Prev Sci
DOI 10.1007/s11121-011-0236-3

Longitudinal Prediction and Concurrent Functioning of Adolescent Girls Demonstrating Various Profiles of Dating Violence and Victimization

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Abstract Adolescent girls are involved in physical dating violence as both perpetrators and victims, and there are negative consequences associated with each of these behaviors. This article used a prospective design with 519 girls dating in grade 9 to predict profiles of dating violence in grade 11 based on relationships with families of origin (child maltreatment experiences, harsh parenting), and peers (harassment, delinquency, relational aggression). In addition, dating violence profiles were compared on numerous indices of adjustment (school connectedness, grades, self-efficacy and community connectedness) and maladjustment (suicide attempts, distress, delinquency, sexual behavior) for descriptive purposes. The most common profile was no dating violence (n=367) followed by mutual violence (n=81). Smaller numbers of girls reported victimization or perpetration only (ns=39 and 32, respectively). Predicting grade 11 dating violence profile membership from grade 9 relationships was limited, although delinquency, parental rejection, and sexual harassment perpetration predicted membership to the mutually violent group, and delinquency predicted the perpetrator-only group. Compared to the non-violent group, the mutually violent girls in grade 11 had lower grades, poorer self-efficacy, and lower school connectedness and community involvement. Furthermore, they had higher rates of peer aggression and delinquency, were less likely to use condoms and were much more likely to have considered suicide. There were fewer differences among the profiles for girls involved with dating violence. In addition, the victims-only group reported higher rates of sexual intercourse, comparable to the mutually violent group and those involved in nonviolent relationships. Implications for prevention and intervention are highlighted.

Keywords Adolescent dating violence · Prospective design · Sexual harassment · Child maltreatment · Sexual behavior · Psychosocial adjustment

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Dating violence among adolescent girls is a significant public health concern having wide-ranging consequences for girls' physical and psychological well-being. Girls who have been in physically aggressive dating relationships experience elevated risk for adverse mental health and related problems, such as depression, anxiety, substance use, school issues, posttraumatic stress disorder, and high-risk sexual behaviors (Connolly and Josephson 2007; Jouriles et al. 2006; Silverman et al. 2001). Reports of physical victimization suggest that many adolescent girls experience violence from their dating partners, with prevalence rates ranging between 10% and 30%, depending on the sample characteristics, the particular criteria used for denoting the presence of dating violence, and the defi-

Published online: 19 July 2011

nitions used (Centers for Disease Control and Prevention 2006).

In addition to being victims of dating violence, adolescent girls perpetrate physical dating violence at rates that are comparable to, if not exceeding, those reported by adolescent boys (i.e., 10–40%; Chase et al. 2002). Many adolescents report mutual violence in their relationships (Arriaga and Foshee 2004; Gray and Foshee 1997). However, equivalent self-reported rates can mask important differences in severity and impact. Perpetration of male-to-female physical dating violence results in greater and more serious injury (Wolitzky-Taylor et al. 2008) than female-to-male violence. Girls also report more fear, anger and being upset by dating violence compared to boys (Sears and Byers 2010; Wolfe et al. 2004). Regardless of these differences, perpetration of dating violence raises the possibility that adolescents are developing attitudes and beliefs about violence being normal in dating relationships (Connolly and Josephson 2007; Sears et al. 2007), raising the likelihood of these patterns being repeated in future relationships.

Although mutually-violent relationships are common among adolescents, researchers have typically investigated dating violence from the victim or perpetrator perspective. In contrast, the bullying literature has identified distinct patterns of bullying only, victimization only, and combined bully/victim behavior, and these profiles show important differences with clear implications for prevention and intervention (e.g., Haynie et al. 2001). Although this profile approach has been largely overlooked in the dating violence literature, there are a couple of exceptions, both of which underscored that adolescents in mutually violent relationships report more violence, higher severity of violence, and higher rates of injury (Gray and Foshee 1997; Swahn et al. 2010).

