



Bidirectional Associations between Perpetration of Bullying and Physical/Sexual Teen Dating Violence in Middle School Youth

Elizabeth C. Tampke, PhD.,

Alpert Medical School of Brown University, Miriam Hospital

Charlie Huntington,

Department of Psychiatry, Washington University School of Medicine

David Barker,

Alpert Medical School of Brown University, Rhode Island Hospital

Daniel W. Oesterle, M.S.,

Department of Psychological Sciences, Purdue University

Lindsay M. Orchowski, Ph.D.

The Alpert Medical School of Brown University, Rhode Island Hospital

Abstract

Objective: Bullying and Teen Dating Violence (TDV) perpetration are major public health concerns for middle school youth. Previous research indicates bullying perpetration predicts future TDV perpetration; however, the potential bidirectional associations between bullying and TDV have not been fully explored. The current study evaluated bidirectional, longitudinal associations between bullying and TDV perpetration in middle school youth.

Method: Cross-lagged panel models were used to evaluate bidirectional associations for bullying and TDV perpetration in middle school youth ($n = 1,840$; $M = 12.16$ years, $SD = 0.42$) across three time points, 6 months apart, starting at the fall of 7th grade and ending in the fall of 8th grade.

Results: Findings indicated bullying perpetration and TDV perpetration demonstrated stability across time. Across all three waves, bullying perpetration at one time point consistently predicted TDV perpetration at the subsequent time point (medium effect sizes). TDV perpetration at T1 predicted bullying perpetration at T2 (medium effect size), and TDV perpetration at T2 did not substantially predict bullying perpetration at T3 (small effect size).

Conclusion: Findings indicate once middle school youth initiate bullying or TDV, they tend to persist in this behavior. Findings suggest all peer relationships (including friends and dating partners) may serve as training grounds for each other, with youth who learn violence perpetration is effective in one type of relationship (e.g., dating) transferring this behavior to others (e.g., friendship). Findings support the need for cross-cutting violence interventions that target *both* bullying and TDV simultaneously.

Keywords

Bullying; teen dating violence; middle school; bidirectional; longitudinal; perpetration; physical teen dating violence; sexual teen dating violence

Introduction

Bullying, defined as undesired and intentionally aggressive interpersonal behaviors that involve a power imbalance between the aggressor and victim and that cause, or threaten to cause, harm to the victim (Gladden et al., 2014; Olweus, 1997), is a significant concern for adolescents. Bullying behaviors can occur both in-person and online and include psychological and verbal aggression (e.g., spreading rumors, teasing, and name-calling) and physical aggression (e.g., punching and shoving; Wang et al., 2009). Bullying is both a normative and a troubling aspect of childhood and adolescence (Kennedy, 2021), with recent data suggesting 20% of middle school youth report perpetrating some form of bullying (Da Silva et al., 2020). The negative psychosocial consequences of both perpetration and victimization are well-documented (Hawker & Boulton, 2000; Man et al., 2022; Wolke & Lereya, 2015). Given the developmental demands and challenges of early adolescence (i.e., ~11 to 15 years old; Lerner, 2021; Pepler et al., 2006), and negative consequences of perpetrating bullying in early adolescence for functioning in later adolescence and beyond (Farrington et al., 2011; Kretschmer et al., 2017; Zych et al., 2015), it is especially important to understand how bullying perpetration at this age is associated with other harmful outcomes and behaviors, such as Teen Dating Violence (TDV).

TDV consists of verbally, physically, relationally, or sexually aggressive or abusive behaviors directed toward romantic partners (Wolfe et al., 2001). Physical TDV perpetration refers to using (or trying to use) physical force against a romantic partner (e.g., punching, pushing, slapping), and sexual TDV perpetration refers to forcing (or attempting to force) a romantic partner to engage in sexual behaviors without their consent (Center for Disease Control and Prevention, 2024). Understanding the factors that increase risk for physical and sexual TDV are particularly important because these TDV subtypes can result in serious health outcomes in youth, such as sexually transmitted diseases (including HIV; Decker et al., 2005), physical injury (Tharp et al., 2017), pregnancy, and suicidality (Silverman et al., 2001). A meta-analytic evaluation of adolescents (aged 13 to 18 years) found that 13% of boys and 25% of girls had ever perpetrated physical TDV, while 10% boys and 3% of girls had ever perpetrated sexual TDV (Wincentak et al., 2017). In a study of past year TDV prevalence rates of 10th graders, 9% of youth who had dated reported perpetrating physical TDV (Haynie et al., 2013). While TDV among middle schoolers has received less attention, evidence suggests rates of physical TDV in these youth are also high—ranging from 15-17% (Niolon et al., 2015; Simon et al., 2010). One large study of high-risk middle schoolers found that among those who had dated, 32% perpetrated physical TDV and 15% perpetrated sexual TDV over their lifetime (Niolon et al., 2015). These data highlight the importance of research to identify factors that can be targeted in TDV prevention efforts (e.g., bullying)—especially for middle school youth.

