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Teen Dating Violence Perpetration: Protective Factor Trajectories from Middle to High School among Adolescents

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Abstract

Protecting adolescents from the risk of teen dating violence (TDV) perpetration is critical to enhancing prevention efforts. This study examined longitudinal trajectories of four protective factors (i.e., empathy, social support, parental monitoring, and school belonging) across adolescence in relation to four TDV types (i.e., verbal, relational, physical, and sexual). Adolescents (n = 1,668) who reported being in a relationship or dating during high school completed selfreport measures from middle through high school. Results indicated that all protective factors differentiated between TDV perpetrators and nonperpetrators, although these trajectories varied for boys and for girls and across the different types of TDV. Overall, youth who did not perpetrate TDV in high school generally displayed higher protective factors across the TDV perpetration types.

A growing body of research literature suggests that aggression and violence toward a dating partner peaks during early adolescence and then declines with age (Capaldi & Langhinrichsen-Rohling, 2012), highlighting the importance of addressing dating violence during adolescence. The Centers for Disease Control and Prevention (2018) defines teen dating violence (TDV) as physical, sexual, or psychological/emotional violence, including stalking, occurring between current or former teen dating partners. These different forms of

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Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article.

violence that compise TDV are the same forms that comprise intimate partner violence (IPV) among adults (Breiding, Basile, Smith, Black, & Mahendra, 2015). Psychological or emotional violence within dating relationships refers to putdowns or name-calling, verbal intimidation or threats, isolating a partner from friends and family, and controlling behaviors or jealousy. Physical violence refers to intentional use of physical force to cause harm, including hitting, slapping, stabbing, choking, biting, and/or any form of physical assault. Sexual violence in dating relationships includes nonconsensual completed or attempted penetration and unwanted nonpenetrative sexual contact (CDC, 2014). Commonly used measures of TDV consistently assess psychological/verbal/relational, physical, and sexual types of TDV as separate scales recognizing their unique contribution to deleterious outcomes (Exner-Cortens, Gill, & Eckenrode, 2016; Smith et al., 2015).

Indeed, rates of TDV vary by the type (e.g., physical, sexual, verbal/psychological) and consistent gender differences have been documented. School-based studies have demonstrated that among 9^{th}-12^{th} graders, rates were as high as 9% for physical TDV and 10–25% for psychological/verbal TDV perpetration (Hamby, Finkelhor, & Turner, 2012). Baseline Dating Matters® data assessed verbal TDV perpetration across 46 middle schools across multiple US cities and found 77.1% endorsement of verbal/emotional TDV (Niolon et al., 2015), with girls more likely to perpetrate verbal/emotional TDV (81.8% vs. 71.6%) than boys. Among a 2017 nationally representative sample of high school students who reported dating in the past year, 8.0% experienced physical dating violence victimization and 6.9% experienced sexual dating violence victimization; prevalence estimates for TDV also vary by sex, with girls reporting higher victimization rates than boys for both physical dating violence (9.1% vs. 6.5%) and sexual dating violence (10.7% vs. 2.8%) (Kann et al., 2018). In a meta-analysis of 101 studies with TDV prevalence data, Wincentak, Connolly, and Card (2017) observed that female perpetration of physical TDV was nearly twice that of male perpetration (25% vs. 13%). Sexual TDV perpetration, however, was three times more prevalent in boys than in girls (10% vs. 3%). These rates are particularly concerning given that dating violence in adolescence has been associated with a broad range of long-term adverse health outcomes, such as substance misuse, depression, suicidal ideation, and antisocial behavior (Exner-Cortens, Eckenrode, & Rothman, 2013; Roberts, Klein, & Fisher, 2003).

Limited information exists on effective TDV perpetration prevention strategies (De La Rue, Polanin, Espelage, & Pigott, 2017; Whitaker et al., 2006). Understanding what factors put teens at risk for perpetrating TDV and what protects them from the risk of perpetration is critical for enhancing prevention efforts. Numerous studies have assessed the risk factors for TDV perpetration such as depression and impulsivity, engagement in aggressive behavior, and parental marital conflict, although much of the prior work remains cross-sectional, limiting our understanding of how risk factors vary over time (Vagi et al., 2013). We know less about protective factors for TDV, with a recent review identifying only a few longitudinal protective factors at the individual and relationship levels (Vagi et al., 2013). Individual level protective factors for TDV included low discrepancy between one's attitudes toward dating violence and one's own behaviors (e.g., cognitive dissonance), high empathy, a high grade point average, and a high verbal IQ. Relationship level protective factors included having a positive relationship with one's mother and having a high degree of school

belonging. However, these results must be interpreted with caution as each protective factor identified was supported by only one study. Furthermore, a small amount of empirical research suggests that risk and protective factors for TDV may differ in important ways for boys and girls (e.g., using alcohol is a risk factor for girls' perpetration but not boys'; Foshee, Linder, MacDougall, & Bangdiwala et al., 2001; Foshee, Benefield, Ennett, Bauman, & Suchindran et al., 2004). Additionally, some TDV programs have demonstrated differential effects for boys and girls (Reidy, Holland, Cortina, Ball, & Rosenbluth, 2017; Wolfe et al., 2009). These results suggest that examining potential gender differences in risk and protective factors for TDV have important implications for the prevention of boys' and girls' TDV perpetration.

The goal of the current study is to fill a gap in the literature by expanding our understanding of pertinent protective factors for TDV perpetration and examining whether these protective factors differ for males and females. Consistent with developmental theory that stresses the salience of relationships in adolescence (Brown & Larson, 2009; Masten & Monn, 2015), we focused on relational protective factors that interplay with different levels of influence (peers, parents, school) that were also identified as potential protective factors in the Vagi et al. (2013) review. Moreover, using a resilience framework (Masten & Monn, 2015), we conceptualized these factors as protective against violence, controlling for other negative exposures, because this conceptualization allowed us to assess whether protective skills promote healthy development over time in adolescents with or without adversity. Resilience in this context refers to the capacity of an individual to adapt to difficult situations, and involves interplay with other influences (e.g., family, community) (Masten & Monn,2015).

TDV Protective Factors

Empathy, or the ability to deeply understand and be genuinely sensitive to the feelings and experiences of others, is associated with other positive social behaviors such as deepened connection with others, altruism and generosity, and is protective against negative social behaviors such as aggression (Fesbach, 1975; Miller & Eisenberg, 1988; van Noorden, Haelager, Cillessen, & Bukowski, 2015). It stands to reason that those who are better able to understand and connect with the feelings and experiences of others would be less likely to intentionally harm other people. Indeed, higher levels of empathy in children and adolescents have been associated with lower likelihood of perpetrating aggression against peers (LeSure-Lester, 2000) and physical dating aggression (McCloskey & Lichter, 2003), but it is unclear whether empathy is protective against other forms of TDV perpetration.

Social support, or a social network's provision of psychological or material resources intended to help an individual cope with stress (Cohen, 2004), represents another potentially important protective factor for TDV perpetration. Although much of the existing research on social support has focused on adult samples, the majority of these studies suggest that social support is protective against IPV perpetration (Capaldi, Knoble, Shortt, & Kim, 2012). One cross-sectional study found that social support from one's mother, social support in one's neighborhood, and school belonging were all significantly negatively correlated with physical and sexual dating violence perpetration among adolescents (Banyard, Cross, & Modecki, 2006). However, none of these factors remained significant when controlling for

other factors, namely depression and past history of abuse. The mechanisms through which social support may or may not protect against dating violence perpetration, specifically in adolescence, remains unclear.

Several studies have explored the role of the family context in influencing the likelihood of TDV perpetration. Specifically, parenting-related factors, such as degree of parental monitoring, may represent important modifiable parenting practices that can decrease or buffer risk for TDV. A review by Vagi et al. (2013) identified several parenting-related risk factors for TDV perpetration, such as harsh parental practices, low parental monitoring, and exposure to interparental violence. For example, a longitudinal study of adolescent boys found that involvement in TDV was associated with harsh parenting and indirectly associated with perceived laxness in parental monitoring, via its association with antisocial behavior (Lavoie et al., 2002). However, other studies that have examined parental monitoring failed to identify a significant relationship to TDV perpetration when controlling for other TDV risk factors (Banyard et al., 2006; Foshee et al., 2016; Schnurr & Lohman, 2008). The Vagi et al. (2013) review also identified having a positive relationship with one's mother as one of the few relationship level, longitudinal protective factors for TDV perpetration, suggesting that variables related to parenting are an important focus for research on risk and protective factors for TDV.