There have been relatively few well-designed longitudinal studies of adolescent dating violence (for a review, see Foshee et al. 2007), particularly for girls (Williams, Ghandour, & Kub 2010). As a result, adolescent dating violence prevention programs have relied mainly on cross-sectional data to identify appropriate intervention targets and risk factors. Little is known about risk factors for the different dating violence profiles (victimization only, perpetration only, or mutually violent) for girls, despite the understanding that the factors that predict adult interpersonal violence perpetration are not necessarily the same factors that predict victimization (e.g., Riggs et al. 2000). Thus, the goals of this study are twofold: First, to identify longitudinal risk factors that predict different dating violence profiles over a 2.5 year period among adolescent girls; and second, to compare these dating violence profiles on other indices of adjustment and maladjustment to develop a clearer clinical picture of possible differences among girls who are involved in dating violence.

Relationship Influences on the Emergence of Dating Violence

Adolescent peer and dating relationships are heavily influenced by relationship experiences in the family of origin. Whether through attachment and/or social learning (both have been posited as mechanisms), early relationship patterns set the stage for adolescent relationships and beyond. For example, data from the National Longitudinal Study of Adolescent Health demonstrated that child maltreatment predicted both youth violence perpetration during adolescence, and subsequent dating violence perpetration in young adulthood (Fang and Corso 2007). In this analysis, childhood maltreatment remained a strong, direct predictor of dating violence perpetration after controlling for youth violence perpetration, but only for girls. Similarly, a review of dating violence risk factors for young women found that 19 of the 26 studies reviewed found a positive association between either witnessing interparental violence or being a victim of family violence and experiencing dating violence (Vézina and Hébert 2007). A number of mediators have been explored to explain these links, and evidence supports factors such as insecure attachment, feelings of inadequacy in relationships, and trauma symptoms in explaining this observed link between maltreatment and later victimization (Sanders and Moore 1999; Wekerle and Wolfe 1998; Wekerle et al. 2001; Wolfe et al. 2004).

Beyond perpetration of child maltreatment, parenting behaviors may affect the emergence of adolescent dating violence in a number of ways. Rejecting and neglectful parenting, as well as harsh corporal punishment, may lead to dating violence and other forms of interpersonal violence through mediators such as poor social skills, insecure attachment, and emotional and behavioral regulation problems (see review by Schwartz et al. 2006). Harsh parenting has been shown to have a direct link to dating violence in young adulthood, but this relationship is somewhat mediated by the emergence of other adolescent problem behaviors (Swinford et al. 2000). Certain parenting behaviors have also been implicated, with parental monitoring associated with lower rates of dating violence (Howard et al. 2003). Different parenting behaviors may have different implications for girls and boys. Miller and colleagues found that parental monitoring was inversely linked to physical dating violence for boys, whereas support for nonaggression was implicated for girls' physical dating violence (Miller et al. 2009). Furthermore, parenting behaviors and styles have also been shown to mediate or moderate other influences. For example, parental support of non-aggression was shown to moderate the relationship between peer deviancy and physical dating violence perpetration, in effect acting as a protective factor in cases of high parent support of non-aggression (Miller et al. 2009).

Although parenting practices remain important predictors of behavior, the importance of peer behaviors and influence increases greatly during adolescence. Dating behaviors emerge within a peer context that provides an important context for understanding why some youth will experience violence in these relationships. Early “dating” experiences tend to be group-based and involve little actual romantic interaction (Connolly et al. 2000). The peer group plays an instrumental role in negotiating and defining these early dating relationships. Not surprisingly, difficulties with peer relationships and perpetration of violence with peers can transfer into dating relationships.

It has been posited that the central dynamic of under-control is the mechanism by which aggression continues over a developmental trajectory, beginning with same-sex peers, then moving to opposite-sex peers, and then to dating partners as children age (Pepler et al. 2006). Stated simply, children who use coercive behavior in friendships are likely to continue using those same strategies in other contexts as they develop. Sexual harassment has been highlighted as a key behavior in the trajectory of peer and dating aggression (Chiodo et al. 2009). Pubertal change ushers in a heightened awareness of sexuality and sexual identity, making these domains especially relevant for the enactment of control over both same- and opposite-sex peers in the early adolescent period (McMaster et al. 2002; Pellegrini 2001; Pepler et al. 2006). Other forms of early adolescent peer aggression, including physical, verbal, and relational variants, are thought to exist on a similar trajectory with dating violence, although the independent contributions of these distinct behaviors are only starting to be examined (Ozer et al. 2004).