Numerous studies indicate that bullying perpetration and TDV perpetration tend to co-occur in the same individuals (Niolon et al., 2015; Vivolo-Kantor et al., 2016; Yahner et al., 2015). As a recent meta-analysis attests, bullying perpetration among adolescents is consistently associated with TDV perpetration (Zych et al., 2021). In high school samples, this association has been observed cross-sectionally (Yahner et al., 2015) and longitudinally (Espelage et al., 2012, 2015, 2018; Rivas-Koehl et al., 2023), with bullying earlier in

adolescence predicting subsequent TDV perpetration. The association between bullying and TDV exists in samples that focus exclusively on middle school students as well (Cutbush et al., 2016; Miller et al., 2013; Foshee et al., 2014;). Indeed, multiple longitudinal studies suggest that bully perpetration predicts TDV perpetration in middle schoolers (Foshee et al., 2014; Cutbush et al., 2016; Humphrey & Vaillancourt, 2020). However, studies thus far assume that bullying is a developmental precursor to TDV, without evaluating the potential bidirectionality of these associations. Thus, the purpose of the current study is to evaluate bidirectional longitudinal associations between bullying perpetration and TDV perpetration in middle school youth.

Multiple conceptualizations and theories have been used to explain the connection between bullying and TDV (Espelage et al., 2014; Humphrey & Vaillancourt, 2020;). The Social Learning Theory suggests youth learn aggression via modeling and then continue to engage in aggression because it is adaptive or reinforcing (Bandura, 1976, 1977; Hong et al., 2018; Pusch, 2024). Therefore youth who have learned that aggressive behavior is effective for goal attainment in one relationship (e.g., friendships; Hong et al., 2018), may be reinforced to use aggression to achieve their goals in other relationships (e.g., dating relationships; for a review see Pusch, 2024). Similarly, the Social Interaction Theory (Patterson, 1982; Patterson et al., 1984) suggests that aggressive behaviors stem from conflictual behaviors in the home, with the home functioning as a training ground for aggressive behaviors. These behaviors are then applied to peers and—later—dating partners (Espelage et al., 2014). Alternatively, the phenomenon of heterotypic continuity purports that multiple different types of aggression stem from an underlying propensity of aggression, which results in diverse behavioral manifestations depending on context and developmental stage (Moffitt, 1993; Humphrey & Vaillancourt, 2020). All of these conceptualizations of interpersonal aggression support that aggression in one context may generalize to other relationships. This is supported by research indicating youth often engage in multiple types of violence (Hamby & Grych, 2012; Taquette & Monteiro, 2019) and that different forms of violence stem from common risk factors (Catalano et al., 2012; Foshee et al., 2016).

Due to the assumed developmental timing of bullying and TDV, many researchers have proposed bullying is a developmental precursor to TDV (Espelage et al., 2022; Joseph & Kuperminc, 2020; Zych et al., 2021). Indeed, longitudinal studies of the association between bullying and TDV focus exclusively on the bullying-to-TDV pathway (Zych et al., 2021). However, consistent with Social Learning Theory, it is possible that TDV behaviors may precede bullying behavior. Indeed, some adolescents may be first exposed to aggressive behaviors through their dating relationships or they may be introduced to new friend groups through their dating partners in which aggressive behavior is normative (Furman & Shaffer, 2003); and then begin practicing aggressive behaviors in-turn (Norona et al., 2017). However, the authors were unable to identify any studies that examined the degree to which TDV behaviors predicted bullying behaviors. A better understanding of the potentially bidirectional nature of associations between bullying and TDV perpetration may have important implications for violence interventions for youth. Violence interventions for middle school youth tend to focus exclusively on peer relationships (Joseph & Kuperminc, 2020); however, a better understanding of TDV in this population may indicate interventions should incorporate a multi-pronged approach which addresses TDV as well.

