



Published in final edited form as:

J Adolesc Health. 2013 December ; 53(6): . doi:10.1016/j.jadohealth.2013.06.016.

A longitudinal examination of psychological, behavioral, academic, and relationship consequences of dating abuse victimization among a primarily rural sample of adolescents

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Abstract

Purpose—It is widely held that being victimized by a dating partner during adolescence has negative consequences, yet few longitudinal studies have examined those consequences. This longitudinal study examined the effects of psychological and physical (which included sexual) dating abuse victimization on internalizing symptoms, substance use, academic aspirations and grades, and relationships with friends and family.

Methods—This four-wave longitudinal study (N = 3,328), conducted in two rural North Carolina counties, spanned grades 8 to 12. Random coefficient analyses were used to examine prospective lagged effects of each type of dating abuse on each outcome and to examine sex and grade as moderators of lagged effects.

Results—Consequences varied by type of dating abuse experienced and sex. For both boys and girls, psychological victimization predicted increased alcohol use and physical victimization predicted increased cigarette use. For girls, physical victimization predicted increased marijuana use, and psychological victimization predicted increased internalizing symptoms; the latter effect was only marginally significant for boys. Physical victimization marginally predicted decreases in the number of close friends for boys. Neither type of victimization predicted increased family conflict or decreased academic aspirations or grades, nor was there evidence that consequences varied by grade.

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All persons who contributed to the preparation of this manuscript are included as authors.

There are no conflicts of interest for any of the authors.

Implications and Contributions

This longitudinal study suggests that being victimized by a dating partner may result in many detrimental consequences for adolescents, including increased alcohol, cigarette, and marijuana use, increased internalizing, and decreased number of close friends, providing additional evidence for the importance of identifying evidence-based interventions for preventing adolescent dating abuse.

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Conclusions—Although causation cannot be concluded with longitudinal designs, our findings suggest that being victimized by a dating partner may result in detrimental consequences for adolescents. The findings demonstrate the importance of identifying and implementing evidence-based interventions for preventing dating abuse, including efforts to prevent psychological abuse specifically.

Keywords

Adolescent dating abuse; consequences of dating abuse

Introduction

It is widely held that being victimized by a dating partner during adolescence has negative consequences [1], but little research has examined those consequences. A few studies have examined health-related correlates of adolescent dating abuse victimization (DAV), primarily among girls. These studies report that DAV is correlated with unhealthy weight control methods, substance use, risky sexual behaviors, and pregnancy [2–5]. Because of the cross-sectional nature of the studies, however, it is not clear whether these are predictors, consequences or simply correlates of DAV.

Longitudinal, compared to cross-sectional designs allow for better assessment of the temporality of relationships. Only a handful of longitudinal studies have examined the consequences of adolescent DAV and key methodological limitations constrain the interpretation and generalizability of the findings. Using data from the National Longitudinal Study of Adolescent Health (Add Health), Roberts and colleagues [6] found that dating abuse initiated in the 18 month interval between survey Waves I and II was associated with increases in depressed mood for boys and girls and with increases in illicit substance use, antisocial behavior, and suicide ideation among girls only. Ackard and colleagues [7] found that experiencing dating abuse during adolescence was associated with increased cigarette smoking among men and women and with increased marijuana use and depressive symptoms among women five years later in young adulthood. Both studies, however, measured victimization retrospectively based on abuse histories reported at the second assessment, thus introducing the potential for misreporting of the dates and timing of abusive events and limiting control for the temporality of relationships. Both studies also used measures of dating abuse that combined types of abuse (psychological, physical, and sexual), making it impossible to determine whether consequences varied by abuse type.

In contrast, Ellis and colleagues [8] measured only a very specific form of dating abuse that assessed tactics the perpetrator used to emotionally withdraw from the partner. They found that being a victim in the 9th grade predicted depression and anxiety four months later, with stronger effects for girls than boys. Brown and colleagues [9] found that being victimized physically by a dating partner was associated with poorer psychosocial functioning as well as substance dependence and comorbid Axis I diagnosis at 6-month follow-up, controlling for baseline functioning. The findings have limited generalizability to the adolescent population, however, because the sample was of 15 to 24 year olds referred to a youth mental health service.