General antisocial peer-related behaviors have also been identified as predictors and correlates of dating violence. For example, deviant peer association has been shown to prospectively predict males’ aggression towards dating partners, and this relationship was mediated by antisocial behavior (Capaldi et al. 2001). This study is important because it documented the mechanisms by which peer groups exerted this negative influence (i.e., through hostile talk), in comparison to many studies that document correlations without testing mechanisms. Although this process of deviancy training has not been studied for girls, there are positive associations between a range of antisocial and problem behaviors, and dating violence and victimization. For example, dating violence has been associated with peer deviancy (Miller et al. 2009), substance use (Howard and Wang 2003; Silverman et al. 2001), violence towards peers (Swahn et al., 2008), delinquent behavior (Howard and Wang 2003) and negative sexual behaviors (Howard and Wang 2003; Silverman et al. 2001).

To summarize, although researchers recognize that there are different patterns of adolescent dating violence victimization and perpetration, identification of risk factors and associated problems in functioning have not distinguished among these profiles. The goal of this research is to extend our knowledge of physical dating violence by using a longitudinal design to determine the risk factors that predict different dating violence profiles over a 2.5-year period among adolescent girls. In addition, this study sought to describe more closely the correlates of physical dating violence to determine whether the different profiles are differentially associated with positive and negative adjustment outcomes.

Method

Participants

Data for the present study were gathered as part of a cluster randomized controlled trial (RCT) of a school-based, teacher-led intervention to reduce dating violence and related risk behaviors in adolescence. Twenty high-schools were randomly assigned to intervention or control conditions in the RCT. Baseline data were collected in the fall of grade 9 and follow-up data were collected in spring of grade 11. A small proportion of students were lost at follow-up (6%) because they could not be located from school records or baseline contact information. More detail about this intervention is presented alongside the RCT findings in a report prepared by Wolfe et al. (2009)

The sample for the present study included all girls from the original study (N=519) who reported having a romantic partner during the past year at the time of follow-up. The average age at pretest was 13.79 years (SD=.45). Participants were predominantly Caucasian (88%), living in intact family homes (72%), and had parents who were employed (84%).

Measures

Dating Violence Self-reported physical dating violence (PDV) perpetration and victimization was assessed at posttest only due to the low prevalence of PDV in grade 9 using the Conflict in Adolescent Relationships Inventory (CADRI; Wolfe et al. 2001). Youth responded to eight items about their actual and/or threatened use of physical violence during an episode of conflict with a current or recent (i.e., past year) romantic partner (e.g., “I pushed, shoved, or shook him/her; “I threatened to hurt him/her”); experiences of victimization were also assessed with these same items. Participants were asked to respond to each item with either “yes” or “no.” Violent relationships were divided into four profiles: 1) nonviolent (no dating violence experiences were

endorsed); 2) victimization only (endorsed at least one of the victimization items but no perpetration items); 3) perpetration only (endorsed at least one of the perpetration items but no victimization items); or 4) mutually violent (endorsed at least one of the victimization items and at least one of the perpetration items).

Predictors

Child Maltreatment Adolescents' experiences of maltreatment were assessed retrospectively with the Childhood Trauma Questionnaire (Bernstein et al. 1997). The CTQ (short form) contains 19 items concerning the frequency (1 = *never true*, 5 = *very often true*) with which the respondent experienced emotional, physical, and sexual abuse "while you were growing up." Five additional items were added to the CTQ to assess youth witnessing of domestic violence (e.g., "seeing one parent hit another so hard that it left bruises"). Youth were classified as having moderate or severe witnessing experiences if they reported repeated experiences of at least one of the following: "seeing one parent hit another so hard that it left bruises," "seeing one parent hit the other with a belt, board, cord, or some other hard object," or "having one parent hurt the other parent so badly that it was noticed by someone like a neighbor or friend." Classification was based on clinical cutoffs reported by Bernstein et al. (1997). Maltreatment was treated as a dichotomous score (1 = yes) or (0 = no).

Parental Rejection A parental rejection scale derived from the National Longitudinal Survey of Children and Youth (NLSCY; Human Resources Development Canada (HRDC) 2001) was used to assess youths' perceptions of their relationship with their parents (or stepparent(s), guardians, etc.). To assess parental rejection, youth responded to eight questions that included items such as "Seem too busy to spend as much time with me as I'd like," "Nag me about the little things," on a scale ranging from (1 = *never*, 5 = *always*). A mean scaled score for parental rejection was created from these items (Cronbach's alpha = .75).