Purpose of the current study

The current research aims to more completely characterize the longitudinal and bidirectional associations between bullying perpetration and TDV perpetration. With a sample of middle school students surveyed at three time points, we test the following hypotheses using a cross-lagged path model: *Hypothesis 1*: Bullying perpetration and TDV perpetration will remain relatively stable over time. *Hypothesis 2*: Bullying perpetration at each time point will predict subsequent TDV perpetration. *Hypothesis 3*: TDV at each time point will predict subsequent bullying perpetration.

Methods

Participants

The current study is a secondary analysis using a pre-existing dataset which was collected in the context of a larger evaluation of sexual assault prevention programming in public middle schools in the Northeast region of the United States. Therefore, the sample size was powered to detect outcomes for the original project (U01CE002651-04), which included seven middle schools. In the current study only youth in schools assigned to the control group ($n = 4$) were included. The study included five assessment points, across the fall and spring academic semesters over the course of 2.5 years. Our goal was to examine bullying and TDV across three time points: starting at the fall of 7th grade and ending in the fall of 8th grade. At the start of the study, all 6th, 7th, and 8th graders were invited to participate in the research each year and were followed over time. For youth who started the study as 7th graders ($N = 933$), the present study utilized the data provided at Assessment 1, Assessment 2, and Assessment 3 to capture bullying and TDV involvement from the fall of 7th grade in 2017 into the fall of 8th grade in 2018. For youth who started the study as 6th graders ($N = 907$), the current study utilized the data provided at Assessment 3, Assessment 4, and Assessment 5 to capture bullying and TDV involvement from the fall of 7th grade in 2018 into the fall of 8th grade in 2019. The data from each group of youth were collapsed to create a data set that provided three measurements of these two groups of youth ($N = 1,840$): 7th grade Fall, 7th grade Spring, and 8th grade Fall.

Demographic characteristics are reported based on the assessment point when youth were in 7th grade (i.e., 7th grade Fall). At 7th Grade Fall, youth's self-reported age ranged from 11 to 14 years old ($M = 12.16$ years, $SD = 0.42$). Forty percent of youth identified as a boy ($n = 736$), 36.9% as a girl ($n = 679$), and 0.7% identified as transgender ($n = 13$). A small percentage of youth reported they preferred not to answer (0.6%; $n = 11$) when asked about gender identity, and approximately 22% left this item blank ($n = 401$). Most youth (49%) reported being attracted to people of the opposite gender ($n = 904$), approximately 4% endorsed being attracted to people of their same gender ($n = 78$), 9.4% endorsed being attracted to people of both genders ($n = 173$), and 4.7% reported not being attracted to either boys or girls ($n = 86$). Roughly 33% of the sample reported that they preferred not to answer, left the item blank, or did not provide information about gender identity that would permit a description of their sexual orientation based on the categories listed ($n = 599$). Approximately 23% of youth reported receiving free or reduced-price lunch. The local Department of Education did not permit assessment of race or ethnicity, given privacy

concerns and the potential for individual identification based on self-reported race and ethnicity. Using publicly available state-level data on school-specific student demographics, racial and ethnic minority students were estimated to range between 7% and 92% across all schools, and across all youth in the study, it was estimated that 35% would identify as a racial or ethnic minority.

Measures

Demographic Characteristics. Participants were asked to self-report their gender identity (i.e., “what is your gender”), with response options including: boy, girl, transgender, or prefer not to answer. To assess sexual and/or romantic attraction, participants responding to a single item with response options allowing them to describe themselves as: a) attracted to boys; b) attracted to girls; c) attracted to both boys and girls; or d) preferred not to answer. Gender and attraction items were matched for each participant to classify youth as attracted to same gender, opposite gender, or multiple genders.

Bullying Perpetration. To assess bullying perpetration, a modified version of the School Crime Supplement (NCES, 2015) and the Illinois Bully Scale (Espelage & Holt, 2013) was used. Students were provided with a definition of bullying: “*Remember that bullying is when one or more students purposefully do something to harm you. It is not bullying when students of about the same strength or power argue or fight to tease each other in a friendly way*” and were then asked about several bullying behaviors over the last 6 months using this stem “*How many times have you bullied another student? That is, how many times have you...*” Participants then responded to five questions (e.g., “*made fun of someone, called them names, or insulted them in a hurtful way*”) using a 4-point scale (0 = 0 times; 1 = 1-3 times; 2 = 4-6 times; 3 = 7-9 times; 4 = 10 times or more) to indicate frequency of bullying perpetration during the last 6 months at each study timepoint. Internal consistency was good at all time points ($\alpha = .82-.87$). For the current study responses were dichotomized, such that youth who reported engaging in any bullying behavior within the past six months were scored with a 1 and youth who reported not engaging in any bullying behavior were scored with a 0. Listwise deletion used at the item level within the measure, with the response indicated as missing if a participant failed to respond to any item in the questionnaire.