A more recent study using data from Add Health addressed a number of these methodological limitations by not measuring abuse retrospectively, using a large national sample of adolescents, and including measures of both physical and psychological dating abuse [10]. That study examined whether experiencing physical and psychological dating abuse during adolescence predicted negative outcomes five years later during young adulthood. Findings suggest that, for young men and women, experiencing both physical

and psychological abuse (vs. no abuse) and experiencing only psychological abuse (vs. no abuse) during adolescence were associated with intimate partner victimization (IPV) in young adulthood. Other victimization consequences varied by sex and depended on whether the young adult had experienced both physical and psychological dating abuse or only psychological abuse during adolescence. For women, experiencing both types of abuse predicted depression symptoms, suicide ideation, and cigarette smoking, whereas experiencing only psychological abuse predicted heavy episodic drinking. For men, experiencing both types of abuse was associated with depression only, whereas experiencing only psychological abuse predicted antisocial behavior, suicide ideation, and marijuana use. These findings suggest the importance of additional investigation into more proximal consequences of adolescent DAV.

The current study

The study reported here used data from the Context Study, a large, multi-wave longitudinal study of primarily rural adolescents to examine the psychological, behavioral, academic, and peer and family relationship consequences of DAV across grades 8 through 12 [11,12]. The consequences of two types of victimization are examined, psychological victimization and physical victimization (including sexual victimization). The study design enabled the examination of the prospective effects of victimization across short time-lags, better controlling for the temporality of associations. It should be noted, however, that even though longitudinal designs have advantages over cross-sectional designs in assessing causal relationships, causality cannot be conclusively determined with any research design [13]. In this paper we use the term “consequences” for ease of presentation, but acknowledge that causation cannot be inferred from our findings.

The current study expands on previous research that has focused primarily on the mental health consequences of victimization (e.g. internalizing symptoms and substance use) by also examining consequences that may be more proximal to the abuse such as effects on academics and relationships with peers and parents. Academics have been found to be negatively affected by other types of victimization, such as bullying [14]. Effects on relationships with peers and parents were examined because abusers often use controlling and monitoring techniques to isolate the victim from others, which could have detrimental effects on peer and family relationships.

In addition, we examined whether the prospective effect of victimization on a given outcome varied across grade levels; social, academic, peer, and family environments can change considerably for adolescents from grades 8 to 12 and the consequences of victimization could play-out differently in these changing environments. To our knowledge, no longitudinal study has examined consequences of DAV across more than two time periods. We also examined sex differences in consequences because of differences noted in other studies. Because physical and psychological abuse are highly correlated, we examined both types of abuse in the same model, allowing for a direct comparison of their relative effects on the outcomes investigated.

Methods

Study overview

Data are from the Context Study, a longitudinal study of adolescent health risk behaviors [11,12]. The current study uses four waves of data collected over two and a half years starting in 2003 when participants were in the 8th, 9th and 10th grades (referred to here as wave one) and ending when participants were in 10th, 11th, and 12th grades (referred to here as wave four). Six-month time intervals separated the first three waves of data collection and

a one-year interval separated waves three and four. Participants were enrolled in the 19 middle and high schools in two public school systems located in two predominantly rural U.S. counties.

At each wave, all enrolled students in the targeted grades who were able to complete the survey in English and who were not in special education programs or out of school due to long-term suspension were eligible for the study. Parents could refuse consent for their child's participation by returning a written form or calling a toll-free telephone number. Assent was obtained prior to the survey administration from adolescents whose parents had consented. The Institutional Review Board at the sponsoring university approved study protocols.

Response rates for each wave ranged between 73% and 80%, which are considered high for survey research [15]. Analyses were conducted in the sample of 3,328 adolescents who participated in at least one of the four waves. About half of the sample is male (49%). Approximately 43% are white, 50% are black, and the remaining 7% are of other race/ethnicities including Latino, Asian, American Indian, or mixed race.