Similarly, another important protective factor for various types of violence perpetration is feeling connected to one's school. Attachment to school, or school belonging, has been found to be protective for youth exposed to interpersonal violence against adverse outcomes like psychological problems and reduced life satisfaction, which have been associated with peer violence victimization (Flaspohler et al., 2009; Ozer, 2005). Specific to TDV, Cleveland et al. (2003) found that students with high levels of school attachment were less likely to perpetrate TDV than their less connected counterparts.

Given the limited research on protective factors for TDV, more research is needed that can expand our understanding of modifiable factors that promote resiliency and decrease risk for TDV perpetration for males and females. In particular, longitudinal research that can establish temporal precedence of how protective factors change over time to predict TDV perpetration would greatly contribute to the literature. In addition, gaining a better understanding of how those changes operate over time for both male and female adolescents may better inform prevention efforts during this important developmental phase.

The current study will examine trajectories of four potential protective factors for TDV perpetration (empathy, social support, parental monitoring, and school belonging) across middle and high school (while controlling for key risk factors) to assess whether they differ between perpetrators and nonperpetrators of physical/threatening, sexual, verbal, and relational TDV. Each protective factor will be examined separately across the different types of TDV and separately for males and females given the extant literature points to significant gender differences in the influence of risk and protective factors on TDV perpetration (Foshee et al., 2001; Foshee et al., 2004). First, it is hypothesized that male perpetrators of TDV in high school would have consistently lower protective factor scores across middle and high school compared to male nonperpetrators (Hypothesis 1a), and, similarly, that

female perpetrators would have lower protective factor scores compared to female nonperpetrators (Hypothesis 1b). Second, given the documented gender differences for the protective factors (empathy, Van der Graaff et al., 2014; social support, Heerde & Hemphill, 2017; parental monitoring, Lavoie et al., 2002; and school belonging, Benner, Boyle, & Bakhtiari, 2017), we also expected that gender differences would likely emerge between male and female perpetrators across the TDV subtypes, though this examination is exploratory (Hypothesis 2).

METHODS

Participants

Participants included 1,668 students from four Midwestern middle schools who transitioned into six high schools and who reported being in a relationship or dating during high school. Surveys were administered at seven time points: Spring/Fall 2008, Spring/Fall 2009, Spring 2010, 2012, and 2013. However, one wave of data collected at the end of middle school (Spring 2010) was excluded because the items used in the analysis in this current study were not measured during that wave. On average, participants were 12.8 (SD = 1.08) years old with over half identifying as female (51.01%). The sample was 29.10% White, 46.93% Black, 6.00% Hispanic, 1.76% Asian/Pacific Islander, and 6.71% other. At baseline, students were in 5th (5.0%), 6th (41.3%), 7th (32.4%), or 8th grade (20.3%); participants were freshmen, sophomores, or juniors in high school at the last wave. At the school-level, 70% of the students, on average, were receiving free and reduced lunch. During high school, 74.26% reported verbal TDV perpetration, 31.42% reported physical/threatening TDV, 11.13% reported relational TDV, and 12.31% of the sample reported engaging in sexual TDV. See Table 1 for more information on baseline demographics.

Procedures

A waiver of active parental consent was approved by the Institutional Review Board, so parents signed and returned a consent form only if they did not want their child to participate in the study. Prior to starting the survey, trained proctors read an assent script to students, and students could elect not to participate and/or skip any questions. Students completed the survey, which took approximately 30 min, during regular school hours. All students were given resources for TDV at the end of the survey.

Measures

Demographic variables and risk factor co-variates.—Self-reported age, race/ethnicity (nonwhite reference group), and maternal education (high school or less as reference group) were controlled for in the analyses. Furthermore, to ensure our models accounted for important *risk* factors during the middle school years and isolated the impacts of protective factors in high school, we also controlled for: history of trauma (childhood sexual abuse, physical abuse, and exposure to domestic violence; Espelage, Low, & De La Rue, 2012), family conflict (e.g., yelling, arguing, losing temper, fights by family members; Family Conflict and Hostility Scale, Thornberry, Krohn, Lizotte, Smith, & Tobin, 2003), bullying perpetration (e.g., teasing, name calling, social exclusion; University of Illinois Bully Scale, Espelage, Holt, & Henkel, 2003), and impulsivity (e.g., difficulty sitting still,

completing tasks; Teen Conflict Survey, Espelage, Bosworth, & Simon, 2000). See Table S1 in Supporting Information for detailed information about included risk factors.

Protective factors.

Empathy.: The 5-item Empathy subscale of the Teen Conflict Scale (Bosworth & Espelage, 1995) measured adolescents' ability to listen to, care for, and trust others. Students were asked to indicate how often they would use items in the scale to describe themselves (e.g., "I can listen to others" and "I get upset when my friends are sad") on a 5-point Likert scale with options ranging from "Never" (0) through "Always" (4). High values indicate more frequent empathic behaviors. In the current study, Cronbach's alpha ranged from 0.67 to 0.76 (M_{alpha} = 0.75) across waves.

Social support.: The Vaux Social Support Record (VSSR) is a 9-item questionnaire adapted from Vaux's Social Support Appraisals (SSA) 23-item scale that was designed to assess the degree to which a person feels cared for, respected, and involved (Vaux, 1988). The VSSR is comprised of three 3-item subscales that measure the support available from family, peers, and school, respectively; the 3-item subscales are then summed into a total scale score. Students were asked how many of each fit the description of each item (e.g., "I have friends I can talk to, who care about my feelings and what happens to me"). Response options were "None" (0), "Some" (1), and "All" (2). The VSSR total scale and subscales showed good internal consistency across waves, with Cronbach's alpha coefficients ranging from 0.83 to 0.94 in the current study (M_{alpha} = 0.86).

Parental monitoring.: The Parental Monitoring/Supervision subscale from the Seattle Social Development Project (Arthur, Hawkins, Pollard, Catalano, & Baglioni, 2002) was used to measure respondents' perceptions of established familial rules and perceived parental awareness regarding schoolwork and attendance, peer relationships, alcohol or drug use, and weapon possession. The subscale includes eight items measured on a 4-point Likert scale ranging from "Never" (0) through "Always" (3). Example items include, "My family has clear rules about alcohol and drug use" and "My parents ask if I've gotten my homework done." In the current study, Cronbach's alpha ranged from 0.86 to 0.90 (M_{alpha} = 0.88) across all waves.

School belonging.: Perceived belonging at school was assessed with 4 of the 20 items from the Psychological Sense of School Members Scale (Goodenow, 1993). Students were asked how much they agree with the following statements: (1) "I feel proud of belonging to this school," (2) "I am treated with as much respect as other students," (3) "The teachers here respect me," and (4) "There is at least one teacher or other adult in this school I can talk to if I have a problem." A 5-point response scale ranged from "Strongly Disagree" (0) through "Strongly Agree" (4). In the current sample, Cronbach's alpha ranged from 0.68 to 0.74 (M_{alpha} = 0.72) across all waves.

High school TDV perpetration.—TDV was assessed only in high school with the 25-item perpetration scale from the Conflict in Adolescent Dating Relationships Inventory (CADRI, Wolfe et al., 2001) that comprise five subscales: verbal (10-items), relational (3-

items), threatening (4-items), physical (4-items), and sexual (4-items) perpetration in the past year. Students were presented with this stem prior to completing the measure: "The next questions ask about 'dating.' By 'dating,' we mean spending time with someone you are seeing or going out with (one time date, long-term relationship). How often in the past year did you do the following to a dating partner?" Example items include "I insulted him/her with put downs" (verbal), "I brought up something bad he/she had done in the past" (relational), "I threatened to hurt him/her" (threatening), "I pushed, shoved, or shook him/her" (physical), and "I forced him/her to have gender when he/she didn't want to" (sexual). Response options were on a 4-point scale ranging from "Never" (0) through "Often" (3).

Because we found consistently high correlations between physical and threatening items (r range = .73–.89), we examined the factor structure with these two subscales combined. We also tested the structure of the data with an exploratory factor analysis using a split-half sample approach. Model comparison between the four- and five-factor solutions revealed that, among this sample, no additional information was added with a fifth latent factor. Items that loaded significantly on the fifth factor were not theoretically sound (e.g., items from multiple subscales), and had relatively low loadings (e.g., factor loadings below 0.4). Upon further investigation into the four-factor solution, all of the physical and threatening items loaded on the same factor (Table S2). Finally, the scree plot (Figure S1) indicates a four-factor solution based on Eigenvalues. This structure was then utilized in a confirmatory factor analysis to determine model fit. Results indicate excellent model fit for the four-factor solution (CFI = 0.970, TLI = 0.967, RMSEA = 0.02, $\chi^2 = 426.18$ (269), $p < .000$). The CADRI has strong internal consistency with a Cronbach's alpha of 0.83. Because the distribution for TDV perpetration was skewed, we dichotomized TDV perpetration into *ever engaging* in any TDV perpetration (1 = *yes*) or *never engaging* in TDV perpetration (0 = *no*) during high school (last two waves).