TDV Perpetration. To assess TDV perpetration, seven items were adapted from Shifting Boundaries (Taylor et al., 2011; 2015). Participants were first asked if they have ever been involved in a dating relationship with someone else. Participants who responded “yes” then responded to seven items assessing past-six-month frequency of having perpetrated sexual or physical violence within the context of a dating relationship. Using the item stem “*have you ever done the following things to a boy or a girl you have dated...*” example items included “*slapped or scratched them*” and “*engaged or tried to engage them in sexual activity against their will?*” Participants responded to items using a 5-point Likert-like scale with response options ranging from (0 = 0 times; 1 = 1-3 times; 2 = 4-6 times; 3 = 7-9 times; 4 = 10 times or more). Internal consistency was excellent ($\alpha = .92-.84$). Responses were dichotomized, such that youth who reported engaging in TDV within their lifetime or the were scored with a 1 and youth who reported never engaging in any TDV were scored with a 0. Internal consistency was excellent ($\alpha = .92-.84$). Responses

were dichotomized, such that youth who reported engaging in a behavior 1 or more times over the past six months were coded as 1 and youth who either did not endorse having a dating partner or did not engage in any TDV behaviors were coded as 0. Listwise deletion used at the item level within the measure, with the response indicated as missing if a participant failed to respond to any item in the questionnaire.

Procedures

Approval for the current study was provided by each school's superintendent (or head of school), school committee board, state Department of Education, and the local Institutional Review Board. Since all participants within the present study were minors (i.e., < 18 years old), parents of each student enrolled within the school were provided with an opportunity to opt their child out of the research. Additionally, youth participants were also asked to provide verbal assent documenting their willingness to participate prior to the survey assessments. Students who provided assent for research were asked to complete either a paper or computer-based survey within one 50-minute academic period. Given concerns surrounding the sensitive nature of questions, no identifiable information was linked to a student's responses, and students were provided with ample space to privately complete the survey. Students whose parents opted them out, or those who did not provide verbal assent, were provided with alternative activities to complete during survey administration (< 4% of enrolled students).

Data Analysis Plan

Missing data ranged from 21.8-28.0% at 7th grade Fall, 27.0-27.1% at 7th grade Spring, and 24.5%-25.7% at 8th grade Fall. Mplus (Version 8.4) software was used to conduct analyses using a panel design with cross-lagged and autoregressive paths (Muthén & Muthén, 2017). Consistent with previous literature, scores on bullying and TDV perpetration were dichotomized due to a high amount of zero inflation (see mean scores in Table 1; Norris et al., 2022) as well as a limited amount of response variance (for Bullying 85%-92% of non-zero mean scores ≤ 1 ; for TDV 92%- 95% of non-zero mean scores ≤ 1 ; Espelage et al., 2020; Shorey et al., 2018). Thus, models are evaluating bullying and TDV at the level of the population. Models were estimated using full information maximum likelihood (FIML) and Montecarlo Integration. FIML accounted for missing data at 7th Grade Spring and 8th Grade Fall. Participants who were missing bullying and TDV data at 7th Grade Fall were dropped from analyses (4%; $n = 76$). A main effects model was estimated to examine cross-lagged associations between bullying perpetration and TDV perpetration from 7th Grade Fall to 7th Grade Spring and from 7th Grade Spring to 8th Grade Fall. Effect sizes were reported as Odds Ratios. Although the current study includes a large sample of middle school youth, the amount of TDV perpetrated at each time point was relatively low ($n = 34-61$), thereby limiting our ability to detect effects. Therefore, we focus our interpretation on the effect sizes. Similarly, gender and sexual orientation are not addressed in the models due to the high amount of missingness we had on these variables—which would have further reduced our ability to detect effects.

Results

Correlations, means, and standard deviations of all variables are reported in Table 1. Percentages of youth who endorsed having dated, bullying perpetration, and TDV perpetration at each time point are reported in Table 2. Paired samples t-test indicated bullying rates were significantly different from 7th Grade Fall to 7th Grade Spring, $t(1057) = .53, p < .01$, and from 7th Grade Spring to 8th Grade Fall, $t(1097) = .51, p < .01$. TDV rates were significantly different from 7th Grade Fall to 7th Grade Spring, $t(1067) = .24, p = .02$, but not from 7th Grade Spring to 8th Grade Fall, $t(1086) = .24, p = .80$.

