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Adolescent Risk of Dating Violence and Electronic Dating Abuse: A Latent Class Analysis

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Abstract

Electronic forms of dating violence among youth are common yet little is known about how these forms of violence overlap with the commonly studied domains of physical, sexual and verbal teen dating violence. Using factor analysis and latent class analysis, this study identifies patterns of electronic, verbal, physical and sexual dating violence victimization and perpetration in 9th and 12th graders. Data are from 470 9th (n=190; 60.5% female; mean age = 12.0 years, age range:

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Authors' Contributions

PK co-conceived and designed the larger study, and helped draft the manuscript of the present study; JDS co-conceived and designed the larger study, and helped draft the manuscript of the present study; JH participated in the design of the present study and interpretation of the data; PF participated in the design, coordination and manuscript drafting of the present study; ET participated in the design, coordination and manuscript of the present study, and performed the statistical analysis. All authors read and approved the final manuscript.

Data Sharing Declaration

This manuscript's data will not be deposited.

Conflict of Interest

The authors report no conflict of interests.

Ethical Approval

All study procedures that involved human subjects were reviewed and approved by the institutional review board at Wayne State University and the University of Michigan.

11.3–13.8) and 12th graders (n=280; 63.9% female; mean age = 14.9 years, age range: 14.0 – 16.6) from southeastern Michigan. A 5-class solution for 9th graders and a 6-class solution for 12th graders were selected given fit and interpretability. Classes were characterized by domain(s) of violence, as opposed to perpetration or victimization. Three domains of electronic dating aggression were identified: monitoring, harassment, and coercion. Electronic dating aggression was present in the majority of classes, and overlapped substantially with other domains of violence. The highest risk class had risk of victimization and perpetration for all types of dating violence (electronic monitoring, electronic harassment, electronic coercion, verbal violence, physical violence and sexual violence). Drug use and experiencing one or more adverse childhood experiences predicted membership in a higher risk group for the older cohort, while alcohol consumption predicted higher risk for the younger cohort. The findings from this study show overlap between dating violence domains and imply that domains of electronic dating violence are important to consider in conjunction with physical, sexual and verbal domains, to address teen dating violence.

Keywords

dating violence; intimate relationships; electronic dating aggression; technology; perpetration

Introduction

The experience of violence within intimate relationships often begins during middle and high school (termed dating violence). Nationally representative data demonstrate that most women who experience in-person forms of intimate partner violence do so before the age of 25, with 25.8% having experienced violence before the age of 17 (Smith et al., 2018). The recent proliferation of social media use and the integral role electronic communication plays in interpersonal communication has given rise to a new mechanism for bullying and aggression within youth dating relationships (Smith-Darden et al., 2017). Despite the growth of this area of violence, less is known about how electronic forms of aggression and violence overlap with in-person forms. This article helps fill this gap in the literature by conducting empirical analyses on data collected from youth (defined in this manuscript as individuals in 6th – 12th grade) about electronic and in-person dating violence to investigate domains of electronic dating aggression and explore how electronic dating aggression relates to other well-known types of teen dating violence (i.e., verbal, physical, sexual).

Development & Electronic Communication

Researchers increasingly recognize that electronic communication is nearly universally used in all types of youth relationships (e.g., platonic, familial, romantic). A 2019 nationally representative sample found that over half of youth surveyed owned a smartphone by age 11, up from 32% in 2015 (Rideout & Robb, 2019). By age 18, 91% of youth owned a smart phone. In romantic relationships, text messaging is a primary mode of communication among youth in dating relationships (Lucero, Weisz, Smith-Darden, & Lucero, 2014). Ninety-two percent of youth regularly engage in text-messaging romantic partners and 70% report posting on their romantic partner's social media sites (Lenhart & Page, 2015). Parental monitoring (oversight, restriction, etc.) of youth is a successful way of reducing

some types of risk (i.e., in person bullying), however, the rise in cell phone use and ownership by youth, paired with the technological knowledge gap between adults and youth, creates a novel private space for unsupervised autonomy (Low & Espelage, 2013). Further, electronic forms of communication make it easier to be psychologically abusive to partners (Agnew-Brune et al., 2016).

Virtual socializing via electronic communication allows for increased connectivity but also provides an opportunity to engage in negative relationship behaviors, including bullying, harassment, and coercion, and stalking (Kernsmith, Victor, & Smith-Darden, 2018). Collectively, these behaviors are known as electronic aggression and are recognized as a more recent form of dating violence (Smith-Darden et al., 2017). The Center for Disease Control defines electronic dating aggression as psychological and/or sexual abuse perpetrated utilizing electronic devices, that may be exercised through electronic means including email, social networking, and/or texting (National Center for Injury Prevention and Control, Center for Disease Control and Prevention, 2019). One in 4 youth (7^{th}-12^{th} graders) have reported being a victim of electronic dating aggression (Zweig, Dank, Yahner, & Lachman, 2013) and 12% of 6^{th} graders have admitted to perpetrating electronic dating aggression in the past 12 months (Peskin et al., 2017). In a different study, researchers found that 18.0% of youth report either victimization or perpetration of electronic forms of dating violence (Yahner, Dank, Zweig, & Lachman, 2015). These findings show that electronic dating aggression is a problem in middle and high school populations, and suggest similar rates of electronic dating aggression as in-person victimization.

Perceived normativity of using electronics for monitoring, control, and harassment behaviors in youth may indicate that electronic forms of dating aggression are considered more acceptable than in-person violence or harassment (Offenhauer & Buchalter, 2011). Qualitative research findings demonstrate the normalization of some electronic dating aggression behaviors within romantic relationships, including online spying/monitoring, sexting, and password sharing or account access (Lucero et al., 2014). Many youth believe that electronic dating aggression behaviors such as sharing passwords and checking each other's social media platforms are considered normative aspects of teen relationships (Agnew-Brune et al., 2016). These findings reflect the dissonance between the online world and the risks it presents and the cognitive immaturity that is a normal characteristic of youth. Electronic violence presents a unique domain of dating violence as compared to in-person forms of dating violence.

Patterns of Dating Violence

Youth dating violence has historically been studied in a similar manner as adult intimate partner violence, meaning it is frequently operationalized as physical violence, sexual violence, psychological violence, and stalking, (Breiding, Basile, Smith, Black, & Mahendra, 2015) and measured using the Conflict Tactics Scale (Jennings et al., 2017). As such, researchers have conducted latent class analyses using the constructs of physical, sexual and verbal dating violence and found multiple classes that represent different types of exposure (Choi, Weston, & Temple, 2017). Researchers of another study found that the highest risk class has overlapping forms of verbal and physical violence, while the

lower risk class had non-physical violence (Haynie et al., 2013). While these findings have been important steps in understanding risk profiles, they have also contributed to a gap in the field's understanding of other types of dating violence including electronic dating aggression.