Data Analytic Plan

The current study investigated variation across biological gender in trajectories of potential protective factors (empathy, social support, parental monitoring, school belonging) for individuals who engaged in verbal, relational, physical/threatening, and sexual TDV perpetration in high school (last two waves of data collection) versus those who reported being in dating relationships but did not engage in TDV perpetration. However, as an initial step to assess the functional form of the data, we estimated a series of multigroup latent growth models (MG-LGCM; Grimm, Ram, & Estabrook, 2016) with verbal, relational, physical/threatening, and sexual TDV perpetration as our grouping variables in Mplus version 8 (Muthén & Muthén, 1998–2017). Before presenting results by sex, we briefly report on initial levels of each protective factor at the start of the study (Wave 1) as well as trajectories of protective factor growth for all youth based on perpetration status (i.e., main effects).

The purpose of this manuscript was to understand potential differences in protective factor trajectories across male and female perpetrators and nonperpetrators. To this end, an interaction between biological gender (female reference group) and each form of TDV perpetration was entered into separate models. A significant interaction indicates differences

in gender for perpetrators and nonperpetrators for the protective factor being modeled. To interpret any significant interactions, prototypical plots were created for male and female perpetrators and nonperpetrators. We estimated simple slopes for significant interactions across male and female perpetrator status and tested differences in slopes across male and female perpetrators as well as male and female nonperpetrators using the Wald test of parameter constraints. A significant Wald test would indicate differences between the male and female slopes being compared.

RESULTS

Trajectories of Protective Factors

In our initial step to determine functional form of data across our protective factors, significant log likelihood ratio tests between models indicate a better fitting model when constraints were lifted. Results of model fitting and parameter estimates for the unconditional growth models can be found in Tables S3–S6.

As a second step, we estimated a series of latent growth models for TDV perpetrators and nonperpetrators across protective factors irrespective of biological gender (see Tables S7–S10, Figures S2–S5 for detailed description of results). Briefly, when examining empathy among all youth, results indicated that youth who engaged in verbal and relational TDV perpetration had lower starting points than youth who did not engage in TDV perpetration. Furthermore, we found significant variation across slopes for verbal and sexual TDV perpetration, indicating slower growth in empathy for perpetrators. For social support, no differences emerged at the starting point between perpetrators and nonperpetrators across any of the protective factors. However, we did find steeper decreases in slopes for youth engaged in verbal, physical, and sexual TDV perpetration versus those who were not. For parental monitoring, we found that youth who engaged in physical/threatening TDV not only started significantly lower than nonperpetrators but also showed steeper declines in parental monitoring compared to nonperpetrators over the study period. For school belonging, no differences in starting points were found between perpetrators and nonperpetrators across the protective factors. However, youth who engaged in sexual TDV showed significant decreases in school belonging compared to nonperpetrators. Full results, figures, and tables for the conditional growth models can be found in Supporting Information, which highlight the intercepts and slopes of each protective factor for perpetrators and nonperpetrators across middle and high school. Using these models as a base, we tested all possible interactions between sex and perpetration status. For parsimony, however, we only report and plot significant interactions.

Variation in TDV by Biological Sex

To examine our hypotheses regarding differences in trajectories of protective factors by sex, we estimated models for TDV perpetration and nonperpetration by biological sex. When a significant interaction was present, we tested for simple slopes across the different trajectories (e.g., male perpetrators, male nonperpetrators, female perpetrators, and female nonperpetrators). We then assessed differences in slopes for the three combinations of interest: (1) male perpetrator versus male nonperpetrator (Hypothesis 1a), (2) female

perpetrator versus female nonperpetrator (Hypothesis 1b), and (3) male perpetrator versus female perpetrator (Hypothesis 2). Below, we provide references to results found in tables as an example to allow readers to follow throughout the rest of the Results section.

Interactions for Empathy

Results indicated only one significant interaction (e.g., both intercepts and slopes; see Table 2 'Sexual TDV' column) for sexual TDV (intercept interaction: $\alpha = -1.03$ (0.38), $p = .01$; slope interaction: $\beta = 0.18$ (0.08), $p = .02$), which indicates that trajectories of empathy for sexual TDV perpetrators and nonperpetrators is dependent on biological sex (see Table 2).

Significant sexual TDV interaction.—Significant simple slopes (see Table 6) for sexual TDV were found for female perpetrators, female nonperpetrators, and male nonperpetrators (see Figure 1). When comparing slopes, we found no significant differences between female perpetrators (simple slope = 0.33 (0.08), $p < .001$) and female nonperpetrators (simple slope = 0.37 (0.03), $p < .001$) (Hypothesis 1b; (Wald $\chi^2 = 0.23$, $df = 1$, $p = .63$)). However, we did find significant differences between male perpetrators (simple slope = 0.14 (0.07), $p = .14$) and male nonperpetrators (simple slope = 0.40 (0.04), $p < .001$) (Hypothesis 1a; Wald $\chi^2 = 13.4$, $df = 1$, $p < .001$) as well as between female perpetrators and male perpetrators (Hypothesis 2; (Wald $\chi^2 = 3.65$, $df = 1$, $p = .04$)). These results indicate that male perpetrators have a steeper decline in empathy compared to male nonperpetrators and female perpetrators, who both experience increases in empathy over time.

Interactions for Social Support

For social support, we found significant interactions across all four TDV outcomes (see Table 3).

Significant verbal TDV interactions.—Significant simple slopes for verbal TDV were found for female perpetrators, female nonperpetrators, and male nonperpetrators (Figure 2a, Table 6). Simple slopes for male perpetrators were positive (increasing), but nonsignificant. When comparing slopes, we did not find differences in social support slopes between female perpetrators and female nonperpetrators (Hypothesis 1b), indicating that social support slopes are accelerating at similar rates across female perpetrators and female nonperpetrators for verbal TDV. However, we did find significant differences between male perpetrators and male nonperpetrators (Hypothesis 1a) as well as female perpetrators and male perpetrators (Hypothesis 2). This indicates that male perpetrators have a steeper decline of social support compared to both female perpetrators and male nonperpetrators of verbal TDV.

Significant relational TDV interactions.—Simple slope results for relational TDV revealed that female perpetrators, female nonperpetrators, and male nonperpetrators all had significant positive (increasing) slopes (Figure 2b, Table 6). When comparing slopes, we did not find differences between male perpetrators and male nonperpetrators (Hypothesis 1a). However, significant differences emerged in slopes between female perpetrators and female nonperpetrators (Hypothesis 1b), as well as between male and female perpetrators (Hypothesis 2). This indicates that female perpetrators have a steeper acceleration in social support compared to both male perpetrators and female nonperpetrators.

Significant physical/threatening TDV interactions.—We found significant simple slopes for female perpetrators, female nonperpetrators, and male nonperpetrators (Figure 2c, Table 6). When comparing social support slopes, we did not find differences between female perpetrators and female nonperpetrators (Hypothesis 1b), indicating that social support slopes are accelerating at similar rates across female perpetrators and female nonperpetrators for physical/threatening TDV. However, we did find support for differences between male perpetrators and male nonperpetrators (Hypothesis 1a) as well as female perpetrators and male perpetrators (Hypothesis 2). This indicates that male perpetrators have a steeper deceleration of social support compared to both female perpetrators and male nonperpetrators of physical/threatening TDV.

Significant sexual TDV interactions.—Simple slopes for sexual TDV revealed significant slopes for female nonperpetrators, male nonperpetrators and male perpetrators (Figure 2d, Table 6). When comparing slopes, we did not find differences in social support slopes between male and female perpetrators (Hypothesis 2), indicating that social support slopes are decreasing at similar rates across male and female sexual TDV perpetrators. However, we did find evidence of differences between male perpetrators and male nonperpetrators (Hypothesis 1a) as well as female perpetrators and female nonperpetrators (Hypothesis 1b). That is, both male and female nonperpetrators have increasing social support from middle school through high school compared to their peers who engaged in sexual TDV perpetration.

Interactions for Parental Monitoring

We found significant interactions for the slopes of verbal TDV and physical/threatening TDV, indicating that those parental monitoring trajectories varied based on biological sex (see Table 4).