Cross-lagged path model

A cross-lagged path model was estimated to examine bidirectional associations between bullying perpetration and TDV perpetration across three time points from 7th through 8th Grade, with each time point approximately 6 months apart (see Figure 1). Hypothesis 1: Aligning with expectations, bullying perpetration and TDV perpetration demonstrated stability across time. Bullying predicted itself from 7th Grade Fall to 7th Grade Spring (OR = 7.18 [95% CI = 5.36, 9.62], $p < .01$) and from 7th Grade Spring to 8th Grade Fall (OR = 8.78 [95% CI = 6.50, 11.83], $p < .01$). TDV perpetration predicted itself from 7th Grade Fall to 7th Grade Spring (OR = 7.15 [95% CI = 2.96, 17.26] $p < .01$) and 7th Grade Spring to 8th Grade Fall (OR = 12.67 [95% CI = 6.27, 25.64] $p < .01$). Hypothesis 2: Aligning with expectations, bullying perpetration at the previous time point consistently predicted subsequent TDV perpetration. Bullying perpetration at 7th Grade Fall predicted TDV perpetration at 7th Grade Spring, demonstrating a medium effect size (OR = 4.35 [95% CI = 2.29, 8.28], $p < .01$). Bullying perpetration at 7th Grade Spring also predicted TDV perpetration at 8th Grade Fall, demonstrating a medium effect size (OR = 3.37 [1.53, 7.44], $p < .01$). Hypothesis 3: Partially in support of expectations, TDV perpetration at 7th Grade Fall predicted bullying perpetration at 7th Grade Spring, demonstrating a medium effect size (OR = 3.60 [1.17, 11.14], $p = 0.03$). However, TDV perpetration at 7th Grade Spring did not substantially predict bullying perpetration at 8th Grade Fall, demonstrating a small effect size (OR = 1.40 [0.75, 2.60], $p = 0.29$).

Discussion

The current study evaluated bidirectional associations between bullying perpetration and TDV perpetration across 3 time points over 1 year (7th Grade Fall, 7th Grade Spring, and 8th Grade Fall). Findings indicated that bullying and TDV perpetration consistently predicted themselves throughout the course of the study, though rates of perpetration varied. Bullying perpetration consistently predicted subsequent TDV perpetration at all time points and TDV perpetration predicted subsequent bullying perpetration from 7th Grade Fall to 7th Grade Spring, but not from 7th Grade Spring to 8th Grade Fall. Taken together, these findings suggest bullying and TDV perpetration *bidirectionally* predict one another over time.

Aligning with hypothesis 1, bullying perpetration consistently predicted itself across time points—aligning with previous research on the stability of bullying perpetration in middle school youth (Crapanzano et al., 2011; Espelage et al., 2001; Zych & Farrington, 2021). Rates of bullying perpetration in our sample at 7th Grade Fall and 8th Grade Fall are

consistent with other research in adolescents indicating rates of perpetration range from 20% to 35% (Da Silva et al., 2020, Modecki et al., 2014). However, the rate of perpetration at 7th Grade Spring was surprising (51.4%). The 7th Grade Spring perpetration rate reflected a marked increase in the number of youth who reported engaging in bullying from 7th Grade Fall (35.3%) and was followed by a decline at 8th Grade fall (34.6%). The spike in bullying behavior at the end of 7th grade adds to the mixed literature regarding the trajectory of peer aggression/bullying in early adolescence. For example, in a sample of aggressive youth, Fite et al. (2008) found peer aggression peaks as youth transition into middle school (i.e., 6th grade) and then steadily declines. In contrast, Hatigan and Vaillancourt (2014) found aggressive youth steadily increased their engagement in peer aggression throughout middle school, while other youth remain steadily low or unengaged in peer aggression. Taken together, findings support that bullying is a substantial problem for middle school youth, with up to half of youth engaging in bullying perpetration at the end of 7th grade.