Electronic dating aggression is not typically isolated from other forms of youth dating violence perpetration or victimization. Researchers found electronic dating aggression is associated with in-person physical dating violence, both in cross-sectional (Kernsmith et al., 2018) and longitudinal work (Doucette et al., 2018). Additionally, researchers found that engagement with electronic dating aggression had similar risk associations as with other types of dating violence, including a greater risk of engaging in delinquent behavior such as alcohol and drug use (Ouytsel, Ponnet, Walrave, & Temple, 2016). While some known risk factors of physical dating violence, such as bullying (perpetrating violence against a peer), have been found to be associated with electronic dating aggression (Peskin et al., 2017), a systematic review found that other risk factors such as childhood exposure to parental intimate partner violence have received less attention (Caridade, Braga, & Borrajo, 2019). Understanding how known risk factors for in-person dating violence, including age, sex, race, alcohol consumption (Rehan et al, 2017, Centers for Disease Control and Prevention, 2017), drug consumption (Rehan et al, 2017, Centers for Disease Control and Prevention, 2017), socio-economic status (Capaldi et al., 2012), experiencing emotional, physical or sexual abuse (Capaldi et al., 2012), witnessing caregiver or parental intimate partner violence (Latzman, Vivolo-Kantor, Holditch Niolon, & Ghazarian, 2015), and neighborhood violence (Thulin, Heinze, Kusunoki, Hsieh, & Zimmerman, 2020), as well as perpetration of violence against others (e.g., parents, teachers and school peers) (Falb et al., 2011) would benefit the field.

The Current Study

Despite a growing examination of electronic dating aggression, there is much that is still unknown. The current study has three aims.

The first aim is to determine if there are different types (or domains) of electronic dating aggression. Based on previous findings, several categories electronic dating aggression are expected, including behaviors that consist of harassment or bullying and behaviors that are consist of electronic forms of stalking or monitoring.

The second aim is to explore how the domains of electronic dating aggression, verbal, physical, and sexual dating violence victimization and/or perpetration cluster together. Given the existing literature on in-person patterns, several groups are anticipated representing distinct patters of perpetration or victimization, and by domain(s) of dating violence. Previous research suggests there will likely be a group that has higher probability to experience multiple domains of dating violence (e.g., individuals in this category will have high probability of reporting most if not all dating violence types), one in which youth will have low probability of reporting any dating violence types, and others which will have high probability of a subset of domains of violence.

The third aim is to examine longitudinally (prospective) which risk factors predict class membership. Known risk factors of dating violence, including age (represented by cohort), sex, race, alcohol consumption, drug consumption, socio-economic status, experiencing emotional, physical or sexual abuse, witnessing caregiver or parental intimate partner violence, and neighborhood violence, as well as perpetration of violence against others (e.g., parents, teachers and school peers), may predict membership in higher-risk classes.

Methods

Procedure

The longitudinal research consists of a prospective cohort design in which 1,237 youth completed surveys one time per year for four years (Kernsmith et al., 2018). The most recent wave of the longitudinal study (collected in 2016) is used to examine the latent class structure of dating violence victimization and perpetration in 9th and 12th graders. Youth were recruited from six school districts in southeast Michigan. School district selection was based on a community risk profile, developed from a composite rating of publicly available community data including crime rate, poverty rate, minority composition, and percent rental properties. Two school districts were selected for participation at each level of community risk (low, medium, high). All middle and high schools in each district participated in the research (n=13 schools, total).

Within each school, the sample was selected using stratified random sampling by grade level (6th and 9th grade at Year 1) and sex, with equal numbers recruited within each group. Waiver of parental consent procedures were employed in accordance with recommended ethical guidelines. Parents had the opportunity to refuse consent for their child's participation by returning a written form or by calling or e-mailing the school or researchers. Prior to survey administration, all students provided oral or written assent (depending on age) and were informed of their right to withdraw from the study at any time. Informed consent was obtained from all individual participants in the study. Surveys were administered during the school day at a mutually agreed upon time and place and generally took one class period to complete. The written questionnaires were completed in a large group setting, with space between youth to protect privacy. A Certificate of Confidentiality was obtained through the Centers for Disease Control and Prevention. The Institutional Review Board for both participating universities and the funding agency approved the data collection protocols.

Sample

Of the initial 1,237 students who participated in Wave 1, 887 (71.4%) participated in Wave 4. Analyses are limited to students who responded that they had dated someone in the past year (n=472; 53.2%). Two students failed to report their dating violence behavior and thus were not included, for a total sample size of 470, divided into 190 9th graders (mean age = 12.0 years, age range: 11.3–13.8) and 270 12th graders (mean age = 14.9 years, age range: 14.0 – 16.6). Missingness is examined by cohort, comparing those who were in the original sample (wave 1) to those who were included in the current study. In the younger cohort, those who were included in the current study were not significantly different from

those in who participated in wave 1 in terms of race (X^2 = 2.77, df = 6, p=0.837), alcohol consumption at wave 1 (X^2 = 2.80, df = 4, p=0.592), drug consumption at wave 1 (X^2 = 4.34, df = 4, p=0.362), perpetration of violence against a teacher at wave 1 (X^2 = 0.01, df = 1, p=0.936), perpetration of violence against a parent at wave 1 (X^2 = 0.29, df = 1, p=0.591), perpetration of violence against a school peer at wave 1 (X^2 = 1.03, df = 1, p=0.311), or school risk level (X^2 = 1.18, df = 2, p=0.555), but were less likely to be male (X^2 = 9.44, df = 1, p=0.002). In the older cohort, those who were included in the current study were not significantly different from those who participated in wave 1 in terms of race (X^2 = 9.41, df = 6, p=0.152), alcohol consumption at wave 1 (X^2 = 8.14, df = 4, p=0.086), drug consumption at wave 1 (X^2 = 4.33, df = 4, p=0.363), perpetration of violence against a teacher at wave 1 (X^2 = 0.04, df = 1, p=0.846), perpetration of violence against a parent at wave 1 (X^2 = 3.51, df = 1, p=0.061), perpetration of violence against a school peer at wave 1 (X^2 = 0.65, df = 1, p=0.422), but were less likely to be male (X^2 = 25.28, df = 1, p<0.001) and were less likely to have attended a high-risk school (X^2 = 6.98, df = 2, p=0.030).