Delinquency Youth completed an 18-item delinquent behavior inventory developed by the NLSCY (HRDC 2001). Participants were asked to report how many times during the past 3 months (1 = *never*, 2 = *once or twice*, 3 = *3 or 4 times*, or 4 = *5 times or more*) they had engaged in a number of serious delinquent behaviors (e.g., "carried a knife for the purposes of defending yourself or using it in a fight"; "sold any drugs"; "have fought with someone to the point where they needed care for their injuries"). A mean scaled score was created from these items (Cronbach's alpha = .78, .77 in grade 9 and 11, respectively).

Peer Relational Aggression Adolescents were asked about their perpetration of relational aggression in their peer relationships. Relational aggression was assessed using items from the Self-Report of Aggression and Social Behavior (SASB; Morales and Cullerton-Sen 2000). To assess perpetration, youth were polled about the extent to which ten examples of relational aggression (e.g., "I have spread rumors about a person just to be mean"; "when I have been angry at a friend, I have tried to damage their reputation by gossiping about them") were descriptive of their own actions towards a peer over the past 3 months (1 = *not at all true,* 5 = *very true).* A mean scaled score for the perpetration of relational aggression was created from these items (Cronbach's alpha .82, 84, in grade 9 and grade 11, respectively).

Sexual Harassment Sexual harassment perpetration was measured using a modified version of the Sexual Harassment Survey (American Association of University Women, [AAUW] 2001). Girls reported on their perpetration of verbal (e.g., "spread sexual rumors") and physical forms (e.g., "pulled at clothing in a sexual way") of *unwanted* sexual attention towards their peers over the past 3 months. We used a modified version of the AAUW survey in that we invited students to respond using a dichotomous "yes" (1) or "no" (0) format and included only 7 of the original 14 items due to their low base rate in adolescence (McMaster et al. 2002). An ordinal scale was created based on a score of 0, 1, 2, or 3 sexually harassing behaviors, with scores 3 and higher collapsed to reduce positive skewness.

Adjustment Indicators

Grades Participants self-reported their current grades, based on the Victoria Healthy Youth Survey (Jansson et al. 2006). Youth were asked one item "in general, what are your grades right now?" (1 = *Mostly F*'s, 2 = *Mostly D's*, 3 = *Mostly C's*, 4 = *Mostly B's*, 5 = *Mostly A's*).

Self-efficacy A modified version of a self-efficacy scale from the Victoria Healthy Youth Survey (Jansson et al. 2006)) was used to measure two forms of self-efficacy: personal control (e.g., "I can usually achieve what I want if I work hard for it") and interpersonal control (e.g., "I find it easy to play an important part in most group situations"). Youth responded to ten items for each dimension of self-efficacy (1 = *strongly disagree*; 5 = *strongly agree*). A mean scaled score for each scale was created from these items (Cronbach's alpha .72 for both subscales).

School Connectedness Youth connectedness to their schools was measured with a 4-item scale from the Victoria

Healthy Youth Survey (Jansson et al. 2006). Youth were asked to respond to items such as “most teachers like me” and “I care what most of my teachers think of me,” on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). A mean scaled score for school connectedness was created from these items (Cronbach’s alpha .77).

Community Involvement Community involvement was assessed with one item, asking youth “in my community, I feel like I matter to people” (1 = *strongly disagree*, 5 = *strongly agree*).

Maladjustment Indicators

Emotional Distress An emotional distress scale, which was derived from NLSCY (HRDC 2001), tapped into general feelings of sadness and worry. Participants were invited to respond to seven self-descriptive statements about their mood using a 3-point scale, ranging from “never or not true” to “very often or very true,” with a mean scaled score having strong internal reliability (Cronbach’s alpha = .80).

Problem Substance Use Experience with alcohol and illicit drugs was assessed with the NLSCY (HRDC 2001) and converted to a dichotomous problem substance use score based on the presence of any one of four criteria: drinking 3–5 days a week or more; having five or more drinks at one time in past 30 days; using marijuana 1–2 days a week or more; or having tried any other illicit drug in the past 3 months.

Sexual Intercourse and Condom Use Students indicated whether they ever had consensual sexual intercourse (yes/no). Students were then asked whether they used a condom during the last time they had sex (yes/no).

Considered Suicide Suicidal thought was assessed with one item (yes/no) asking students if they had considered suicide at any time over the past 3 months.

