiety Intercept				
Sex			0.09 (0.09)	−0.06 (0.13)
Age			−0.04 (0.06)	0.03 (0.14)
Race			−0.31 (0.11)**	0.02 (0.21)
Baseline anxiety			0.31 (0.13)*	−0.13 (0.17)
Baseline depression			0.00 (0.11)	0.39 (0.14)**
Friend support			0.01 (0.04)	0.00 (0.07)
Exposure to violence			0.51 (0.11)***	0.21 (0.17)
Anxiety slope				
Sex			0.01 (0.01)	0.02 (0.02)
Age			0.01 (0.01)	0.01 (0.02)
Race			0.03 (0.02)	−0.01 (0.03)
Baseline anxiety			−0.02 (0.01)	0.05 (0.03)
Baseline depression			0.00 (0.01)	−0.04 (0.02)*
Friend support			−0.01 (0.01)	−0.00 (0.01)
Exposure to violence			−0.04 (0.02)*	−0.01 (0.03)
Random effects				
μ_{oj}	0.22 (0.03)***	0.18 (0.04)***	0.30 (0.06)***	0.35 (0.12)***
μ_{1j0}	0.002 (0.000)***	0.003 (0.001)**	0.004 (0.001)***	0.01 (0.002)***
Cov (τ_{00}, τ_{11})	−0.01 (0.00)***	−0.01 (0.01)	−0.03 (0.01)**	−0.04 (0.02)**
N=	431	245	431	245
Fit indices				
-2LL	−2954.16		−2888.48	
AIC	5960.31		5880.97	
RMSEA [90%CI]	0.03 [0.01, 0.05]		0.04	
CFI/TLI	0.97/0.98		0.92/0.90	
Intercept R^2	0.27 (0.07)***		0.18 (0.09)*	
Slope R^2	0.12 (0.06)*		0.07 (0.05)	

Fixed effects are unstandardized regression coefficients. Males and non-African American are referent categories for sex and race, respectively

LL log-likelihood, *AIC* Akiake information criterion, RMSEA root mean square error of approximation, *CFI* comparative fit index, *TLI* Tucker Lewis index

*$p < 0.05$, **$p < 01$, ***$p < 0.001$

Taken together, the results of the alternative models suggest that knowing either summative levels of adolescent violence exposure or their exposure trajectories would consistently inform understanding of depression and anxiety trajectories in adulthood. Across models with different operationalizations, we noted only small changes to the point estimates of other covariates included in the model, and their associated significance tests. Estimates of random effects in the models were nearly identical.

Discussion

Building upon past research that found a greater likelihood for negative mental health outcomes in adulthood among adolescents exposed to violence (Brown et al. 2007; Flannery et al. 2004; Evans and English 2002; Fitzpatrick et al. 2005; Kitzmann et al. 2003; Lupien et al. 2009; Voisin et al. 2016), our findings suggest that secure friendship attachment in late adolescence can have play a beneficial role in mental health trajectories over time. More broadly, these findings suggest that secure attachment to peers may serve as a protective factor against depression and anxiety within the context of exposure to violence during adolescence. Overall, the results from this study suggest that strong associations exist between exposure to violence during adolescence and higher levels of both depression and anxiety throughout emerging adulthood. These associations held even after accounting for covariates associated with each outcome; notably, baseline levels of depression and

anxiety. Additionally, these associations held despite over a year gap between the last recorded measure of exposure to violence and baseline mental health measurements taken during emerging adulthood. In addition, we observed that securely attached participants were more likely to experience faster decreasing trajectories of depression and anxiety after exposure to violence as compared to insecurely attached participants.

Although, on average, depression and anxiety trajectories were decreasing for this sample, our results suggest that friendship security may still play a protective role against some of the negative mental health outcomes associated with exposure to violence during adolescence. Our hypotheses concerning the moderating effect of friendship attachment on the association between exposure to violence and depression and anxiety were supported. We hypothesized that attachment insecurity would buffer the negative effects of exposure to violence in adolescence and late adolescence from increasing trajectories of depression and anxiety throughout emerging adulthood. We found that securely attached individuals with exposure to violence during adolescence experienced faster decreasing trajectories of depression and anxiety into adulthood as compared to insecurely attached individuals with similar levels of exposure to violence throughout adolescence. Indeed, it may be that secure friendships can be a lasting buffer of the negative effects associated with exposure to violence in adolescence and emerging adulthood. Some of the protective features of secure attachment on later mental health outcomes have also been demonstrated by other scholars (Mikulincer and Shaver 2007). Researchers have reported that individuals who develop a secure attachment style in childhood tend to use more adaptive coping strategies in response to stress, report lower rates of depressive symptoms, and have better overall mental health outcomes as compared to individuals who develop an insecure attachment style (Ognibene and Collins 1998; Mikulincer and Shaver 2007). In addition, Raja et al. (1992) found that adolescents who reported secure attachment to their peers scored better on mental health measures than adolescents who reported poor attachment to their peers. Future research should focus on understanding specific mechanisms that may support the development of secure friendship attachment relationships in the context of exposure to violence, including resilience.