Measures

Physical and psychological dating abuse victimization—Short versions of the Safe Dates Physical Victimization and Psychological Victimization scales were administered at each wave [16,17]. Although there has not been a psychometric study of the scales, the many studies that have used them report high Cronbach's alphas, and consistency in finding expected associations, suggesting validity. Both scales have the same stem question and response options. Adolescents were asked if they had ever been on a date, defined as "including informal activities like meeting someone at the mall, park, or at a basketball game as well as more formal activities like going out to eat or to a movie together." Adolescents who answered with "yes" were then asked "During the past 3 months, how many times has anyone you were dating or on a date with done the following things to you? Don't count it if they did it to you in self-defense or play." Nine physically and sexually abusive items were listed: "pushed, grabbed, shoved, or kicked you", "slapped or scratched you", "physically twisted your arm", "threatened to hurt you", "hit you with their fist or something else hard", "beat you up", and "assaulted you with a knife or gun," "forced you to have sex," and "forced you to do something else sexual that you did not want to do." Four psychologically abusive items were listed "Said something to hurt your feelings," "insulted you in front of others," "would not let you do things with other people," and "made you describe where you were every minute of the day." Response categories ranged from zero (0) to ten times or more (5) in the past three months. The physically and sexually abusive items (average Cronbach's $\alpha = .95$) and the psychologically abusive items (average Cronbach's $\alpha = .86$) were averaged to create the two victimization measures at each wave. Because of the low prevalence of sexual victimization, especially for boys, we could not create a separate sexual dating abuse victimization variable.

Consequence outcomes—All outcomes were assessed at each wave; descriptive information is presented in Table 1. *Alcohol*, *marijuana*, and *cigarette use* were each coded dichotomously to contrast any self-reported use in the past three months ('1') with no use ('0'). The 8th grade prevalence estimates (2004) for each substance are within the range of national prevalence estimates provided by the 2004 Monitoring the Future Study (8th graders) [18].

Internalizing symptoms were assessed with ten items from the Revised Children's Manifest Anxiety Scale [19] and the Short Mood and Feelings Questionnaire [20]. The items assessed feelings of depression (e.g., "I did everything wrong") and anxiety (e.g., "I worried when I

went to bed at night”) within the past three months. Responses ranged from a scale of 0 (“strongly disagree”) to 4 (“strongly agree”). The mean of the 10 items was computed at each assessment (average Cronbach’s alpha =.92).

Number of close friends was assessed by asking adolescent show many close or best friends they had. This outcome was coded such that higher values indicate fewer friends (i.e., a worse outcome).

Family conflict was assessed with Bloom’s Family Conflict scale [21]. At each assessment, participants were asked to indicate their degree of agreement with the following statements: “We fight a lot in our family;” “Family members sometimes get so angry they throw things;” and “Family members sometimes hit each other,” on a scale ranging from “strongly disagree” (coded ‘0’) to “strongly agree” (coded ‘4’) (average Cronbach’s alpha =.87).

Low academic aspirations were assessed by asking adolescents to report how important it was to: 1) graduate from high school, and 2) go to college, two items that were original to this study. This measure was coded as ‘1’ if participants did not report that both goals were very important and ‘0’ otherwise. Thus, higher scores on this measure indicate lower aspirations. To assess *academic grades*, students self-reported their letter grades at the most recent grading period in four subjects: English/Language Arts, Mathematics, History/Social Studies, and Science on a scale from 1 (D or lower) to 4 (A). The grades were averaged to obtain an approximate grade point average(GPA) score. *Control variables*. All analyses control for *race/ethnicity*, *single parent household*, *parent education*, and *sex*; measures for each were original to the study and all were time-invariant in analyses. *Race/ethnicity* was coded by two dummy variables indicating if the adolescent self-reported as black or other race with white as the reference. *Single parent household* was coded to indicate whether the adolescent lived with only one caregiver (1) or with two caregivers (0). *Parent education*, an indicator of family socioeconomic status [22] ranged from less than high school (0) to graduate school or more (5), and was measured as the highest level of education attained by either parent across all waves. *Sex* was coded such that 0 = female and 1 = male.

Analytic strategy

To take advantage of the study’s cohort sequential design, data were reorganized such that the grade-level was used as the primary metric of time rather than assessment wave. This allowed for trajectories of each of the proposed victimization consequences to be continuously modeled across grades eight through twelve. Grade was centered in the spring of 8th grade so that the intercept represents average levels of the outcome variable in the spring of 8th grade. Victimization variables were standardized and centered at their grand mean.

We use random coefficient modeling to first estimate an unconditional trajectory for each of the eight outcomes using the generalized linear mixed modeling procedure (ProcGlimmix) in SAS version 9.3 [23]. Unconditional models for each outcome included a random intercept to permit individual differences in baseline levels of the outcome as well as the fixed-effect of grade-level. For each model, we tested a random slope for grade and retained the random slope if it was significant.