Measures

Dating Violence—All dating violence and aggression questions were asked in relation to perpetration and victimization at Wave 4 of data collection. Response options were based on the Safe Dates Dating Violence perpetration and victimization scales (Foshee et al., 1996) that were modified to include electronic dating aggression (Kernsmith et al., 2018). Respondents were asked to indicate the frequency of item (0 = Never, 1 = Once, 2 = 2–4 times, 3 = 5–9 times, 4=10+ times) in the past year. Respondents indicated if they had done the action (i.e., perpetration), and then indicated if their boy/girlfriend had done the action to them (i.e., victimization). All dating violence items were transformed into binary variables for analyses (0 = no experience of the given violent event, 1 = any experience of the given violent event).

Electronic Dating Aggression—Eleven items were used to evaluate *Electronic Dating Aggression* (α: perpetration = 0.83, victimization = 0.80). Questions generally covered monitoring (e.g., “called cell phone or sent emails, text messages, etc., when asked not to just to make me/them mad” or “demanded to have passwords to email, social networking sites, or voicemail”), electronic harassment (e.g., “spread rumors using a cell phone, email, IM, text, web chat, blog, networking site like Facebook, etc.”, or “posted things on a networking site like Facebook etc., against them”), and coercion (e.g., “pressured me/them to send sexual messages or texts, sexy pictures”).

Physical Dating Violence—Respondents were asked 15 items on physical dating violence (α: perpetration = 0.93, victimization = 0.92). Topics included scratched, slapped, physically twisted arm, bent fingers, hit with fist, burned, and assaulted with a knife or gun, among others.

Verbal Dating Violence—Participants responded to five items on verbal dating violence (α: perpetration = 0.69, victimization = 0.77), including threatened to cheat, said the person could be replaced, called the other person names, and swore at the person.

Sexual Dating Violence—Four items inquired on sexual dating violence (α: perpetration = 0.82, victimization = 0.77). Items included made them/me have sex without a condom, insisted on sexual activity without force, insisted sexual activity with force, used threats to make them/me have sexual activity.

Co-variate Measures

Youth Violence Perpetration Against a Peer [W1]—Youth violence perpetration against a peer was measured at Wave 1, and is from the Delinquency Scale (Elliot et al., 1985). Youth responded to an item asking how frequently (0 = never, 1 = 1 time, 2 = 2–4 times, 3 = 5–9 times, 4 = 10 or more times) in the past year the youth had perpetrated violence against a peer or other student from school. Given the low frequency of events, violence against a peer was dichotomized (0 = no, and 1 = yes) for analysis.

Youth Violence Perpetration Against a Parent [W]—Youth violence perpetration against a parent was measured at Wave 1, and is from the Delinquency Scale (Elliot el al., 1985). Youth responded to an item asking how frequently (0 = never, 1 = 1 time, 2 = 2–4 times, 3 = 5–9 times, 4 = 10 or more times) in the past year the youth had perpetrated violence against their parent or caregiver. Given the low frequency of events, violence against a parent was dichotomized (0 = no, and 1 = yes) for analysis.

Youth Violence Perpetration Against a Teacher [W1]—Youth violence perpetration against a teacher was measured at Wave 1, and is from the Delinquency Scale (Elliot et al., 1985). Youth responded to an item asking how frequently (0 = never, 1 = 1 time, 2 = 2–4 times, 3 = 5–9 times, 4 = 10 or more times) in the past year the youth had perpetrated violence against a teacher or other adult from school. Given the low frequency of events, violence against a teacher was dichotomized (0 = no, and 1 = yes) for analysis.

Adverse Childhood Experiences (ACEs) [W1]—Items derived from the Family Health History and Health Appraisal CDC-Kaiser Adverse Childhood Experience Study measured the adverse childhood experiences of emotional violence, physical violence, sexual violence, and witnessing parent intimate partner violence experienced at any point in their life (Centers for Disease Control, 2019; Shonkoff, 2016). For exposure to emotional, physical or sexual violence, youth were asked to respond to two items. If youth indicated exposure to either/both item(s), they received a score of 1 for that type of violence; otherwise, they received a score of 0. Youth emotional violence exposure was defined as “a parent or adult in the household swearing, insulting, putting down, or humiliating [the participant]”, or “a parent or adult in the household acting in a way that made [the participant] feel afraid they might be physically hurt.” Youth physical violence exposure was determined as “a parent or adult in the household pushing, grabbing, slapping, or throwing something at [the participant]”, or if “a parent or adult in the household ever hit [the participant] so hard that they had marks or were injured.” Youth sexual violence exposure was determined if “an adult or person five years or older than [the participant] had ever touched, fondled, or had [the participant] touch the older person’s body in a sexual way”, or if “an adult or person who was five or more years older than [the participant] had ever tried to have oral, anal, or vaginal sex with [the participant].” Youth exposure

to parent intimate partner violence was evaluated with three items: if the parent/guardian ever "pushed, grabbed, slapped or had something thrown at him/her", if the parent/guardian was "sometimes kicked, bit, hit with a fist, or hit with something hard", and if the parent/guardian was ever "repeatedly hit for a few minutes or more or threatened with a gun/knife." As adverse childhood experiences are often considered relative to the number of types of experiences and not frequency of experience, a mean score of the dichotomized adverse childhood experience items was calculated, ranging from 0 (no exposure to any adverse childhood experiences) to 1 (exposure to all types of adverse childhood experiences).

Exposure to Neighborhood Violence [W1]—Neighborhood violence was evaluated at Wave 1 with five items that inquired how frequently the participant had felt safe in their neighborhood or school environment. Participants indicated frequency on a 5 point Likert, from 0 = Never to 4 = Always. One item was positively worded, four were negatively; the positively worded item was reverse scored. A mean score was calculated for each participant, ranging from 0 (no experience of neighborhood violence) to 4 (high frequency of all types of neighborhood violence).

Alcohol Use [W1]—Alcohol consumption was evaluated at Wave 1 with an item asking the participant how many times in the past year (0 = never, 1 = 1 time, 2 = 2–4 times, 3 = 5–9 times, 4 = 10 or more times) they had used alcoholic beverages.

Drug Use [W1]—Drug consumption was evaluated by two items asking how many times in the past year (0 = never, 1 = 1 time, 2 = 2–4 times, 3 = 5–9 times, 4 = 10 or more times) they had used marijuana (pot/grass) or other illegal drugs.