That higher baseline levels of both depression and exposure to violence were associated with faster decreases in depression trajectories was contrary to our hypotheses. One explanation for this finding may be due to our study sample. Our participants consisted of individuals transitioning from adolescence into emerging adulthood. Emerging adulthood, a developmental period that begins during the late teenage years and extends throughout one's twenties, is a time of significant individual exploration and change (Arnett 2000). Researchers reported that, on average, depressive symptoms tend to reach relatively high levels during adolescence, and then start to decline throughout emerging adulthood among both boys and girls (Merikangas et al. 2003; Meadows et al. 2006; Galambos et al. 2006; Dekker et al. 2007). Similar patterns have also been observed from adolescence into emerging adulthood for anxiety symptoms (McLaughlin and King 2015). Because our initial measures of both depression and anxiety were taken during this transition in developmental periods (~age 19), it is possible that our findings are a result of these naturally observed declines in depressive and anxiety symptoms from adolescence into emerging adulthood. Thus, the overall decreasing trajectories observed in this study could be revealing more about baseline depression levels of depression and anxiety as compared to trajectories over time.

Several limitations of the study should be noted. First, although drawn from previously validated and, in the case of our sample, reliable scale measures of mental health, these data are self-report. Future studies of exposure to violence, attachment and depression/anxiety should consider including clinical measures of depression or generalized anxiety. Moreover, exposure to violence is also associated with distal externalizing consequences. Although consideration of externalizing behavior was beyond the scope of the current study, examining whether attachment could moderate associations between exposure to violence and, e.g., substance use or violent behavior would provide additional insight. Second, our analytic strategy does not differentiate between observed violence, victimization and familial violence; instead, considering each an equally weighted event that is summed over time. This was in an effort to be consistent with previous researchers who have argued that exposure tends to cumulate for a subgroup of the population with repeated victimizations (Tseloni and Pease 2003), potentially leading to sustained traumatic stress. It could be true that a single instance of, e.g., familial physical violence, substantially outweighs repeated exposure to observed neighborhood violence. That said, Cook et al. 2003 that repeated and varying forms of victimization may be as adverse as or more so than an isolated traumatic event. We stress the need for in-depth future work that documents adolescent exposure in more detail and allows victims to reflect on the severity, source, salience, and enduring effects associated with their experience. Third, our study only includes a measure of peer attachment. Given the attachment style between children and parents/caregiver are associated with working models of relationships (Gorrese and Ruggieri 2012), it would be informative to include both measures in future research. Finally, our results may not be generalizable to all adolescents and emerging adults as our

sample consisted of low-income, low-achieving adolescents residing in a poor community in the Midwest. Yet, this is a population with significant exposure to violence and a vital population to study given similarities to other post-industrial cities facing economic decline.

Conclusion

Our study provides evidence that secure attachment to friends during adolescence serves to protect against increasing trajectories of anxiety and depression for adolescents exposed to violence. Moreover, the results indicate that an integrated resilience and attachment perspective may be of use within future research in order to gain further insight into mental health trajectories throughout the life course. Attachment theory implies that the attachment style developed early in life effects the ways in which individuals cope with harmful exposures, which in turn makes an individual more or less vulnerable to worse mental health outcomes later in life (Bowlby 1980; Mikulincer and Shaver 2007). Yet, the narrow emphasis placed on vulnerability within attachment theory is limiting in that mental health outcomes are likely affected by a combination of both vulnerability and resilience (Fergus and Zimmerman 2005). Thus, incorporation of Fergus and Zimmerman's (2005) adolescent resilience theory may provide a useful framework for conceptualizing the various ways through which individuals are able to mitigate the harmful effects of violence exposure during adolescence.

The present findings provide a more thorough understanding of the complex relationship between friendship attachment and mental health outcomes among adolescents who have been exposed to violence. Specifically, having a secure friendship attachment helps protect individuals exposed to violence from the long term negative effects on depressive and anxiety symptoms. Past research with school-based bullying and violence also supports the importance of supportive peer networks throughout development, finding that those who were victims of school-based bullying were more likely to provide support and defense of each other, which may have positive implications for mental health outcomes later in life (Huitsing et al. 2014). The results also add to the body of evidence supporting peer attachment as a moderator of the pernicious effects of adolescent violence exposure on later mental health outcomes (Brown et al. 2007; Eisman et al. 2015). Finally, we suggest that interventions designed to help adolescents form and maintain secure attachment styles, especially with peers, may be a useful approach to help reduce negative mental health outcomes among youth exposed to violence.

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Compliance with Ethical Standards

Conflicts of Interest The authors declare that they have no competing interests.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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