Aligning with hypothesis 1, TDV perpetration also consistently predicted itself across all study time points. Rates of TDV perpetration in the current sample (2.5-4.6%) were low compared to other research on physical TDV in middle school samples, which have found prevalence rates of 15-17% (Simon et al., 2010; Niolon et al, 2015). The differences in our findings may be because Simon et al. (2010) and Niolon et al. (2015) specifically examined high risk samples or because these studies examined lifetime prevalence of perpetration, whereas our study examined perpetration prevalence in the past 6 months. Interestingly, rates of TDV perpetration substantially increased from 7th Grade Fall (2.5%) to 7th Grade Spring (4.6%), with perpetration rates nearly doubling despite rates of youth endorsing that they had a dating partner remaining the same during this time (41.6-41.8%). Unlike bullying perpetration, the spike in TDV perpetration in 7th Grade Spring was not followed by a decline in 8th grade fall. This suggest that 7th grade may be an important year where youth are at increased risk of initiating TDV and then maintaining TDV. While longitudinal research on TDV in middle school youth is sparse, extant work indicates perpetration is stable during this time (Cutbush et al. 2016; Temple et al., 2021). A better understanding of the developmental trajectory of TDV perpetration in middle school youth is an important area for future research.

Aligning with hypothesis 2, bullying perpetration at 7th Grade Fall and 7th Grade Spring predicted TDV perpetration at subsequent time points (medium effect sizes). Youth who perpetrated bullying at 7th Grade Fall were approximately 4 times more likely to perpetrate TDV at 7th Grade Spring, while youth who perpetrated bullying at 7th Grade Spring were approximately 3 times more likely to perpetrate TDV at 8th Grade Fall. Findings support past research proposing bullying increases future risk for TDV (Espelage et al., 2022; Joseph & Kuperminc, 2020) and longitudinal work indicating bullying perpetration predicts TDV in middle schoolers (Cutbush et al., 2016; Foshee et al., 2014; Humphrey & Vaillancourt, 2020).

However, partially aligning with hypothesis 3, TDV perpetration at 7th Grade Fall also predicted bullying perpetration at 7th Grade Spring (medium effect size), but TDV at 7th Grade Spring did not substantially predict bullying perpetration at 8th Grade Fall (small effect size). Youth who perpetrated TDV at 7th Grade Fall were almost 4 times

more likely to perpetrate bullying at 7th Grade Spring. Notably, TDV perpetration in adolescence can be bidirectional within couples, with individuals both being *victimized by* and *perpetrating violence towards* their partner (Norris et al, 2022; Reidy et al., 2016; Wekerle & Wolf, 1999). Therefore, consistent with the Social Learning theory (Bandura, 1976, 1977), previously non-aggressive youth may learn aggressive behaviors through the coercive pattern of victimization and perpetration that emerges within violent dating relationships (Wekerle & Wolf, 1999) and then translate this behavior towards their peers. It was somewhat surprising that TDV perpetration at 7th Grade Fall did not substantially predict bullying at 8th Grade Fall. It is possible that this small and non-significant effect may be due to the small number of youth who endorsed TDV perpetration at time 2 (n=61), which limited the ability for our analyses to detect small effects. Findings may also indicate that developmental timing or contextual factors are important to consider, with TDV perpetration as a significant risk factor for future bullying within the same school year, but not as youth transition grades. Findings in the current study are important given previous longitudinal evaluations of bullying and TDV perpetration have focused exclusively on a bullying-to-TDV pathway due to assumptions about the developmental timing of aggression (Zych et al., 2021). Results indicate further research should be conducted to understand the trajectory of TDV in middle schoolers and how early perpetration of TDV increases youth risk for peer violence and maladaptive peer relationships.

Bidirectional results also support research demonstrating bullying and TDV perpetration tend to co-occur in the same youth (Niolon et al., 2015; Vivolo-Kantor et al., 2016; Yahner et al., 2015) and that multiple types of aggression may stem from the same risk factors (Catalano et al., 2012; Foshee et al., 2016; Gladden et al., 2014). However, in contrast to conceptualizations rooted early childhood exposure to aggression (e.g., Social Interaction Theory; Patterson, 1982) or developmental context (phenomenon of heterotypic continuity; Moffit, 1993), findings suggest all peer relationships (including friends and dating partners) may serve as training grounds for each other. That is, aligning with the Social Learning Theory (Bandura, 1976, 1977), youth who learn violence perpetration is effective in dating may transfer this behavior to friendship. Findings support the need for cross-cutting violence interventions that target *both* bullying and TDV simultaneously. Existing prevention efforts for middle school youth tend to focus exclusively on peer relationships (Joseph & Kuperminc, 2020), with limited focus on the intersections between co-occurring forms of harm.