Demographic Variables [W1]—The demographic variables of age (cohort), sex, race, and school socio-economic risk level were evaluated at Wave 1. Age (cohort) was determined based on if the participant was in 6^{th} grade or 9^{th} grade at the first wave of data collection. Sex was evaluated by a binary item asking if the participant was male (0) or female (1). Race was evaluated by asking the respondent which race(s)/ethnicity(ies) they identified with. Race was dichotomized for analysis, using the largest group (white) as the referent category. School risk level, representing community level risk status, was evaluated from low (1) to high (3) [see Procedure for details on community risk profile].

Analysis

Exploratory factor analysis was conducted to determine the factor structure of the electronic dating aggression items, and to confirm scaling for verbal, physical and sexual items. This was done by category of violence (e.g., physical violence). Examining the scree plot, Eigenvalues, model fit, factor loadings and considering interpretability, a final factor structure was selected (Furr & Bacharach, 2013). Once item loadings were confirmed, latent class indicator variables (e.g., a variable representing all items that loaded to the given factor) were coded as 0, indicating that a youth said no to all items within that indicator, and 1, indicating that the youth had indicated the occurrence of at least 1 event in the indicator.

Once the factor structures were determined for electronic dating aggression, physical, verbal, and sexual dating violence, a three-step mixture model approach was used for the latent

class analyses (Asparouhov & Muthén, 2014; Vermunt, 2010). To account for differences in developmental period between the two cohorts, independent latent class analyses were conducted by cohort. The three-step mixture modeling begins with performing a latent class analysis using latent class indicator variables. Model building is iterative, beginning with a base model, and adding one class size until the model is saturated, fails to converge, is statistically worse than prior models, or theoretically unsupported. Model fit was evaluated using AIC, BIC, sample-size adjusted BIC, Lo-Mendell-Rubin Test, and the bootstrap likelihood ratio test (Asparouhov & Muthén, 2012; Nylund et al., 2007).

After identifying the final model for each cohort, latent class posterior distribution regression was used to predict latent class membership while controlling for demographic variables (Asparouhov & Muthén, 2014). Then, multinomial logistic regression was used to compare covariate risk factors between the lowest-risk class (referent) to the other classes. Factor analyses and latent class analyses were conducted in Mplus 7.0 (Muthén & Muthén, 2012).

Results

Sample Characteristics

Demographic sample characteristics are found in Table 1. Of the 470 observations included in the logistic regression, 40% (n=190) were in the younger cohort of 9th graders and the rest (n=270) were in the older cohort of 12th graders. In the younger cohort, 60.5% of respondents were female, 58.4% were white, 15.8% identified as African American, 5.3% identified as Hispanic, 4.2% identified as Native American, less than 1% identified as Asian and 10% considered themselves to fall into multiple of the prior categories. In the older cohort, 63.9% of respondents were female, 65.0% were white, 14.3% identified as African American, 5.0% identified as Hispanic, less than 1% identified as Asian, Native American or Arab American, and 12.5% considered themselves to fall into multiple categories of race. Most of the 9th grade cohort had not used alcohol (91.1%) or drugs (94.2%), a trend that was also seen in the 12th grade cohort although to a lesser extent (57.9% never used alcohol, 81.1% never used drugs). The younger cohort had similar prevalence violence perpetration against a teacher or parent (2.6%, 6.3%, respectively) as compared with the 12th grade cohort (2.5%, 7.1%, respectively). The older cohort exhibited more violence against a peer (35.0%) as compared with the 9th graders (27.9%). The mean report of adverse childhood experiences was also higher for the older cohort (0.32) as compared with the younger cohort (0.17).

Evaluating Domains of Electronic Dating Aggression: Exploratory Factor Analysis

An exploratory factor analysis of the electronic dating aggression victimization items yielded potential solutions of 2- or 3-factor solutions. The Eigenvalues (2-factor = 1.049, 3-factor = 1.016, 4-factor = 0.679) suggested a 3-factor solution, while the scree-plot elbow suggested 2. The fit statistics of the 3-factor (X^2 = 27.998(25), p = 0.308; RMSEA = 0.017, RMSR = 0.048 as compared with a 2-factor solution fit statistics of X^2 = 51.383(34), p = 0.028; RMSEA = 0.034, RMSR = 0.077) and interpretability resulted in a 3-factor solution being selected. All item-factor loadings were greater than 0.45. An explanatory factor

analysis on the same items for perpetration yielded comparable results. These three factors are electronic monitoring, electronic harassment, and electronic sexual coercion. *Electronic monitoring* is composed of two items: read texts, emails or IM when they did not want me to; and demanded to have passwords to email, social networking sites, or voicemail. *Electronic harassment* is composed of six items: such as called cell phone or sent emails, text messages, etc., when asked not to, just to make them mad; made them afraid to not respond to cell phone calls, emails, IM, text, etc., because of what I might do; and used a cell phone, email, text message, chat, etc., to threaten or hurt them physically. *Electronic sexual coercion* is composed of three items: shared private or embarrassing pictures/videos; pressured them to send nude or sexy pictures; pressured them to send sexual messages or texts. Exploratory factor analyses suggested 1-factor solutions for physical dating violence (X^2 = 87.61 (90), p = 0.552; RMSEA = 0.000, RMSR = 0.054), verbal dating violence (X^2 = 34.773 (5), p = 0.000; RMSEA = 0.113, RMSR = 0.137), and sexual dating violence (X^2 = 2.534 (2), p = 0.282; RMSEA = 0.024, RMSR = 0.063).

Identifying Dating Violence Class Membership: Latent Class Analyses

For both cohorts, in all latent class model solutions, perpetration and victimization grouped together as opposed to separate groups of perpetrators and victims. Class differences were defined by the number of types of violence and the probability of perpetrating or being victimized for a given category. The fit statistics for the iterative models for classes by cohort are presented in Table 2. For the younger cohort, the fit statistics were strongest for a 5-class solution (AIC = 1721, BIC = 1928, sample-size adjusted BIC = 1726), and the Lo-Mendell-Rubin and bootstrapped likelihood ratio test supported this. For the older cohort, the BIC and Lo-Mendell-Rubin test supported a 4-class solution. However, the 6-class fit statistics were best for AIC and sample-size adjusted BIC (2779, 2814, respectively). The Bootstrapped likelihood ratio test also supported a 6-class solution. Thus, the 6-class solution was selected for the older cohort.