Significant verbal TDV interactions.—Simple slopes for verbal TDV revealed significant simple slopes only for female nonperpetrators (Figure 3a, Table 6). Comparing slopes for verbal TDV, we found no significant differences between female perpetrators and male perpetrators (Hypothesis 2) or between male perpetrators and male nonperpetrators (Hypothesis 1a). However, we did find significant differences between female perpetrators and female nonperpetrators (Hypothesis 1b). This indicates that slopes are similar across biological sex for verbal TDV perpetration when assessing parental monitoring. However, female nonperpetrators have steeper acceleration of parental monitoring compared to females who engaged in verbal TDV in high school. For (Figure 3a), the male perpetrator slope is nearly identical to the male nonperpetrator slope, so the lines appear as one line.

Significant physical/threatening TDV interactions.—For physical/threatening TDV, we found significant simple slopes for both female perpetrators and female nonperpetrators (Figure 3b, Table 6). However, male perpetrators and nonperpetrators of physical/threatening TDV had nonsignificant flat trajectories of parental monitoring over the course of the study. When comparing slopes for physical/threatening TDV, we found no significant differences between female perpetrators and male perpetrators (Hypothesis 2). However, we found significant differences between male perpetrators and male nonperpetrators (Hypothesis 1a)

and between female perpetrators and female nonperpetrators (Hypothesis 1b). These results indicate that male and female physical/threatening TDV perpetrators have steeper decreases in parental monitoring compared to their nonperpetrator counterparts. However, slopes for male and female perpetrators appear to be similar indicating that both are decelerating at similar rates.

Interactions for School Belonging

When assessing interactions for school belonging, only the slopes for sexual TDV were found to vary by biological sex (see Table 5).

Significant sexual TDV interactions.—Simple slopes for sexual TDV revealed significant slopes for female perpetrators, female nonperpetrators, and male nonperpetrators (Figure 4, Table 6). When comparing slopes for sexual TDV, we found no significant differences between female perpetrators and female nonperpetrators (Hypothesis 1b). However, we did find significant differences between male perpetrators and male nonperpetrators (Hypothesis 1a) and between female perpetrators and male perpetrators (Hypothesis 2). This indicates that slopes are similar across female sexual TDV perpetrators and nonperpetrators for school belonging. However, male nonperpetrators have a steeper acceleration in school belonging compared to male perpetrators, and female perpetrators have significantly steeper acceleration in school belonging compared to male perpetrators.

DISCUSSION

This study addresses an important gap in the literature in that it examines protective factors for TDV perpetration over time, examines these protective factors for different forms of TDV, and examines differences in these protective factors by sex. Overall, findings support our first hypothesis and suggest that protective factors do differentiate between perpetrators and nonperpetrators of TDV in high school (Hypotheses 1a and 1b), but that these protective factors operate differently according to gender and the type of TDV examined (Hypothesis 2). While empathy, social support, parental monitoring, and school belonging trajectories varied for boys and for girls and across the different TDV types, overall, youth who did not perpetrate TDV in high school generally displayed higher protective factors across the TDV perpetration types.

Social support emerged as the most consistent protective factor examined in this study as it was the one protective factor that distinguished between male and female perpetrators and nonperpetrators for each of the four types of TDV examined: verbal TDV, relational TDV physical/threatening TDV, and sexual TDV. Male perpetrators across the four types of TDV generally started either slightly lower or at the same level of social support when compared to male nonperpetrators, and declined in social support over time while nonperpetrators increased slightly in social support across time. Generally, female perpetrators started out lower on social support than female nonperpetrators but “caught up” with the nonperpetrators over time, with their social support increasing from a lower starting point while nonperpetrators started higher and remained higher. This was different from what was expected with Hypothesis 1b. The only exception was for sexual TDV, where female perpetrators started lower on social support and declined over time while nonperpetrators

increased slightly over time. Social support also consistently distinguished male perpetrators from female perpetrators over time with the exception of sexual TDV. Overall, male perpetrators were consistently lower than female perpetrators on social support across the four types of TDV. Together, these results are somewhat consistent with the few studies that have examined social support and TDV among adolescents (Banyard et al., 2006), in that lower support is associated with perpetration. Our interaction effects suggest that social support operates differently as a protective factor for boys and for girls, even though it appears to be protective for both; future research should assess the mechanisms through which social support operates for males and females Prevention efforts, especially those under the umbrella of social-emotional learning programs, often work with middle school youth to identify their "external supports" (see Second Step, Committee for Children, 2008). That is, the programs teach youth that when they encounter conflicts at school, they can reach out to their social support system. Our finding that social support from peers, family, and friends predict less TDV perpetration in high school points to the importance of bolstering social support for youth and encouraging them to utilize these supports as they navigate dating relationships. Interestingly, many of the TDV prevention programs teach the importance of helpseeking for oneself and others when there is relationship violence (e.g., Safe Dates, Fourth R; Foshee et al., 1998; Foshee et al., 2005; Wolfe et al., 2009). CDC's *Dating Matters®: Strategies to Promote Healthy Teen Relationships* Initiative (*DM*; Tharp et al., 2011) actually engages potential sources of social support in its comprehensive approach to TDV across the social ecology. *DM* targets students, parents, teachers, and older neighborhood peers in prevention programming efforts, thereby potentially increasing social support of healthy relationship messaging for young people from adults and older peers. *DM* was recently evaluated, and findings on effectiveness of the program on TDV outcomes are forthcoming ().

Parental monitoring emerged as another important protective factor in this study; it distinguished male and female perpetrators and nonperpetrators on two forms of TDV: physical/threatening TDV and verbal TDV. For physical/threatening TDV, both male and female perpetrators started out lower than nonperpetrators in parental monitoring and declined slightly over time, while nonperpetrators increased in parental monitoring over time. For verbal TDV, parental monitoring was important in distinguishing between perpetrators and nonperpetrators among females in the expected directions. However, parental monitoring levels were similar across time for male perpetrators and nonperpetrators. These findings suggest that parents play a critical protective role when youth are starting to engage in relationships with dating partners. This is consistent with the literature which has shown that low parental monitoring is associated with TDV perpetration in adolescence (Foshee et al., 2011; Vagi et al., 2013). The CDC's technical package on the prevention of IPV, including TDV, highlights the importance of "engaging influential adults and peers" and "disrupting the developmental pathways to IPV and TDV;" both of these strategies include approaches that focus on improving parental monitoring and other parenting outcomes (Niolon et al., 2017). Most programs designed to address TDV are delivered as classroom-based curricula embedded within a larger health education curriculum and do not directly involve parents. However, a few TDV prevention programs seeking to improve communication and healthy relationship messaging between parents and

youth are emerging (e.g., Families for Safe Dates, Foshee et al., 2012; *Dating Matters*®, Tharp et al., 2011), and our findings support the notion that parental monitoring and relationships with parents are an important focus for TDV programs.

The other two protective factors we examined, empathy and school belonging, only differentiated between perpetrators and nonperpetrators for males and females for sexual TDV, but not the other forms of TDV. Empathy did not significantly differentiate between female perpetrators and nonperpetrators of sexual TDV but did significantly differentiate between male perpetrators and nonperpetrators of sexual TDV. Female perpetrators and nonperpetrators of sexual TDV started at the same mean level of empathy at baseline, and then perpetrators decreased slightly in empathy while nonperpetrators increased slightly in empathy over time; however, the differences in slopes were not statistically significant. Males had a less expected pattern: perpetrators of sexual TDV were actually higher than nonperpetrators on empathy at baseline. Over time, however, perpetrators decreased in empathy while nonperpetrators increased. By high school, perpetrators were lower than nonperpetrators on empathy, just as was true with the females. Female perpetrators were significantly higher on empathy than male perpetrators. The significantly higher endorsement of empathy among female perpetrators than male perpetrators might be explained by other research which notes that females generally display greater increases of empathy over the course of adolescent development when compared to males (Mestre et al., 2009; Van der Graaff et al., 2014). Given that the literature has not assessed the impact of empathy on sexual TDV specifically, more research needs to be conducted before definitive statements are made.

Overall, these findings suggest the importance of empathy as a protective factor for preventing sexual TDV specifically. Further research investigating the particular influence of empathy on sexual TDV as opposed to the other forms of TDV could help inform prevention strategies. A promising approach would be school-based social-emotional learning programs that address interpersonal conflict and teach emotion management especially among middle school youth before perpetration occurs. These programs have successfully reduced youth violence and sexual harassment during early adolescence (Espelage, Van Ryzin, Low, & Polanin, 2015), which are related to TDV (Niolon et al., 2015). Many of these social-emotional learning (RULER, Brackett, Rivers, Reyes, & Salovey, 2010) and social-cognitive intervention programs (e.g., Fourth R, Wolfe et al., 2009; Life Skills, Botvin, Griffin, & Nichols, 2006) target common risk, but they also address protective factors such as empathy and seeking social support.