Procedure

Data were collected in October 2004 (grade 9) and May 2007 (grade 11). There were no exclusionary criteria for this study; all grade 9 students were invited to take part. A research assistant explained the study to each class and distributed research information, consent/assent forms, and a demographic survey to send home to parents. During school hours, consenting students completed an on-line survey under the supervision of research staff and teachers. An identical procedure was used at follow-up. Participants were assigned a unique identification number for data tracking purposes, assured of their confidentiality, and given information about support services in their school and community. Full details of consent and data collection procedures are described in Wolfe et al. (2009).

Planned Data Analyses

As a preliminary step, bivariate analyses were performed on the potential predictors and indicators to the outcome variable of interest—physical dating violence. Continuous variables were analyzed by using analysis of variance (ANOVA). Dichotomous variables were analyzed using chi-square tests of associations. The bivariate analyses were conducted to exclude predictors from the multinomial logistic regression model that were not significantly associated with physical dating violence. Only one variable, problem substance use, was not significantly associated with physical dating violence in the bivariate tests ($p>.1$). Thus, all other predictors were used for the multinomial logistic regression analysis.

Next, multinomial logistic regression analyses (Hosmer and Lemeshow 2000) were conducted by using study variables that were significantly associated ($p<.10$) with physical dating violence in the bivariate tests. All the predictors were continuous, with the exception of child maltreatment, necessitating the creation of centered scores to reduce multicollinearity. We entered all of the predictors into the model simultaneously, with child maltreatment entered at the first step of the regression model. In addition to tracking the level of improvement in prediction from including predictors other than the nonviolent profile, we also examined the significant contribution of each one with regard to the overall model using a chi-square difference test (i.e., holding all other predictors constant, do we significantly reduce our ability to correctly classify girls into the dating violence experience groups if we remove a specified predictor?). We compared the nonviolent profile in the multinomial logistic regression with the other dating violence profiles around each predictor (i.e., odds ratios, and 95% confidence intervals [CI]).

Finally, we assessed adjustment and maladjustment variables as correlates of PDV in grade 11. An ANOVA was conducted for each continuous variable to compare the four different dating violence profiles; chi-square analyses were used to compare the profiles with regard to sexual intercourse, condom use, and considered suicide. Significant F-values in the ANOVAs were followed up with Tukey’s HSD post hoc tests. Bonferroni adjustments were made to account for multiple comparisons, with $p<.1$ set as the criterion value.

Results

Approximately 30% (N=519) of girls in grade 11 reported being in a current or recent romantic relationship that included physical aggression. Of these girls, 26% were victims of violence, 21% were perpetrators of violence, and about half (53%) were in relationships where the aggression was mutual (i.e., they perpetrated aggression and they were also victimized).

Grade 9 Predictors of Female Physical Dating Violence in Grade 11 Analysis

Table 1 shows the correlation matrix among predictors, indicating moderate associations. In terms of predicting physical dating violence from girls' negative relationships in their family of origin and negative relationships with peers, group membership (i.e., none, victim only, perpetration only, mutually violent) was predicted by a model that included all of the predictors, -2 LL for model with predictors = 754.57; χ^2 (15) = 68.84, $p<.001$. Three predictors made a significant contribution to the overall model: parental rejection [χ^2 (3) = 8.05, $p<.05$], delinquency [χ^2 (3) = 11.31, $p<.05$], and sexual harassment perpetration [χ^2 (3) = 14.5, $p<.01$].

ORs and 95% CIs were used to compare predictors of the three dating violence profiles at grade 11 to girls without such experiences. As shown in Table 2, girls who had experienced more negative relationships in their family of origin (i.e., parental rejection), and more negative relationships with their peers (i.e., perpetrate sexual harassment and delinquent behaviors) in grade 9 were more likely to be in mutually violent relationships at grade 11 compared to girls in nonviolent relationships. For example, a one-unit increase in sexual harassment perpetration increased the odds of being in a mutually violent relationship versus a non-violent relationship by 1.53 (OR=1.53; CI=1.20–1.95). Girls who reported higher levels of delinquency were more likely to be in mutually violent (OR=1.09; CI=1.0–1.27) and perpetrator only relationships (OR=1.15; CI=1.04–1.27) versus non-violent relationships. Finally, a one-unit increase in sexual harassment perpetration increased the odds of being in a victim only relationship versus a non-violent relationship by 1.40(OR=1.4; CI=1.0–1.97).