For both cohorts, classes were defined by risk of experiencing the types of dating violence behaviors. Risk was defined as a probability of greater than 0.250 of experiencing the given behavior (Table 3). For the younger cohort, the 5-class solution had a group that had risk across all types of dating violence behaviors (Class 5), a group that had risk for verbal violence and electronic sexual coercion (Class 4), a group that had risk for verbal violence and electronic harassment (Class 3), a group that had risk for verbal and physical violence (Class 2), and a group that did not have risk across all domains (Class 1). In the older class 6-group solution, the older class also had a group with risk across all types of dating violence (Class 6), and a low-risk group across all domains (Class 1). Class 3 of the older cohort is similar to Class 4 of the younger, in that this group had risk for verbal violence and electronic sexual coercion. Unlike the younger cohort, the older cohort had a class (Class 5) that had risk of all three types of electronic violence (and verbal violence). Those in class 4 were likely to engage in verbal violence, electronic monitoring, and perpetrate physical violence. Finally, those in class 2 were likely to engage in verbal violence.

The proportion of youth who were categorized into the low-risk versus higher risk-groups is different between the cohorts. Of the 9th graders, 72 (37.9%) were grouped in the low-

risk group, as compared with 80 (29.6%) of 12th graders, although this difference is not statistically significant. Examining the highest risk group, 34 (17.9%) of 9th graders were grouped into class 1, as compared with 42 (15.6%) of the 12th graders.

Examining Predictors of Class Membership: Logistic Regression Analyses

For logistic regression, listwise deletion was applied to covariates so that individuals with complete data across the covariates were included (younger cohort n=166, older cohort n=269). Wave 4 latent class group membership was analyzed relative to Wave 1 behavioral risk factor variables of alcohol consumption, drug consumption, violence perpetration against a teacher, a parent and a student, and exposure to adverse childhood experiences while controlling for demographic variables of age (cohort), sex, race, and school risk level. All reported regression findings were significant at $p<0.05$. However, there were several cases where the standard error was 0, indicating complete separation, meaning a null cell due to low prevalence of certain rare behaviors (e.g., violence perpetration against parents or teachers) particularly in the younger cohort (i.e., drug consumption).

For older cohort participants, reporting drug use at wave 1 increased the probability of membership in Classes 6 (highest risk), 5 (verbal violence and all types of electronic dating aggression) and 2 (verbal violence) relative to the low-risk violence group (Class 1). History of adverse childhood experiences was associated with greater likelihood of Class 5 (verbal violence and all types of electronic dating aggression) membership relative to the lower violence group. Perpetrating violence against a teacher was associated with higher likelihood of categorization into Classes 6 (highest risk), 4 (verbal, electronic monitoring, electronic coercion), 2 (verbal violence) and 3 (verbal violence and electronic coercion) relative to the low-frequency class, although a lower probability of membership in Class 5 (verbal violence and all types of electronic dating aggression). Members of Class 6 (high risk) and 4 (verbal, electronic monitoring, electronic coercion) were less likely to be White.

In the younger cohort, as compared with the low-risk of any violence (Class 1), those in Class 5 (high risk) were more likely to have perpetrated violence against a teacher, while Classes 4 (verbal violence and electronic coercion), 3 (verbal violence and electronic harassment), and 2 (verbal violence) were less likely to have perpetrated violence against a teacher. Members in Classes 4 (verbal violence and electronic coercion) and 3 (verbal violence and electronic harassment) were also less likely to have consumed drugs as compared with the low-risk class. Those in Class 4 (verbal violence and electronic coercion) were more likely to have consumed alcohol, while those in Class 3 (verbal violence and electronic harassment) were less likely. Members of Classes 5 (high risk) and 3 (verbal violence and electronic harassment) were less likely to be White. Those in Classes 4 (verbal violence and electronic coercion) and 3 (verbal violence and electronic harassment) were less likely to have perpetrated violence against a parent. However, there were several cases where the standard error is 0, meaning a null cell due to low prevalence of certain behaviors particularly in the younger cohort (i.e., drug consumption, violence perpetration).

Sensitivity Analysis

Sensitivity analyses involved considering several alternative solutions for the LCA solution. First, a different class selection, such as a 4-class structure for the 12th graders, was considered. The result patterns from a different class structure would still indicate a group with low probability of any type of violence, a group with high probability for all types of violence, and 2 groups that represent overlap between verbal and electronic dating aggression. Next, when the cohorts were combined (not considering developmental differences between 9th and 12th graders), a 5-class solution was the best fit. The 5-class solution had similar class structure, in that there was a group with little probability of risk for any type of violence, a group with high probability for all types of violence, and 3 groups that represented overlap between verbal and electronic dating aggression. Given these considerations, the 5-class structure for the 9th graders and 6-class structure for the 12th graders seems superior due to fit indicies and that the interpretation of the results is not an anomaly as compared to other potential class structures.

Discussion

Despite the prevalence of online behavior in youth, there continues to be limited evidence related to online forms of dating violence. This study expands the field of adolescent dating violence by providing information on electronic dating aggression types, shows how these types overlap with well-known forms of dating violence (verbal violence, physical violence, and sexual violence), and explores demographic and behavioral risk factors associated with group membership. Three domains of dating violence were identified. Then, several patterns of overlap between electronic, physical, sexual and verbal dating violence constructs were identified, ranging from a low-risk group to a high-risk group. Finally, modifiable risk factors were identified as predictors of future dating violence pattern exposure.

Electronic dating aggression takes different forms

Electronic dating aggression clusters into three domains: electronic monitoring, electronic harassment and electronic coercion. Electronic monitoring includes demanding for one's dating partner to provide passwords and reviewing a dating partner's electronic interactions such as text messages, emails, etc. Given that most youth use electronic means as a primary method of communication, this type of monitoring can give partners information about an individual's family, in-person friends, friends who are geographically far away. Additionally, given the amount of information shared through paperless sources, this might also provide partners novel access to an individual's school or extracurricular information. Electronic monitoring is therefore a deeply invasive form of information gathering that can be used for controlling and coercive behaviors against one's partner.

Electronic harassment can take the form of repetitive interactions through electronics, including cell phones and email and use of electronics to threaten one's partner in some way. Although this study did not evaluate frequency of harassment, there have been cases in the media where persistent harassment of a partner using technology has led to severe negative outcomes, including suicide (Taylor, 2019). Electronic harassment can be a pervasive

threat given that there is no geographical boundaries and the intensity and frequency of engagement can be incredibly high.

Electronic sexual coercion is typified by pressure to engage in electronic forms of sexual interaction, including sharing sexual messages or images, and/or sharing those private interactions without permission. The pressure to engage in this type of sharing can become coercive or even threatening, violating both active and passive forms of consent. Unlike sharing hard copies of messages or photos, the ease of, speed of and vast network which images can be shared on is a unique threat within and across peer groups. Additionally, the sharing of pictures (regardless of consent) can be a federal offense if the person in the image or video is under the legal age of consent.