School belonging was also found to differentiate between perpetrators and nonperpetrators for males and females only for sexual TDV. Results revealed that for both males and females, non-perpetrators of sexual TDV endorsed a greater sense of school belonging over time when compared to perpetrators of TDV (however, the differences in slopes for female perpetrators and nonperpetrators were not significant). School belonging may be more important for male students, as male nonperpetrators had a steeper acceleration in school belonging compared to male perpetrators, and female perpetrators have significantly steeper acceleration in school belonging compared to male perpetrators. It is not clear why school belonging was not significantly related to other forms of TDV, but it could be that more

proximal protective factors differentiated perpetration status and interacted with school belonging to predict perpetration. Of note, we assessed school belonging broadly with a particular focus on students' perception of the connectedness to teachers, so future research should assess other dimensions of school connectedness, including peers and other staff.

Regardless, these findings suggest that efforts to prevent sexual violence, specifically in the context of TDV, might benefit from incorporating efforts to increase school belonging into their prevention approaches. A few TDV prevention programs focus on the school context as part of their interventions. For example, *Shifting Boundaries* tested the effectiveness of a school building-based intervention, among other intervention components, in a randomized clinical trial (RCT; Taylor, Stein, Mumford, & Woods, 2013). The building-level intervention included a poster campaign, introduction of a temporary protection order program for students, and a "hot-spot mapping" exercise where security was increased at student-identified "hot spots" for violence, and it was found to reduce sexual TDV victimization, indicating the importance of improvements in the school environment for the prevention of sexual TDV (Taylor et al., 2013). While school belonging was not specifically assessed, it is possible that the building-level intervention could be promoting stronger trust between youth and staff, thereby promoting a stronger sense of school belonging. Additionally, the *Dating Matters®* initiative intentionally designed its comprehensive prevention model to be a whole school approach in middle school, with programming for students in 6^{th}, 7^{th}, and 8^{th} grades, parents of students in these grades, and all middle school teachers and staff (Tharp et al., 2011). Although their intent was not 1explicitly to improve school belonging, it can be presumed that the whole school approach to the prevention of dating violence and improving healthy relationships might change school norms in a way that improves school belonging.

The current study is the first paper of its kind to assess protective factors for TDV perpetration longitudinally and to examine whether these protective factors operate differently for boys and girls. It is also the first paper to examine protective factors for the different forms of TDV (verbal, relational, physical/threatening, and sexual). Findings underscore the need to address these protective factors in TDV prevention programs. Social support was found to be significantly protective across all forms of TDV perpetration, even after controlling for known risk factors, indicating that it is especially important in TDV perpetration prevention. Thus, programs that address social support, such as *Second Step* (Committee for Children, 2008), *Safe Dates* (Foshee et al., 2005), *Fourth R* (Wolfe et al., 2009), and *Dating Matters* (Tharp et al., 2011) may be especially important for preventing TDV. Empathy, parental monitoring, and school belonging were all found to be protective for at least one, if not more, forms of TDV perpetration. These findings also underscore differences in how these protective factors relate to the different forms of TDV and differences in how they operate for girls and boys.

This study and other work has reinforced the importance of implementing prevention efforts with younger youth (Niolon et al., 2017). It is established that TDV is as an important risk factor for IPV in adulthood (Exner-Cortens, Eckenrode, Bunge, & Rothman, 2017). Therefore, primary prevention of TDV, starting in middle school, creates an opportunity to interrupt the developmental trajectory for IPV across the lifespan and reduce risk for long-

term negative health consequences. While prevention efforts should take into account the strong influence risk factors play in understanding perpetration, this study uncovered important associations of protective factors with different subtypes of TDV perpetration while controlling for important risk factors. As a result, this study demonstrates that it is critical to understand how protective factors operate over time among adolescents both with and without challenges. Some protective factors may be more important in early adolescence (i.e., middle school), while others may be more salient in later adolescence in protecting against TDV. Understanding how protective factors change over time, promote resiliency, and relate to different forms of high school TDV perpetration gives us important information about when and how to intervene as well as what key protective factors should be promoted in prevention efforts. Future studies that examine protective factors as potential buffers of the association of key risk factors with TDV perpetration will further advance the field. Studies that seek to identify and longitudinally assess other protective factors for TDV across the social ecology are also warranted.

Despite many strengths of this study, the study's limitations should be noted. First, the study was conducted in Midwestern middle and high schools with a high percentage of students on free and reduced lunch, so findings may not be generalizable across the United States. Second, because the distribution for TDV perpetration was irregular, perpetration was dichotomized for each form of TDV which limited the ability to compare protective factor trajectories across a range of reported instances of TDV perpetration. Additionally, although not directly comparable to rates quoted in a recent meta-analysis on TDV perpetration, rates in the current sample were slightly higher for physical/threatening TDV perpetration (31.4%) than they were for physical TDV perpetration estimates from the meta-analysis (20%), and higher for sexual TDV perpetration (12.3%) than they were for sexual TDV perpetration estimates from the meta-analysis (9%), and it is unclear whether slightly higher reporting rates in this sample affect the generalizability of results (Wincentak et al., 2017).

In sum, despite these limitations, this longitudinal study contributes to our knowledge of how protective factors operate over time to prevent perpetration of different forms of TDV, and it helps us understand how these protective factors operate differently for boys and girls across adolescence. Prevention programs that focus on teaching empathy skills, promoting parental monitoring and support, promoting school belongingness, and increasing social support could have potential to reduce TDV.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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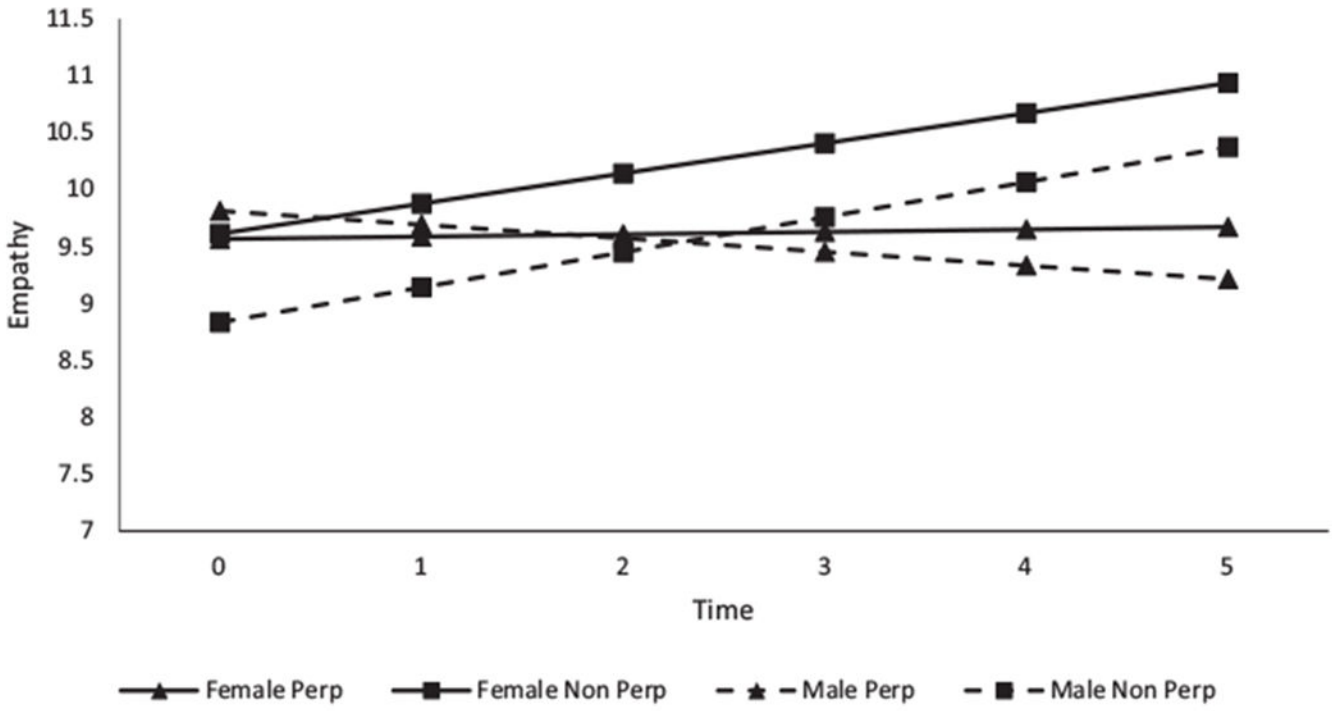

FIGURE 1.