We then examine the lagged effects of physical and psychological victimization on the targeted outcome (e.g., the effects of fall semester grade 8 victimization on spring semester grade 8 internalizing symptoms) over and above an individual’s trajectory for that outcome. In this example, a significant lagged effect of victimization on internalizing symptoms would indicate that experiencing victimization prospectively leads to higher-than-expected levels of internalizing *relative to an individual’s expected trajectory* of internalizing

symptoms. We further tested whether lagged victimization effects were moderated by sex or grade and retained significant interactions.

Results

Table 2 displays descriptive statistics for psychological and physical victimization by grade-level. Across all grades, 19.9% of these rural adolescents reported being physically victimized and 38.3% reported being psychologically victimized in the prior three months. Table 3 reports parameter estimates of the lagged effects of physical and psychological dating abuse victimization on each outcome.

Substance use

Psychological, but not physical, victimization predicted alcohol use. When predicting marijuana use, there were significant interactions between physical victimization and grade and between physical victimization and adolescent sex. Results suggest that the lagged effect of physical victimization on marijuana use increased linearly as a function of grade for both boys and girls. For girls the lagged effect was significant at all grades (Grade 8: $b = .55, p < .01$; Grade 12: $b = 1.14, p < .001$), whereas for boys, the lagged effect was not significant at any grade (Grade 8: $b = -.31, p = .21$; Grade 12: $b = .28, p = .17$). Psychological victimization did not predict marijuana use. Physical, but not psychological, victimization predicted increased cigarette use by both boys and girls.

Internalizing symptoms

Psychological, but not physical, victimization predicted internalizing symptoms. However, the lagged effect of psychological victimization on internalizing symptoms varied by sex of the adolescent such that effects were significant for girls ($b = 0.18, p < .001$) but only marginally significant for boys ($b = 0.08, p = .07$). The nature of this interaction is presented in Figure 1.

Number of close friends

There was a significant interaction between physical victimization and sex when predicting number of close friends. Physical victimization was not predictive of number of close friends for girls ($b = -.12, p = .18$) but was marginally predictive of having fewer close friends for boys ($b = 0.14, p = .07$) (see Figure 2). Psychological victimization did not predict number of close friends.

Family conflict

Neither physical nor psychological victimization predicted family conflict.

Low academic aspirations and academic grades

Neither physical nor psychological victimization predicted low academic aspirations or academic grades.

Discussion

The prevalence of DAV in this study (38.3% psychologically and 19.9% physically victimized in the prior three months) is greater than the 29% reporting psychological victimization and 10% to 12% reporting physical victimization each year in nationally representative studies [24,25]. The prevalence of DAV in most local studies, however, is higher than in nationally representative studies. This discrepancy has been attributed to the limited number of items assessing DAV in the national studies compared to the more

extensive scales used in more localized studies, such as ours that likely capture more abusive behaviors [26]. Also, the national surveys assess victimization from established dating partner (e.g. a boyfriend or girlfriend) whereas our measure captures victimization from both informal and more established dating partners. It is also possible that these differences may reflect increased risk of DAV for rural adolescents; to date, no study has assessed urban/suburban/rural differences in dating abuse prevalence, but intimate homicide rates are higher in rural than urban areas [27].

We found that the consequences of being victimized by a date varied depending on the type of abuse and the sex of the adolescent. In general, there was little evidence that the consequences varied across grades 8 to 12. The consequences of *physical* dating abuse included cigarette use for both boys and girls and marijuana use for girls. Also, physical dating abuse victimization was marginally predictive of having fewer close friends for boys. The consequences of *psychological* abuse included alcohol use for boys and girls, and for girls, but only marginally for boys, increases in internalizing symptoms. No other study of adolescent dating abuse consequences used analytical methods that permitted distinguishing the consequences of physical from psychological victimization, however longitudinal studies of adult IPV have and have also found different consequences for physical and psychological victimization [28]. These findings demonstrate the importance of examining the unique effects of various types of abuse.

We found that psychological abuse, independent of physical abuse, had detrimental consequences for adolescents. The one other longitudinal study that assessed the independent effects of psychological DAV during adolescence found detrimental consequences during young adulthood, including heavy episodic drinking by young women, antisocial behavior and marijuana use by young men, and suicide ideation for both young women and men [10]. Numerous studies of adult IPV have reported that victims perceive psychological abuse as even more emotionally harmful than physical abuse [29,30]. Together, these findings demonstrate the importance of including content focused on preventing psychological dating abuse in all dating abuse prevention programs.