Exposure to domains of dating violence is varied

The patterns of violence exposure are heterogenous across youth, yielding a pattern of 5 class sizes for the younger cohort (9^{th} graders) and 6 classes for the older cohort (12^{th} graders). For both cohorts, at least one construct of electronic violence was present in the majority of classes (present in 3 classes in the younger cohort, and 4 classes in the older cohort). Verbal violence was also present in a majority of cases (present in 4 classes in the younger cohort, and 5 classes in the older cohort), while sexual and physical violence were only present in 1 class for each cohort.

For both cohorts, the class membership was driven by types of violence (versus classes characterized by only perpetration or victimization). Although this was not expected, it indicates that there is substantial overlap between those who are victims and perpetrators. This finding complements other research showing that adolescents are often involved in reciprocal abusive relationships (Chiodo et al., 2012). The expansion of a 5-class solution in 9^{th} grade to a 6-class solution in 12^{th} grade may support existing findings that dating violence peaks in late adolescence or early adulthood (Johnson, Giordano, Manning, & Longmore, 2015), and as such the patterns of dating violence engagement may also increase during this period. Future work that examines trajectories and intensity of specific dating violence behaviors across time, including electronic dating aggression, would enhance the field.

Risk of physical and sexual violence were greatest for both cohorts in the all-violence group and did not substantially appear in any other groupings. This may be because physical and sexual violence is a more severe form of violence, and as such a smaller proportion of adolescents partake in those forms. Overall, there was less sexual violence perpetration or victimization as compared with other forms of violence, and less physical violence perpetration or victimization as compared with verbal violence or electronic dating aggression. The findings of a higher risk group and a lower risk group expand upon existing findings that have only examined physical, sexual and verbal violence (Choi et al., 2017; Haynie et al., 2013). In this study, risk appears to increase across groups, starting with the low-frequency of any violence group (Class 1 for both cohorts) to the all-violence group that has high probability of experiencing and perpetrating all types of electronic dating aggression, verbal violence, physical violence and sexual violence (Class 5 in the younger cohort, Class 6 in the older). The classes in-between represented different combinations of

domain risk. Further exploration of patterns of groupings across time might shed more light on this potential additive/compounding framework.

Electronic dating aggression was hypothesized to co-occur alongside other forms of dating violence. This study found that it clustered largely with verbal violence for both age groups. This may suggest that it shares some of the same risk factors, for example if you are likely to perpetrate verbal violence, then you are also more likely to perpetrate electronic dating aggression. Despite overlap, forms of electronic dating aggression are substantively different than verbal violence. Electronic monitoring and coercion are conceptually different forms of control and violation. Electronic harassment has the greatest conceptual overlap with verbal violence, but as reviewed above, is not limited in terms of geographical reach or frequency. Additionally, parental monitoring of adolescent use of technology is not as efficacious as monitoring for in-person forms of violence (such as bullying) (Wisniewski, Xu, Rosson, & Carroll, 2017). As such, conceptualizing and studying electronic forms of dating violence in addition to in-person forms is critical to understand the lived experience and risks that youth are facing. Notably, a greater proportion of the older cohort were categorized into the verbal and verbal/electronic dating aggression risk groups, as compared with the younger cohort. Future work examining transitions between group membership across time would enhance the field's understanding of these differences.

When comparing group size, the group with low probability of any type of violence was the largest at just under one third of youth; yet, the other two thirds of respondents were categorized into a class with at least one type of violence. Of the violence classes, verbal and electronic forms of aggression were the most common. This may reflect a developmental progression of dating violence where abuse begins with emotional or psychological behaviors before escalating. Within the context of technology, it may also reflect the perceived difference in severity of electronic violence and in-person, physical forms of violence. Future work examining factors that lead youth to being in the lower-risk class will be important for prevention work, while investigating the risks associated with classes that represent multiple forms of violence would help to expand the field.

Predicting group membership

Group membership was predicted by several socio-demographic variables for each cohort. In the older group, consumption of drugs and perpetration of violence against a teacher were associated with membership in the highest risk group that had all forms of violence. This finding supports other research that has found drug consumption to be predictive of dating violence (Nowotny & Graves, 2013), and expands the existing literature on the connection between violence perpetration within other (non-romantic) relationships (Peskin et al., 2017). Greater nuance in predictors were apparent for the overlapping classes of electronic dating aggression and verbal violence. While drug consumption predicted all classes of verbal and electronic dating aggression except the class of verbal violence and electronic coercion, perpetration of violence against a teacher predicted all of the classes of verbal and electronic dating aggression except for the class of verbal violence and all types of electronic dating aggression. Yet, Class 5 (verbal violence and all types of electronic dating aggression) in the older cohort was the only class that was predicted by exposure to

adverse childhood experiences. These patterns are not as straightforward as the predictors of the highest risk class, but suggest that further work is needed to understand the nuanced risks that predict forms of violence that youth view as more normative (i.e., electronic dating aggression).

For the younger cohort, the predictor of perpetrating violence against a teacher was a predictor of membership in the highest risk group, which is consistent to the findings in the older cohort. However, as was seen in the older cohort, the predictors of the classes of verbal and electronic dating aggression are more nuanced, and less intuitive. While alcohol consumption was predictive of membership in the class with verbal violence and all forms of electronic dating aggression, it was inversely predictive of membership in the class with verbal violence and electronic harassment. Likewise, alcohol consumption, drug consumption, violence perpetration against a parent and violence perpetration against a teacher are all significantly and inversely related to membership of classes that had verbal violence and at least one form of electronic dating aggression. These patterns may be in part due to the low frequency of risky behaviors for this cohort (who would have been in 6th grade at wave 1), but may also suggest that there are other predictor variables that are important to understand relative to perpetration of verbal violence and electronic dating aggression. The findings of this study did not support that bullying of a peer predicted dating violence 4 years later, which is contradictory to existing findings (Yahner et al., 2015) – it may be that bullying is a temporally closer predictor (i.e., 1 year pre/post). Additional research into other predictors, particularly for younger students, may be important.