Comparisons of Adjustment and Maladjustment Indicators in Grade 11 by Dating Violence Profile

Table 3 presents the overall ANOVA or chi square analyses for comparisons of PDV profiles on adjustment and maladjustment indicators at grade 11. Girls in mutually violent relationships scored significantly lower on all the adjustment indicators (with the exception of interpersonal control) compared to girls in nonviolent relationships (i.e., grades, personal control, school connectedness, and community involvement). Post-hoc analyses of these results using Tukey HSD indicated that the three profiles did not differ from one another on any of the adjustment indicators.

Girls in mutually violent relationships scored significantly higher on all seven maladjustment indicators, compared to girls in nonviolent relationships. Moreover, they differed from the other two PDV profiles in terms of more delinquent acts and less condom use. In addition to the findings for the mutually violent group, post hoc analyses indicated that the victim only and perpetrator only profiles scored higher on distress, relative to girls without PDV. The victim only profile differed significantly from girls without PDV on sexual intercourse.

Discussion

The purpose of this study was to explore differences among profiles of dating violence among adolescent girls with respect to predictors and correlates. This undertaking expands the sparse literature examining the prediction of physical dating violence among girls, as most longitudinal studies have focused on boys. Furthermore, it is the first longitudinal study of which we are aware to examine dating violence profiles, and begins to develop a descriptive picture of these girls with respect to identifying intervention needs.

Girls involved in any of the three dating violence profiles differed from the non-violent group on all of the expected variables (except substance abuse). The most

Table 1 Zero-order correlations for predictors of physical dating violence (n=519)

	1.	2.	3.	4.	5.
1.Childhood maltreatment					
2. Parental rejection	.29***				
3. Delinquency	.24***	.28***			
4. Relational aggression perpetration	.12**	.31***	.29***		
5. Sexual harassment perpetration	.12**	.15**	.38***	.32***	

** $p<.01$; ***$p<.001$

Table 2 Means, standard deviations and odds ratios for Grade 9 predictors of grade 11 physical dating violence profiles

Predictors	Physical Dating Violence Profiles			
	None (n=367) *M (SD)*	Victim Only (n =39) *M(SD) OR (CI 95%)*	Perpetrator Only (n=32) *M(SD) OR (CI 95%)*	Mutually Violent (n=81) *M(SD) OR (CI 95%)*
Child maltreatment	–	−.63 (.29–1.39)	−1.33(.53–3.31)	−.72 (.41–1.27)
Parental rejection	18.72(4.5)	20.40(4.4) 1.06(.97.–1.17)	18.47(2.98) 1.0 (.91–1.11)	20.59(4.37) 1.1(1.02–1.17)**
Delinquency	22.08(3.65)	22.84(4.91) .95(.83–1.09)	23.30(4.9) 1.15(1.04–1.27)**	23.92(4.9) 1.09(1.0–1.27)*
Relational aggression perpetration	18.94(6.48)	21.84 (7.27) 1.04(.99–1.1)	18.51(5.93) .97(.9–1.04)	21.26(7.72) 1.02(.98–1.07)
Sexual harassment perpetration	1.17(1.59)	1.54(1.74) 1.4(1.0–1.97)*	1.86(2.13) 1.37(.96–1.95)	1.83(1.72) 1.53(1.2–1.95)**

$p<.05$; ** $p<.01$; the reference category is none (no dating violence); dashe indicates that child maltreatment was a discrete (and not a continuous) variable; therefore, reporting means and standard deviations for this variable would not be meaningful. Discrete variable (0 = no maltreatment 1-maltreatment)

marked differences were between the mutually violent group and the non-violent group, suggesting that those who were involved in mutually violent dating relationships in grade 11 experienced more difficulties with parent and peer relationships in grade 9 compared to those in nonviolent relationships. The mutually violent group scored significantly higher on parental rejection, delinquency, and sexual harassment perpetration in grade 9; however, they did not differ on maltreatment. The victim only and perpetrator only groups were differentiated from the non-violent group by one variable each (sexual harassment perpetration and delinquency, respectively), but for the most part were comparable to the non-violent group. Thus, child maltreatment, parenting, and peer relationships could not distinguish which girls would experience *specific* patterns of violence in their dating relationships 2.5 years later compared to those in nonviolent relationships; however, these variables did discriminate the mutually violent profile from those with no experience of physical dating violence.