Limitations

This study's limitations provide direction for future research. The current study was focused on middle schoolers attending public school in the Northeast, therefore results may not generalize to other populations. Also, while the current study represents one of the largest samples that has been collected on this population, there was a high percentage of missing data (21.8%-28.0%) due to study attrition, invalid survey responses, or participants skipping items. The high percentage of missingness on gender and sexual orientation data (23-33%) precluded us from including these variables as covariates. Due to a high amount of zero inflation, bullying and TDV perpetration were scored dichotomously. While this approach is consistent with previous literature (e.g., Evans et al., 2019; Park & Sullivan, 2024;

Choi & Dulisse, 2021; Norris et al., 2022), it precluded us from examining the severity of these constructs. It may have also resulted in categorizing youth who only perpetrated 1 instance of bullying over last six months as perpetrators, despite classic definitions of bullying requiring repeated perpetration (Gladden et al., 2014; Olweus, 1997). Additionally, the number of participants perpetrating TDV at each time point was relatively low ($n = 34-61$), thereby limiting our ability to detect effects. For example, we were unable to examine gender-specific differences given the low rate of TDV perpetration—despite previous studies having demonstrated meaningful differences in bully and TDV perpetration by gender (Shorey et al., 2017; Spencer et al., 2021; Temple et al., 2013; Zsila et al., 2019) and sexual orientation (Martin-Storey, 2015). Additionally, the lack of significance for some parameters involving TDV is likely due to the low base rate of TDV in our sample. The current study was limited in that it only examined physical and sexual TDV perpetration because our research team was limited in the length of the questionnaire that could be feasibly administered in the time frame allotted in the school setting. This approach did not capture other types of TDV that are increasingly common (e.g., cyber, psychological; Tomaszewska & Schuster, 2021)

Future Research directions

Although it is important to be aware of participant burden when developing assessment batteries, future research would nonetheless benefit from a more comprehensive assessment of TDV. Ensuring that funding is available to support large scale studies of multiple forms of violence among youth is critical for continued evaluation of risk and protective factors of bullying and TDV, and development of evidence-informed prevention efforts. Future research should utilize larger samples to include a focus on how demographic characteristics or other moderating factors might influence the association between bullying and TDV, so that this information might be used to inform prevention initiatives. Future research would also benefit from examining how factors like the severity and frequency of perpetration influence the bi-directional association between bullying and TDV. Subsequent studies would benefit from a dual focus on both victimization and perpetration of bullying and TDV. Future work would also benefit from examining how specific functions of peer aggression (i.e., proactive and reactive) are longitudinally associated with TDV.

Prevention and clinical implications

Regarding clinical implications, bidirectional associations between bullying and TDV perpetration indicate interventions should focus on interventions that target multiple forms of violence—even for middle schoolers (e.g., Joseph & Kuperminc, 2020). At an individual level, findings suggest clinicians should be cognizant of how violence in one type of relationship (e.g., dating) can serve as a training ground for violence in other types of relationships (e.g., friendships). Specifically, consistent with the Social Learning Theory, clinicians should help youth understand aggression is not an adaptive way to resolve interpersonal conflicts and results in negative consequences for the perpetrator through strategies such as problem solving (Phillips et al., 2003; Castillo-Eito et al., 2020). Although implementation of prevention activities is vital across all years of middle school, targeting both bullying behavior through interventions implemented prior to 7th grade may be

especially important, as this may be a period where TDV increases and stays relatively stable.

Conclusion

The present study marks a significant contribution to the interpersonal violence literature through using a prospective design to examine the bidirectional associations between bullying and TDV in a sample of middle school youth. Findings indicated that bullying and TDV perpetration consistently predicted themselves throughout the course of the study, although rates of perpetration were at times low and varied. Specifically, bullying perpetration was associated with subsequent TDV perpetration at all time points and TDV perpetration was associated with subsequent bullying perpetration from 7th Grade Fall to 7th Grade Spring, but not from 7th Grade Spring to 8th Grade Fall. Taken together, these findings provide support for a bi-directional association between bullying and TDV perpetration and underscore the importance of targeting multiple forms of violence perpetration in prevention efforts among youth.

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Public significance statements:

This study indicates middle school youth who engage in bullying perpetration are more likely to later perpetrate teen dating violence, and that youth who engage in teen dating violence are also more likely to later perpetrate bullying. Violence interventions for middle school youth should focus on *both* bullying and teen dating violence.