Future Directions

The findings of this study highlight several areas for future research. First, there is a need for longitudinal studies that examine how class membership may change over time and what predicts class membership over time. This is important as the growth in autonomy and access to electronics changes throughout youth, while youth are simultaneously experiencing cognitive development including impulsivity. Being able to pinpoint ages or stages throughout youth where transition in risk occur will help to expand the field's understanding of electronic dating aggression risk, and formulate potential interventions to help youth make responsible and safe decisions with electronics. Second, there is a need for more research on electronic dating aggression to determine how it overlaps with and either leads to or is a consequence of other types of violence. Youth perceive certain electronic dating aggression activities as normative (Agnew-Brune et al., 2016), which may reflect the dissonance between their developmental stage and the real implications of risk that perpetration online represents. It may be that the seemingly innocuous request to have a romantic partner's password leads to more severe forms of monitoring, harassment, and/or coercion, or other forms of in-person dating violence. Future work examining the trajectories of violence and order of engagement in domains of violence would be incredibly useful. Finally, research into other types of risk and promotive factors that predict electronic dating aggression, including consumption of violent or sexualized material (risk) or parental monitoring (typically promotive) would expand the field's understanding of electronic dating aggression.

Limitations

While this study adds to the emerging literature on electronic dating aggression, there are several limitations. The sample size of the younger cohort is small; this is in part due to the choice to restrict the analyses to daters, and fewer students are dating at 9th grade than 12th grade. Although the analysis and interpretation is focused on development, some individuals begin having romantic relationship exposure prior to 9th grade; this analysis does not specifically capture nor examine the debut of romantic relationships relative to dating violence victimization/perpetration. Although the overlap between victimization and perpetration supports other researcher findings, this research is not able to ascertain the progression from victimization to perpetration or vice versa. Given the fluidity of youth romantic relationships and the sensitive nature of violence, respondent's recall bias or social desirability bias may have impacted the data. The sample was drawn from one area of Michigan, and as such the results may not be representative of the entire United States. Finally, these data were collected between 2013 and 2016; given the rapid changes in electronic technology and in society since then, our findings may not fully reflect the current context for youth.

Conclusion

Forms of electronic dating aggression are important types of dating violence. The findings in this study add to field by describing several constructs of electronic dating aggression (electronic harassment, electronic monitoring, electronic coercion), and finding that these constructs overlap with the constructs of physical, sexual and verbal violence in various patterns of overlap between constructs. The majority of patterns had at least one electronic dating construct. The amount of overlap likely informs risk, in that youth in the highest risk group are likely to be victims and perpetrators of physical violence, sexual violence, verbal violence, electronic coercion, electronic harassment and electronic monitoring, while those in the lowest risk group are unlikely to be victims or perpetrate any types of violence. The finding that class structures represent varying levels of overlap between electronic constructs and verbal, physical and sexual violence, and that other violence covariates and socio-demographic factors predicted class membership, helps expand the existing literature on dating violence and helps further knowledge on what risks youth face in their developmental trajectories. This work, connected with other emerging research on dating violence, suggests a need for comprehensive violence prevention programs that emphasize the interface between co-occurring types of violence.

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Table 1

Demographic and Covariate Distribution of Youth by Cohort

	Younger Cohort		Older Cohort	
	n	%	*n*	%
Number of Participants (N)	190	41%	280	58.7%
Female	115	60.5%	179	63.9%
Male	75	39.5%	101	36.1%
Missing	0	0.00%	0	0.00%
Race/Ethnicity				
Black/African American/Caribbean American	30	15.8%	40	14.3%
White/Caucasian	111	58.4%	182	65.0%
Hispanic/Latino/Chicano/Puerto Rican	10	5.3%	14	5.0%
Asian/Asian American/Pacific Islander	2	1.1%	1	0.4%
Native American	8	4.2%	1	0.4%
Arab American	0	0.0%	2	0.7%
Identified as Multiple Races/Ethnicities	19	10.0%	35	12.5%
Missing	10	5.30%	5	1.79%
Alcohol use (at Wave 1)				
Never	173	91.1%	162	57.9%
1 time	6	3.2%	30	10.7%
2–4 times	5	2.6%	47	16.8%
5–9 times	0	0.0%	19	6.8%
10+ times	1	0.5%	20	7.1%
Missing	5	2.60%	2	0.70%
Drug use (at Wave 1)				
Never	179	94.2%	227	81.1%
1 time	5	2.6%	11	3.9%
2–4 times	1	0.5%	19	6.8%
5–9 times	0	0.0%	8	2.9%
10+ times	0	0.0%	15	5.4%
Missing	5	2.60%	0	0.00%
Violence Against a Teacher (Any, at Wave 1)	5	2.6%	7	2.5%
Missing	4	2.11%	0	0.00%
Violence against Parent (Any, at Wave 1)	12	6.3%	20	7.1%
Missing	5	2.60%	0	0.00%
Violence against School Peer (Any, at Wave 1)	53	27.9%	98	35.0%
Missing	5	2.60%	2	0.70%
Mean Exposure to Adverse Childhood Experiences, Wave 1 (std)		0.17(0.24)		0.32(0.30)
Missing	7	3.68%	1	0.03%
School Risk Level				
Low	66	34.7%	93	33.2%
Medium	53	27.9%	82	29.3%

	Younger Cohort		Older Cohort	
	n	**%**	***n***	**%**
High	71	37.4%	105	37.5%
Missing	0	0.00%	0	0.00%

Table 2

Latent Class Analysis Summary Fit Statistics

9th Grade Cohort								
Number of Classes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
AIC	2142	1848	1795	1762	1721	1730	1748	1770
BIC	2181	1929	1919	1927	1928	1980	2040	2104
Sample-size adjusted BIC	2143	1850	1798	1766	1726	1736	1755	1778
Lo Mendell-Rubin Test		p<0.001	p=0.300	p=0.013	p=0.039	p=0.121	p=0.511	p=0.673
Bootstrapped Likelihood Ratio Test		p<0.001	p<0.001	p<0.001	p<0.001	p=0.667	p=1.000	p=1.000
12th Grade Cohort								
Number of Classes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
AIC	3429	3005	2902	2834	2817	2779	2786	2786
BIC	3472	3096	3040	3019	3050	3058	3113	3160
Sample-size adjusted BIC	3434	3017	2920	2858	2847	2814	2827	2833
Lo Mendell-Rubin Test		p<0.001	p=0.018	p=0.078	p=0.310	p=0.450	p=0.214	p=0.490
Bootstrapped Likelihood Ratio Test		p<0.001	p<0.001	p<0.001	p<0.001	p<0.001	p=0.667	p=0.208