Interaction between biological sex and sexual teen dating violence perpetration for empathy. Time is from middle school (time points 0, 1, 2, 3) to high school (time points 4 and 5). Empathy scores range from 0 to 20 with higher scores indicating more frequent empathic behaviors. Self-reported age, race/ethnicity, and maternal education, history of trauma, family conflict, bullying perpetration, and impulsivity were controlled for during analyses.

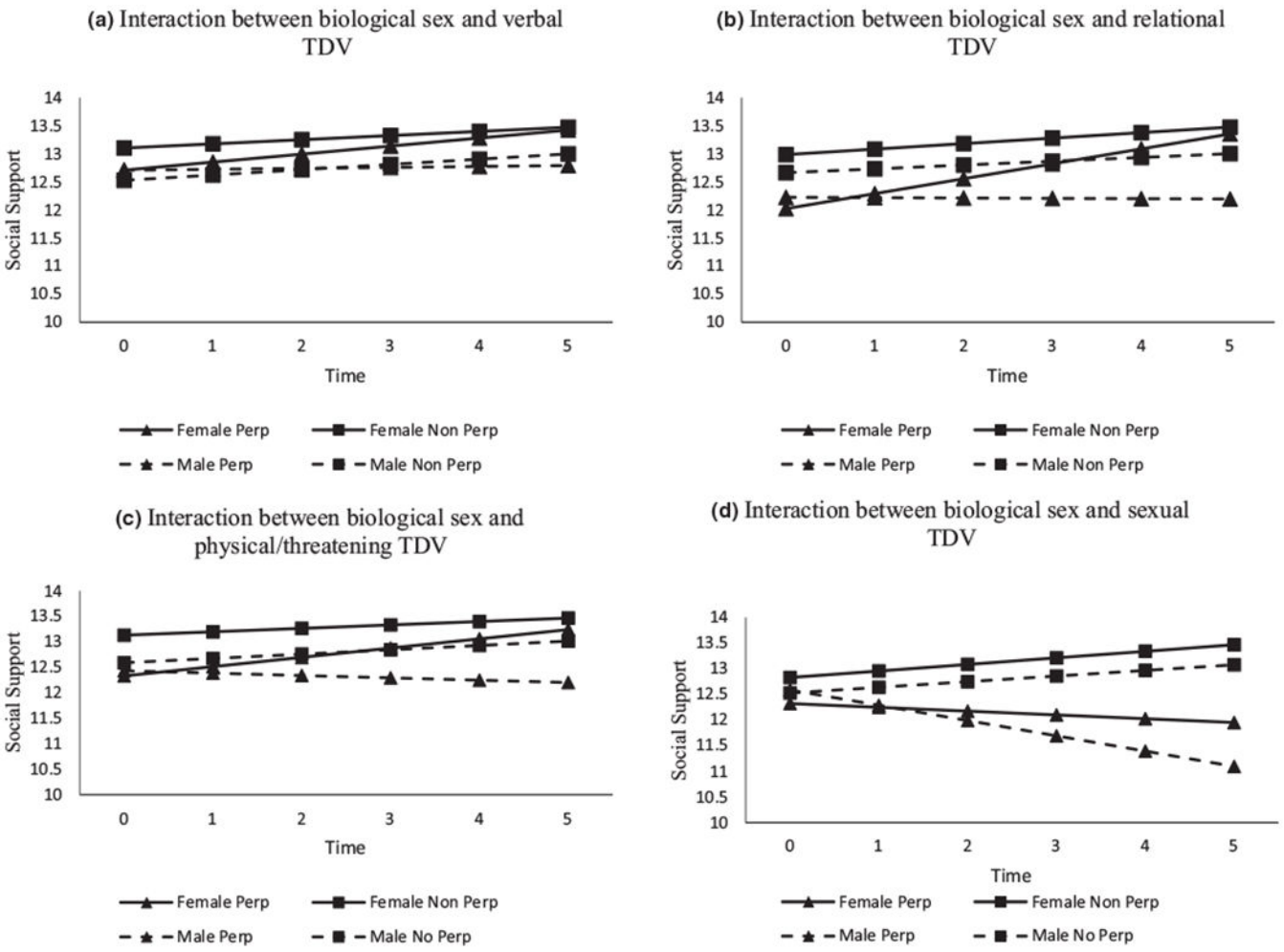

FIGURE 2.

(a–d) Interaction between biological sex and teen dating violence perpetration types for social support. Time is from middle school (time points 0, 1, 2, 3) to high school (time points 4 and 5). Social support scores range from 0 to 18 with higher scores indicating more social support. Self-reported age, race/ethnicity, and maternal education, history of trauma, family conflict, bullying perpetration, and impulsivity were controlled for during analyses.

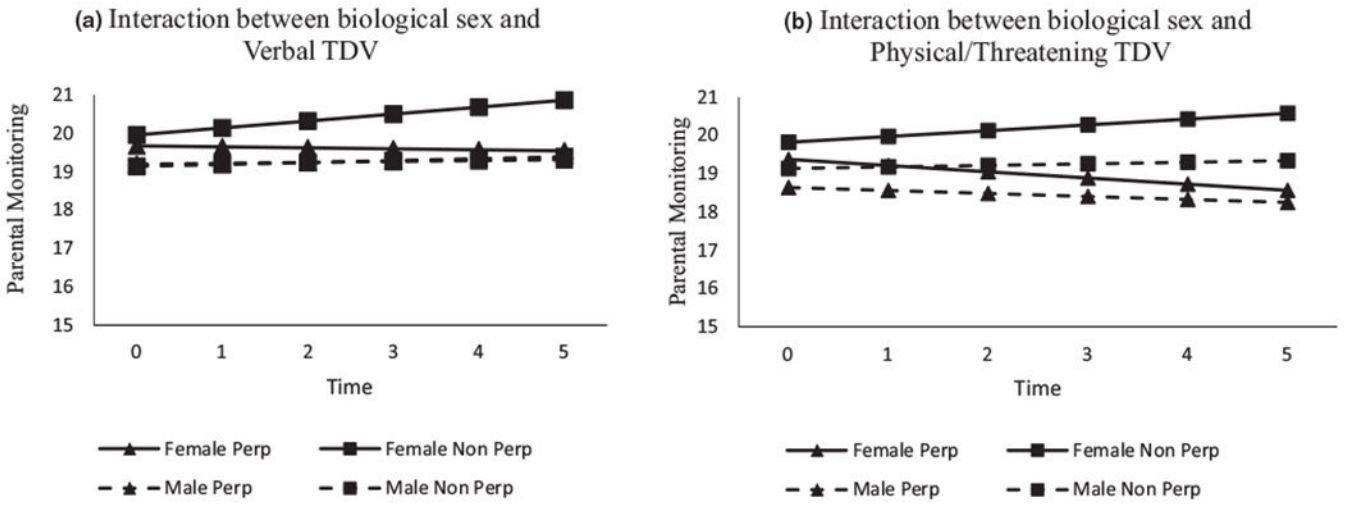

FIGURE 3.

(a, b). Interaction between biological sex and teen dating violence perpetration types for parental monitoring. Time is from middle school (time points 0, 1, 2, 3) to high school (time points 4 and 5). Parental monitoring scores range from 0 to 24 with higher scores indicating more frequent parental monitoring. Self-reported age, race/ethnicity, and maternal education, history of trauma, family conflict, bullying perpetration, and impulsivity were controlled for during analyses.