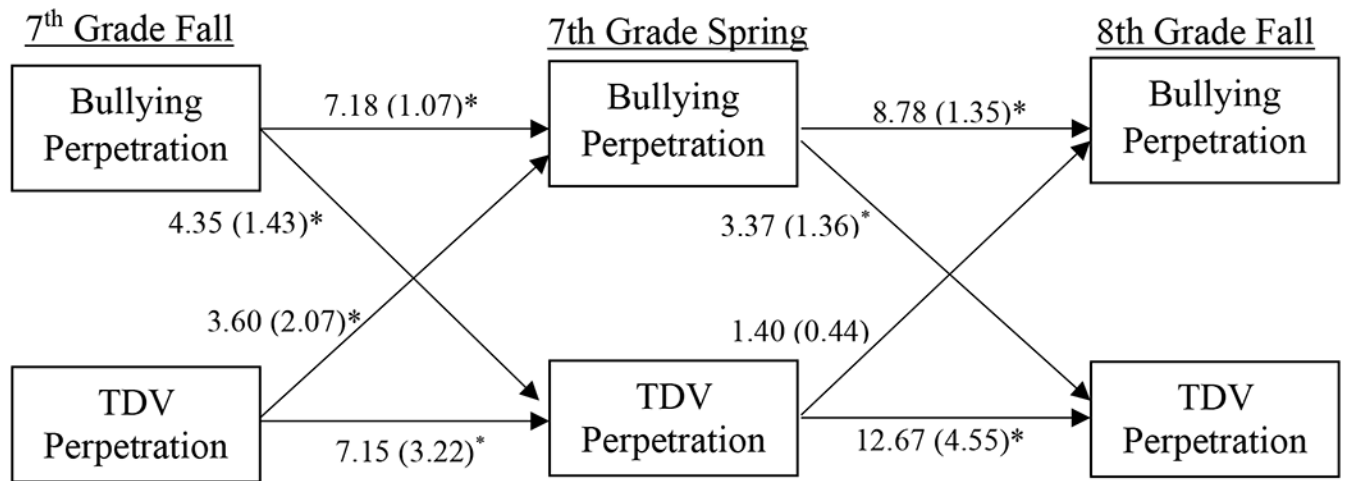


Figure 1. Cross-lagged panel model bullying and TDV perpetration

Note. ()= Standard Error; *= $p \leq .05$

Table 1

Correlations, means, and standard deviations for bullying perpetration, teen dating violence, and having dated

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. 7F Age										
2. 7F Bullying Perpetration	.07 *									
3. 7S Bullying Perpetration	.08 **	.42 **								
4. 8F Bullying Perpetration	.07 *	.38 **	.45 **							
5. 7F TDV	.09 **	.13 **	.12 **	.07 *						
6. 7S TDV	-.01	.16 **	.18 **	.11 **	.19 **					
7. 8F TDV	.08 *	.11 **	.13 **	.16 **	.31 **	.32 **				
8. 7F Ever Dated	.11 **	.26 **	.20 **	.22 **	.20 **	.17 **	.15 **			
9. 7S Ever Dated	.16 **	.24 **	.21 **	.18 **	.14 **	.25 **	.21 **	.51 **		
10. 8F Ever Dated	.061 *	.21 **	.16 **	.20 **	.10 **	.17 **	.19 **	.59 **	.64 **	
Mean (SD)	12.16 (.42)	.17 (.40)	.34 (.64)	.20 (.47)	.01 (.13)	.02 (.21)	.02 (.19)	0.42 (0.49)	.42 (.49)	.52 (.50)

Note. 7F: 7th Grade Fall; 7S: 7th Grade Spring; 8F: 8th Grade Fall;

* = Correlation is significant at the 0.05 level (2-tailed);

** = Correlation is significant at the 0.01 level (2-tailed); For TDV and Bullying Perpetration variables Mean (SD) reflect raw scores (i.e., not dichotomized).

Table 2.
Prevalence of bullying perpetration, TDV perpetration, and dating

	Percentage endorsed (N)	Total N
7th Grade Fall		
Bullying Perpetration	35.3% (468)	1324
TDV Perpetration	2.5% (34)	1338
Ever Dated	41.6% (532)	1279
7th Grade Spring		
Bullying Perpetration	51.4% (690)	1343
TDV Perpetration	4.6% (61)	1340
Ever Dated	41.8% (544)	1300
8th Grade Fall		
Bullying Perpetration	34.6% (481)	1390
TDV Perpetration	4.1% (56)	1368
Ever Dated	47.7% (725)	1386

Note. Percentages exclude participants with missing data at each time point.