This study was able to identify three factors (i.e. parental rejection, delinquency, and sexual harassment perpetration) that distinguished girls who were in mutually violent relationships from girls who were not in violent relationships; one of these factors, delinquency, was able to predict girls perpetrating violence only compared to girls in nonviolent relationships. Only one factor (i.e., sexual harassment perpetration) predicted which girls in this study would become a victim (only) of violence. Difficulty in

Table 3 Comparisons of adjustment and maladjustment indicators in grade 11, by dating violence profile

Adjustment Indicators	None[a] (N=367) *M (SD)*	Victim[b] (N=39) *M (SD)*	Perpetrator[c] (N=32) *M (SD)*	Mutual[d] (N=81) *M (SD)*	Comparison Statistic
Grades	4.16 (.83)	3.95(.79)	3.94 (.76)	3.77(.92)[a]	F (3,507) = 5.38***
Self-efficacy					
Personal control	47.34 (4.98)	45.82(3.63)	45.86 (4.8)	44.58 (4.87)[a]	F (3,514) = 8.0***
Interpersonal control	46.44 (5.36)	44.54(5.08)	45.28 (5.14)	45.23 (4.5)	F (3,514) = 2.65*
School connectedness	15.08 (2.47)	14.46 (2.95)	14.34 (2.43)	13.93(2.34)[a]	F (3,514) = 5.39***
Community involvement	2.99 (1.05)	2.71 (.87)	2.81 (1.03)	2.38 (1.02)[a]	F (3,507) = 5.09***
Maladjustment indicators					
Peer relational perpetration	1.64 (.64)	1.9 (.8)	1.96 (.74)	2.01 (.75)[a]	F (3,507) = 10.3***
Sexual harassment perpetration	.6 (1.0)	.95 (1.22)	1.0 (1.16)	1.07 (1.17)[a]	F (3,500) = 5.66***
Distress	2.0 (.97)	2.67 (1.22)[a]	2.59 (1.07)[a]	2.85 (1.08)[a]	F (3,505) = 19.68***
Delinquency	22.56 (3.48)	23.73 (4.81)	23.89 (4.77)	26.5 (6.67)[a,b,c]	F (3,513) = 18.74***
Sexual intercourse (yes)	53.6% (n=195)	71.8% (n=28)[a]	65.6% (n =21)	69.1% (n=56)[a]	X^2 (3) = 10.87*
Condom use (no)	34.2% (n=67)	37% (n=10)	33.3% (n=7)	60.7% (n=34)[a,b,c]	X^2 (3) = 13.28**
Considered suicide (yes)	14.8% (n=54)	20.5% (n=8)	21.9% (n=7)	35% (n=28)[a]	X^2 (3) = 17.98***

Superscript denotes column of profile from which group differs significantly (e.g., 'a' denotes difference from none group)

* $p<.05$; ** $p<.01$; ***$p<.001$

predicting who would become a victim (only) of violence might be related to measurement issues and/or conceptualization. With respect to measurement, for example, it is possible that the relationship context is more important than individual factors—how long the couple has been dating, how many partners the girl has had previously, commitment to the relationship, etc. One of the few cross-sectional studies of profiles of violence found such variables to be important (Gray and Foshee 1997). In addition, we were not able to assess the severity, chronicity, or impact of the violence. Another measurement issue might be the conceptualization of the peer group effects in this study. Although peer-directed violence was included in the prediction model, we were not able to measure the influence of the peer group. The peer group may play a direct role in adolescent dating violence through reinforcing attitudes condoning violence (Capaldi et al. 2001) or through modeling (Arriaga and Foshee 2004). Consistent with previous research showing child maltreatment to be a significant predictor of adolescent and adult violence, this study found support for child maltreatment as a general predictor for girls' physical dating violence. However, child maltreatment did not predict whether the violence was one-sided or mutually violent. Aside from measurement and conceptualization issues, it may be that the phenomenon itself has a degree of randomness that depends on the context more than individual.