Table 3

Young Cohort 5-Group Solution Class-Membership Probability

	Class 1	Class 2	Class 3	Class 4	Class 5
Number of Participants in Group (n)	72	34	25	25	34
Verbal Violence, Victimization	0.097	**0.868**	**0.741**	**0.744**	**1.000**
Verbal Violence, Perpetration	0.030	**1.000**	**0.581**	**0.533**	**0.966**
Physical Violence, Victimization	0.121	0.228	0.000	0.148	**0.869**
Physical Violence, Perpetration	0.015	**0.258**	0.000	0.191	**0.768**
Sexual Violence, Victimization	0.000	0.068	0.000	0.165	**0.378**
Sexual Violence, Perpetration	0.000	0.000	0.000	0.043	0.218
Electronic Monitoring, Victimization	0.016	0.053	0.118	0.229	**0.489**
Electronic Monitoring, Perpetration	0.000	0.049	0.051	0.148	**0.311**
Electronic Harassment, Victimization	0.000	0.069	**0.948**	0.222	**0.838**
Electronic Harassment, Perpetration	0.028	0.000	**0.879**	0.112	**0.781**
Electronic Coercion, Victimization	0.044	0.015	0.113	**1.000**	**0.517**
Electronic Coercion, Perpetration	0.000	0.000	0.121	**0.896**	**0.305**

Note: Bolded numbers represent proportional risk of greater than 0.250.

Table 4

Older Cohort 6-Group Solution Class-Membership Probability

	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
Number of Participants in Group (n)	81	78	24	21	34	42
Verbal Violence, Victimization	0.000	**0.900**	**0.415**	**0.882**	**1.000**	**1.000**
Verbal Violence, Perpetration	0.000	**0.884**	**0.441**	**1.000**	**0.886**	**0.952**
Physical Violence, Victimization	0.000	0.175	0.112	0.117	0.000	**0.965**
Physical Violence, Perpetration	0.059	0.116	0.122	**0.273**	0.081	**0.870**
Sexual Violence, Victimization	0.046	0.203	0.080	0.148	0.043	**0.438**
Sexual Violence, Perpetration	0.059	0.000	0.042	0.000	0.000	**0.292**
Electronic Monitoring, Victimization	0.000	0.000	0.236	**0.685**	**0.408**	**0.673**
Electronic Monitoring, Perpetration	0.014	0.000	0.109	**0.515**	**0.308**	**0.507**
Electronic Harassment, Victimization	0.026	0.110	0.135	0.071	**0.967**	**0.781**
Electronic Harassment, Perpetration	0.048	0.000	0.164	0.000	**0.918**	**0.583**
Electronic Coercion, Victimization	0.039	0.074	**0.909**	0.250	**0.479**	**0.488**
Electronic Coercion, Perpetration	0.068	0.000	**1.000**	0.086	**0.356**	**0.452**

Note: Bolded numbers represent proportional risk of greater than 0.250.

Table 5

Logistic Regression Older Cohort, Low-Risk Class Referent Group

12th Grade Cohort (Class 1, Referent)															
	Class 2			**Class 3**			**Class 4**			**Class 5**			**Class 6**		
	b	***S.E.***	***P-value***	***b***	***S.E.***	***P-value***	***b***	***S.E.***	***P-value***	***b***	***S.E.***	***P-value***	***b***	***S.E.***	***P-value***
Male	−0.420	0.388	0.279	0.990	0.592	0.095	−1.781	0.993	0.073	−0.374	0.501	0.456	−0.462	0.632	0.465
White	0.044	0.491	0.928	−0.895	0.637	0.160	−1.995	0.706	0.005	0.373	0.547	0.495	−1.683	0.618	0.007
Alcohol Consumption	−0.167	0.183	0.361	−0.292	0.216	0.177	−0.540	0.304	0.075	−0.205	0.233	0.378	0.073	0.221	0.741
Drug Consumption	0.536	0.244	0.028	0.301	0.357	0.398	0.770	0.393	0.050	0.619	0.283	0.029	0.675	0.242	0.005
Violence Perpetration against Parent	0.511	1.290	0.692	1.829	1.717	0.287	1.485	1.368	0.278	0.026	1.385	0.985	0.961	1.272	0.450
Violence Perpetration against a Teacher	24.025	1.782	0.000	25.334	0.000	0.000	1.185	0.000	0.000	−0.779	0.000	0.000	24.322	1.513	0.000
Violence Perpetration against Peer	0.782	0.502	0.119	0.405	0.656	0.537	0.478	0.733	0.515	0.917	0.558	0.100	0.886	0.598	0.138
Adverse Childhood Experiences	−0.264	0.802	0.742	0.610	1.024	0.551	−0.682	1.060	0.520	1.728	0.838	0.039	0.511	0.902	0.571
Neighborhood Violence	−0.412	0.329	0.211	0.540	0.546	0.323	0.002	0.739	0.998	0.044	0.349	0.899	0.501	0.376	0.183
School Risk Level	0.214	0.262	0.415	−0.696	0.410	0.090	−0.275	0.539	0.610	0.485	0.317	0.126	−0.217	0.344	0.528

9th Grade Cohort (Class 5, Referent)												
	Class 2			**Class 3**			**Class 4**			**Class 5**		
	b	***S.E.***	***P-value***	***b***	***S.E.***	***P-value***	***b***	***S.E.***	***P-value***	***b***	***S.E.***	***P-value***
Male	−0.355	0.586	0.545	0.533	0.702	0.448	−0.086	0.640	0.893	−0.362	0.611	0.554
White	−0.215	0.624	0.731	−0.388	0.670	0.562	0.122	0.658	0.853	−0.291	0.520	0.575
Alcohol Consumption	0.426	1.195	0.721	−21.030	0.000	0.000	2.165	0.833	0.009	−0.948	0.493	0.054
Drug Consumption	−1.135	1.767	0.521	−20.891	0.000	0.000	−25.008	0.000	0.000	−0.059	0.983	0.952
Violence Perpetration against Parent	−1.326	1.890	0.483	−23.367	0.000	0.000	−23.152	0.000	0.000	0.495	0.950	0.602
Violence Perpetration against a Teacher	−22.361	0.000	0.000	−16.590	0.000	0.000	−22.343	0.000	0.000	3.811	1.213	0.002
Violence Perpetration against Peer	0.095	0.807	0.906	0.574	0.912	0.529	0.645	0.925	0.485	0.139	0.777	0.858
Adverse Childhood Experiences	1.339	1.272	0.292	−2.536	4.156	0.542	−3.413	2.169	0.116	1.399	1.191	0.240
Neighborhood Violence	−0.386	0.361	0.286	0.135	0.411	0.741	0.414	0.398	0.299	−0.620	0.518	0.231
School Risk Level	0.315	0.392	0.423	−0.081	0.503	0.871	−0.312	0.406	0.442	0.455	0.361	0.208