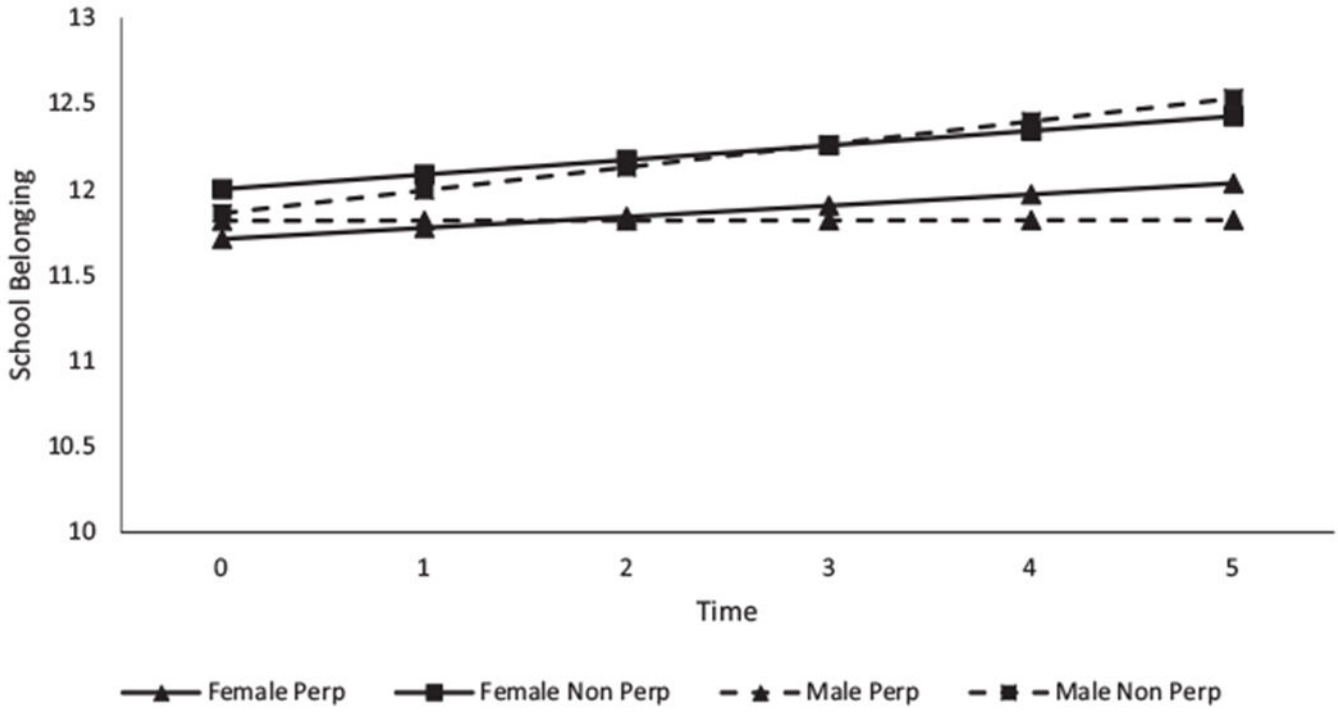

FIGURE 4.

Interaction between biological sex and sexual teen dating violence perpetration for school belonging. Time is from middle school (time points 0, 1, 2, 3) to high school (time points 4 and 5). School belonging scores range from 0 to 16 with higher scores indicating more agreement with feelings of school belonging. Self-reported age, race/ethnicity, and maternal education, history of trauma, family conflict, bullying perpetration, and impulsivity were controlled for during analyses.

TABLE 1

Baseline Characteristics

Variable	M (SD) *or* n% *(*N = *1,668)*	*Male (*n = *818)*	*Female (*n = *850)*	*Bi-variate comparison*
Demographics				
Age	12.83 (1.08)	12.9 (1.09)	12.6 (1.07)	t(3,533) 0.56, p = .48
Female *n*(%)	850 (51.01)			
African-American *n*(%)	782 (46.93)	409 (50.2)	393 (46.5)	χ^2 = 1.46(1), p = .23
White *n*(%)	485 (29.10)	276 (33.9)	322 (38.1)	
Other *n*(%)	111 (6.71)	95 (11.7)	83 (9.8)	
Hispanic *n*(%)	100 (6.00)	23 (2.8)	31 (3.7)	
Asian/Pacific Islander *n*(%)	29 (1.76)	11 (1.4)	16 (1.9)	
Risk factor co-variates				
Family violence (trauma)	1.38 (0.56)	1.21 (0.077)	1.32 (0.86)	t(1,663) – 2.10, p = .04
Parental hostility	0.12 (0.10)	0.02 (0.15)	0.03 (0.16)	χ^2 = 0.62(1), p = .43
Bullying perpetration	0.49 (0.24)	0.41 (0.055)	0.38 (0.54)	t(1,663) 0.23, p = .54
Impulsivity	1.37 (0.40)	1.29 (0.67)	1.26 (0.67)	t(1,663) – 1.7, p = .07
Study variables				
Teen dating violence n(%)				
Verbal	1,237 (74.26)	558 (68.3)	678 (80.00)	χ^2 = 29.4(1), p < .01
Relational	185 (11.13)	80 (9.80)	105 (12.40)	χ^2 = 2.8(1), p = .09
Physical/Threatening	524 (31.42)	115 (14.10)	199 (23.50)	χ^2 = 21.2(1), p < .01
Sexual	205 (12.31)	125 (15.50)	80 (9.40)	χ^2 = 17.2(1), p < .01
Protective factors				
Empathy	8.54 (2.21)	8.23 (2.74)	9.16 (2.81)	t(1,663) – 6.31, p = .04
Social support	18.56 (3.02)	11.78 (2.51)	12.20 (2.20)	t(1,663) – 1.59, p = .11
Parental monitoring	12.00 (1.83)	17.89 (3.92)	18.82 (3.51)	t(1,663) – 5.56, p = .04
School belonging	11.41 (1.31)	11.40 (1.59)	11.58 (1.54)	t(1,663) – 2.85, p < .01

Note. Bi-variate comparisons used chi-square testing for categorical variables and independent samples *t*-test for continuous Variables. Range of values by variables: family violence (0–5); parental hostility (0–1); bullying (0–3); impulsivity (0–4); Empathy (0–20); social support (0–21); parental monitoring (0–28); school belonging (0–16); all teen dating violence are dichotomous (0–1).

TABLE 2

Final MG-LGCM for *empathy* protective factor by teen dating violence (TDV) perpetration type[a]

	Verbal TDV	Relational TDV	Physical/threatening TDV	Sexual TDV
Growth parameters				
Intercept				
Intercept	8.42 (0.15)*	8.89 (0.13)*	8.86 (0.13)*	8.83 (0.13)*
TDV type[b]	1.01 (0.18)*	0.87 (0.30)*	0.63 (0.21)*	0.98 (0.25)*
Biological Sex	0.70 (0.23)*	0.63 (0.13)*	0.79 (0.15)*	0.78 (0.13)*
Interaction	−0.28 (0.28)	−0.26 (0.39)	−0.71 (0.27)*	−1.03 (0.38)*
Slope				
Slope	0.33 (0.04)*	0.27 (0.04)	0.28 (0.04)*	.31 (0.04)*
TDV type[b]	−0.14 (0.04)*	−0.14 (0.06)*	−0.16 (0.05)*	−0.43 (0.05)*
Biological Sex	0.01 (0.05)	−0.01 (0.03)	−0.01 (0.03)	−0.04 (0.03)
Interaction	0.09 (0.06)	0.05 (0.08)	0.10 (0.06)	0.18 (0.08)*
Variance				
Intercept	4.38 (0.19)*	4.61 (0.21)*	4.63 (0.20)*	4.66 (0.20)*
Slope	—	—	—	—
Co-variance				
Intercept with Slope	−0.39 (0.03)*	−0.42 (0.02)*	−0.42 (0.03)*	−0.43 (0.03)*
Model fit				
–2LL	41,560.3	41,662.2	41,657.5	41,573.9
AIC	41,624.8	41,706.5	41,701.5	41,617.9
BIC	41,795.1	41,823.1	41,818.5	41,734.9
CFI	0.97	0.89	0.90	0.97
RMSEA	0.12	0.09	0.11	0.09

Notes. MG-LGCM = multi-group latent growth models.

[a]Self-reported age, race/ethnicity, and maternal education, history of trauma, family conflict, bullying perpetration, and impulsivity were controlled for during analyses.

[b]TDV type refers to type of TDV in each column. That is, the type of TDV in each interaction is represented by the column of TDV type.

* $p < .05$.

TABLE 3

Final MG-LGCM for *social support* protective factor by teen dating violence (TDV) perpetration type[a]

	Verbal TDV	Relational TDV	Physical/Threatening TDV	Sexual TDV
Growth parameters				
Intercept				
Intercept	12.6 (0.13)*	12.6 (0.10)*	12.6 (0.10)*	12.5 (0.10)*
TDV type[b]	0.02 (0.14)	−0.44 (0.22)*	−0.15 (0.16)	0.07 (0.19)
Biological Sex	0.55 (0.018)*	0.32 (0.10)*	0.54 (0.11)*	0.30 (0.10)*
Interaction	−0.39 (0.21)	−0.52 (0.29)	−0.64 (0.21)*	−0.57 (0.28)*
Slope				
Slope	0.08 (0.05)	0.07 (0.04)	0.09 (0.04)*	0.11 (0.04)*
TDV type[b]	−0.02 (0.04)	−0.07 (0.06)	−0.13 (0.04)*	−0.41 (0.05)*
Biological Sex	−0.05 (0.05)	0.03 (0.03)	−0.02 (0.03)	0.02 (0.03)
Interaction	0.14 (0.06)*	0.24 (0.08)*	0.25 (0.06)*	0.21 (0.08)*
Variance				
Intercept	2.32 (0.12)*	2.27 (0.12)*	2.62 (0.12)*	2.34 (0.12)*
Slope	0.03 (0.10)*	0.03 (0.01)*	0.09 (0.04)*	0.02 (0.01)*
Co-variance				
Intercept with Slope	−0.034 (0.098)	0.076 (0.095)	−0.104 (0.061)	−0.09 (0.15)
Model fit				
–2LL	40,786.5	40,761.0	40,744.6	40,696.1
AIC	40,832.5	40,807.0	40,790.4	40,742.1
BIC	40,954.8	40,929.4	40,913.0	40,864.5
CFI	0.97	0.97	0.90	0.97
RMSEA	0.10	0.10	0.10	0.11

Notes. MG-LGCM = multi-group latent growth models.