Cross-sectionally in grade 11, the clearest pattern to emerge was the poor adjustment and level of dysfunction in the mutually violent group, although differences were evident amongst the three dating violence groups. Girls in the mutual violence group differed from the non-violent profile on every variable of interest, and some of these differences were striking in their magnitude and clinical significance. For example, fully one third of mutually violent girls had considered suicide, compared to 15% of girls in the non-violent group. In addition, the mutually violent group was higher on delinquency and lower on condom use than the other two dating violence profiles. The mutually violent group also had lower school and community connectedness, and appeared to be a more marginalized group in general.

The only difference between the other dating violence profiles (i.e., victim only and perpetrator only) and the non-violent group was the higher rates of sexual intercourse among the victims only group. Without over-interpreting one finding, it is possible that there might be contextual relationship factors for this particular group. For example, this group of girls might be more likely to have older boyfriends, which could potentially create more of a power differential (leading to one-sided violence) and has been shown to be associated with earlier onset of intercourse (Gowen et al. 2004; Young and d'Arcy 2005). Future investigations would benefit from obtaining information about the relationship and partner and not exclusively focus on one partner in the relationship.

Limitations

The self-report methodology of our study creates some limitations. Issues related to privacy, denial, and defensiveness may color the extent to which girls' reports are accurate portrayals of their experiences. How girls perceive their own aggression towards a romantic partner is poorly understood, and there are some data to suggest that the labeling of such behaviors as hitting or pushing as *violent* may be related to the contextual features of the conflict at hand (Gray and Foshee 1997; Sears et al. 2006). Moreover, this study did not consider the severity of the violence, or distinguish between violence that is instrumental from violence used in self-defense or as a response to acts of aggression inflicted by their partner. It also focused exclusively on physical dating violence, and overlap with other forms of dating violence may be important in determining impact (Sears and Byers 2010).

Our conceptualization of the role of parenting excluded positive parenting behaviors, which have been found to act as protective factors against dating violence (e.g., Maas et al. 2010). Unfortunately, the other parenting subscales in our survey did not demonstrate sufficient internal reliability with this particular sample.

These limitations notwithstanding, implications for both prevention and intervention can be identified. First and foremost, the lack of predictability of dating violence makes a strong case for universal prevention. Dating violence prevention programs can be integrated quite easily and effectively into school activities with relatively low cost (Foshee et al. 2005; Wolfe et al. 2009). There are several initiatives underway to make dating violence prevention a core part of educational activities (see for example *Start Strong* at www.startstrongteens.org), although work remains to be done in this area. For more marginalized youth who might not be attending school regularly, targeted intervention can both reduce dating violence perpetration and reduce trauma symptoms (Wolfe et al., 2003).

With respect to intervention, it is clear that girls involved in mutual dating violence are at elevated risk for a range of negative outcomes. At the very least, it would be important for schools and other service providers to have protocols in place that screen these girls for depression and/or suicidality and make appropriate referrals as necessary. Although there are limited treatment models available, work with male dating violence perpetrators who have been exposed to family violence has suggested that it is important to address the

perpetration and victimization issues in treatment (Baker and Jaffe 2003), and a similar model might be necessary for these girls. Beyond intervening with the perpetration and victimization, there is a need to build strengths for this group and increase positive conventional bonds (i.e., with schools and communities). Mentoring is one approach that has shown promise in increasing connectedness and resiliency among marginalized youth (Jekeliek et al. 2002). While empirically validated adolescent violence prevention programs are rare, the *Fourth R Program* (Wolfe et al. 2009) is a school-based universal program that promotes healthy relationships and targets peer and dating violence and has been rigorously evaluated. At 2.5 years following the intervention, students who received the Fourth R reported lower rates of dating violence and higher rates of condom use, with boys showing a more pronounced effect than girls (Wolfe et al. 2009). These findings highlight the importance of gender considerations in program development for adolescent dating violence (Wolfe et al. 2009)

The clearest message arising from this analysis is the need for prevention programming. In our study there was no one pattern of trajectory to dating violence, yet 30% percent of grade 11 girls reported dating violence, indicating that it is a public health concern. A comprehensive prevention approach is indicated, with universal, selected and treatment components. Trying to identify and intervene only with girls "at risk" will result in too many girls being missed. The high levels of maladjustment associated with dating violence among girls further underscores the need for empirically based prevention programming implemented on a wide scale.

Acknowledgments This research was funded in part by a grant from the Canadian Institutes for Health Research (CIHR). We recognize RBC Financial Group for their support of the Chair in Children's Mental Health (D. Wolfe).

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