[a]Self-reported age, race/ethnicity, and maternal education, history of trauma, family conflict, bullying perpetration, and impulsivity were controlled for during analyses.

[b]TDV type refers to type of TDV in each column. That is, the type of TDV in each interaction is represented by the column of TDV type.

* $p < .05$.

TABLE 4

Final MG-LGCM for social *parental monitoring* factor by teen dating violence (TDV) perpetration type

	Verbal TDV	Relational TDV	Physical/Threatening TDV	Sexual TDV
Growth parameters				
Intercept				
Intercept	19.0 (0.19) *	19.1 (0.17) *	19.1 (0.17) *	19.3 (0.16) *
TDV type[c]	0.09 (0.23)	0.06 (0.37)	−0.50 (0.27)	−1.35 (0.36) *
Biological Sex	0.86 (0.30) *	0.66 (0.16) *	0.69 (0.19) *	0.55 (0.16) *
Interaction	−0.33 (0.35)	−0.41 (0.49)	0.05 (0.34)	−0.05 (0.47)
Slope				
Slope	0.07 (0.07)	0.07 (0.64)	0.04 (0.06)	0.04 (0.06)
TDV type[c]	−0.05 (0.05)	−.024 (0.09) *	−0.12 (0.07)	−0.02 (0.08)
Biological Sex	0.11 (0.08)	0.02 (0.40)	0.11 (0.05) *	0.02 (0.04)
Interaction	−0.12 (0.09)	−0.23 (0.12)	−0.19 (0.08) *	−0.13 (0.12)
Variance				
Intercept	6.89 (0.32) *	6.91 (0.32) *	6.86 (0.35) *	6.69 (0.32) *
Slope	0.18 (0.02) *	0.18 (0.06) *	0.17 (0.02) *	0.18 (0.02) *
Co-variance				
Intercept with Slope	0.26 (0.06) *	0.27 (0.06) *	0.25 (0.60) *	0.26 (0.06) *
Model Fit				
–2LL	47,256.8	47,254.0	47,223.6	47,232.7
AIC	47,302.9	47,300.0	47,269.6	47,278.4
BIC	47,351.8	47,422.4	47,391.5	47,401.3
CFI	0.93	0.94	0.91	0.95
RMSEA	0.11	0.11	0.06	0.10

Notes. MG-LGCM: multi-group latent growth models.

[a] Self-reported age, race/ethnicity, and maternal education, history of trauma, family conflict, bullying perpetration, and impulsivity were controlled for during analyses.

[b] TDV type refers to type of TDV in each column. That is, the type of TDV in each interaction is represented by the column of TDV type.

* $p < .05$.

TABLE 5

Final MG-LGCM for social *school belonging* factor by teen dating violence (TDV) perpetration type

	Verbal TDV	Relational TDV	Physical/Threatening TDV	Sexual TDV
Growth parameters				
Intercept				
Intercept	11.8 (0.07)*	11.8 (0.07)*	11.9 (0.07)*	11.8 (0.07)*
TDV type[b]	−0.01 (0.09)	0.30 (0.15)*	−0.15 (0.11)	−0.04 (0.12)
Biological Sex	0.13 (0.12)	0.15 (0.07)*	0.26 (0.07)*	0.14 (0.07)*
Interaction	−0.01 (0.14)	−0.30 (0.20)	−0.22 (0.14)	−0.25 (0.19)
Slope				
Slope	0.15 (0.03)*	0.13 (0.02)*	0.12 (0.02)*	0.13 (0.02)*
TDV type[b]	−0.04 (0.02)	−0.11 (0.04)*	0.02 (0.03)	−0.13 (0.03)*
Biological Sex	−0.08 (0.03)*	−0.40 (0.02)*	−0.05 (0.02)*	−0.05 (0.02)*
Interaction	0.07 (0.03)*	0.09 (0.05)*	0.03 (0.03)	0.11 (0.05)*
Variance				
Intercept	1.00 (0.05)*	1.01 (0.052)*	0.99 (0.05)*	1.02 (0.06)*
Slope	0.02 (0.00)*	.129 (0.024)*	0.01 (0.00)*	.015 (0.003)*
Co-variance				
Intercept with Slope	0.04 (0.01)*	0.26 (0.10)*	0.014 (0.142)	0.20 (0.01)*
Model Fit				
–2LL	30,893.3	30,891.2	30,880.5	30,872.2
AIC	30,939.3	30,936.2	30,926.4	30,918.2
BIC	31,061.6	31,058.6	31,048.9	31,040.6
CFI	0.96	0.97	0.96	0.91
RMSEA	0.09	0.07	0.07	0.09

Notes. MG-LGCM = multi-group latent growth models.

[a]Self-reported age, race/ethnicity, and maternal education, history of trauma, family conflict, bullying perpetration, and impulsivity were controlled for during analyses.

[b]DV type refers to type of TDV in each column. That is, the type of TDV in each interaction is represented by the column of TDV type.

* $p < .05$.

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TABLE 6

Simple slopes for all protective factors across male and female perpetrator status

	Female perpetratorsb (SE)	*Female nonperpetratorsb (SE)*	*Male perpetratorsb (SE)*	*Male Nonperpetrators b (SE)*	*Wald test Female perp/female nonperp Wald (df)*	*Wald test Male perp/male nonperp Wald (df)*	*Wald test Male/ Female perpetrator Wald (df)*
Empathy							
Verbal teen dating violence (TDV)	—	—	—	—	—	—	—
Relational TDV	—	—	—	—	—	—	—
Phy/Threat TDV	—	—	—	—	—	—	—
Sexual TDV *	0.33 (0.08) *	0.37 (0.031) *	0.14 (0.07)	0.40 (0.04) *	0.23 (1)	13.40 (1) *	3.65 (1) *
Social support							
Verbal TDV *	0.18 (0.04) *	0.12 (0.04) *	0.03 (0.05)	0.17 (0.04) *	2.64 (1)	11.90 (1) *	14.60 (1) *
Relational TDV *	0.29 (0.06) *	0.14 (0.04) *	0.03 (0.07)	0.11 (0.04) *	8.04 (1) *	1.47 (1)	10.7 (1) *
Phy/Threat TDV *	0.16 (0.04) *	0.14 (0.04) *	−0.05 (0.06)	0.13 (0.04) *	0.04 (1)	10.70 (1) *	13.10 (1) *
Sexual TDV *	−0.06 (0.07)	0.17 (0.04) *	−0.19 (0.06) *	0.16 (0.04) *	12.70 (1) *	33.90 (1) *	2.35 (1)
Parental monitoring							
Verbal TDV *	−0.05 (0.06)	0.19 (0.06) *	0.03 (0.07)	0.10 (0.06)	28.0 (1) *	1.74 (1)	2.85 (1)
Relational TDV	—	—	—	—	—	—	—
Phy/Threat TDV *	−0.30 (0.08) *	0.16 (0.06) *	−0.14 (0.08)	0.09 (0.06)	60.50 (1) *	9.76 (1) *	0.83 (1)
Sexual TDV	—	—	—	—	—	—	—
School belonging							
Verbal TDV	—	—	—	—	—	—	—
Relational TDV	—	—	—	—	—	—	—
Phy/Threat TDV	—	—	—	—	—	—	—
Sexual TDV *	0.10 (0.04) *	0.11 (0.02) *	0.02 (0.03)	0.16 (0.02) *	0.05 (1)	21.50 (1) *	3.58 (1) *

A dash (—) indicates simple slopes were not estimated given a nonsignificant interaction.

b = simple slope parameter estimate; *SE* = standard error; Wald(*df*) = the Wald test of parameter constraints test between simple slopes with the (degrees of freedom).

[a] Self-reported age, race/ethnicity, and maternal education, history of trauma, family conflict, bullying perpetration, and impulsivity were controlled for during analyses.

[b] Significant sex*TDV interaction for the respective protective factor.

* $p < .05$.