That we found sex-specific consequences is consistent with all other studies that have examined sex differences in the consequences of DAV; however, the pattern of findings is not consistent across studies. For example, consistent with some studies [6,7], we found that victimization significantly predicted marijuana use by girls but not boys, but others found that marijuana use was a consequence for boys, but not girls [10]. Consistent with other studies [7,8], we found that victimization was a significantly stronger predictor of internalizing symptoms for girls than boys, whereas others found that depressed mood was a consequence for both girls and boys [4,10]. Although there is not a clear pattern of sex differences in consequences, most studies identify more consequences for girls than boys. This may be due to sex differences in the severity of the victimization experienced or to methodological factors such as varying sample sizes for boys and girls, and thus differences in power for detecting associations.

In addition to examining the unique consequences of physical and psychological victimization and sex differences in these consequences, strengths of this study are use of multiple closely spaced assessments over the span of grades 8 – 12; assessment of consequences that have not been previously examined (i.e., peer and family relationships, academic aspirations, and academic grades); and use of an analysis strategy that controlled for temporality of relationships.

The primary study weakness is the inability to know for certain that the victimization per *se* caused the change in the health outcome. Although longitudinal designs can be used to

assess associations and better control for the timing of events, it is impossible to control for all of the external factors that could produce spurious relationships. Spuriousness can be better controlled with experimental designs. Given the impracticality of randomly allocating adolescents to be victimized or not, a longitudinal panel design is the next best design for studying causal relationships. Another weakness is the measurement of some consequences. We assessed only one aspect of peer relationships, number of close friends, and one aspect of family relationships, family conflict, although other aspects of these relationships could also be affected by victimization. Also, other aspects of an adolescent's academic environment besides academic aspirations and grades – for example, school attendance could be negatively affected by abuse. Finally, the rural sample limits the generalizability of the study findings to the national population of adolescents. However, given the high response rates, these findings can be generalized with some confidence to other similar rural counties.

Future longitudinal studies are needed to examine cognitive, social, and contextual factors that may explain why the consequences of DAV differ for boys and girls and for different types of abuse. As well, expanded considerations of the effects of DAV on peer and family relationships and on academics is needed. Because there is evidence that reactivity to other types of victimization, such as bullying, vary depending on individual characteristics such as one's genotype[31,32], individual skills and competencies [33,34] and contextual factors [35,36], studies also need to examine moderators of the effects of DAV.

In conclusion, we found evidence to suggest that being abused by a dating partner has detrimental consequences for adolescents. Our findings demonstrate the importance of identifying evidence-based interventions to prevent dating abuse, including specific efforts to prevent psychological dating abuse.

Acknowledgments

This research was funded by the National Institute on Drug Abuse (R01 DA16669 and P30 DA023026) and the Centers for Disease Control and Prevention (R49 CCV423114).

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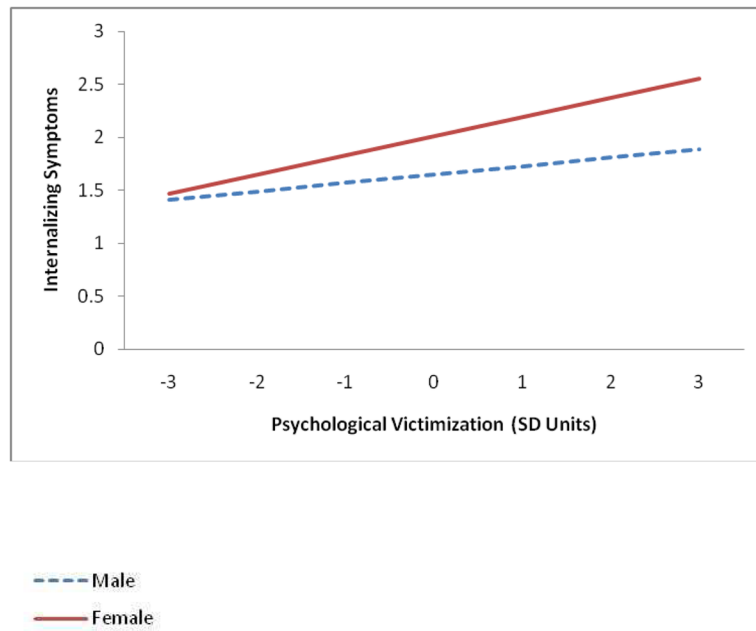
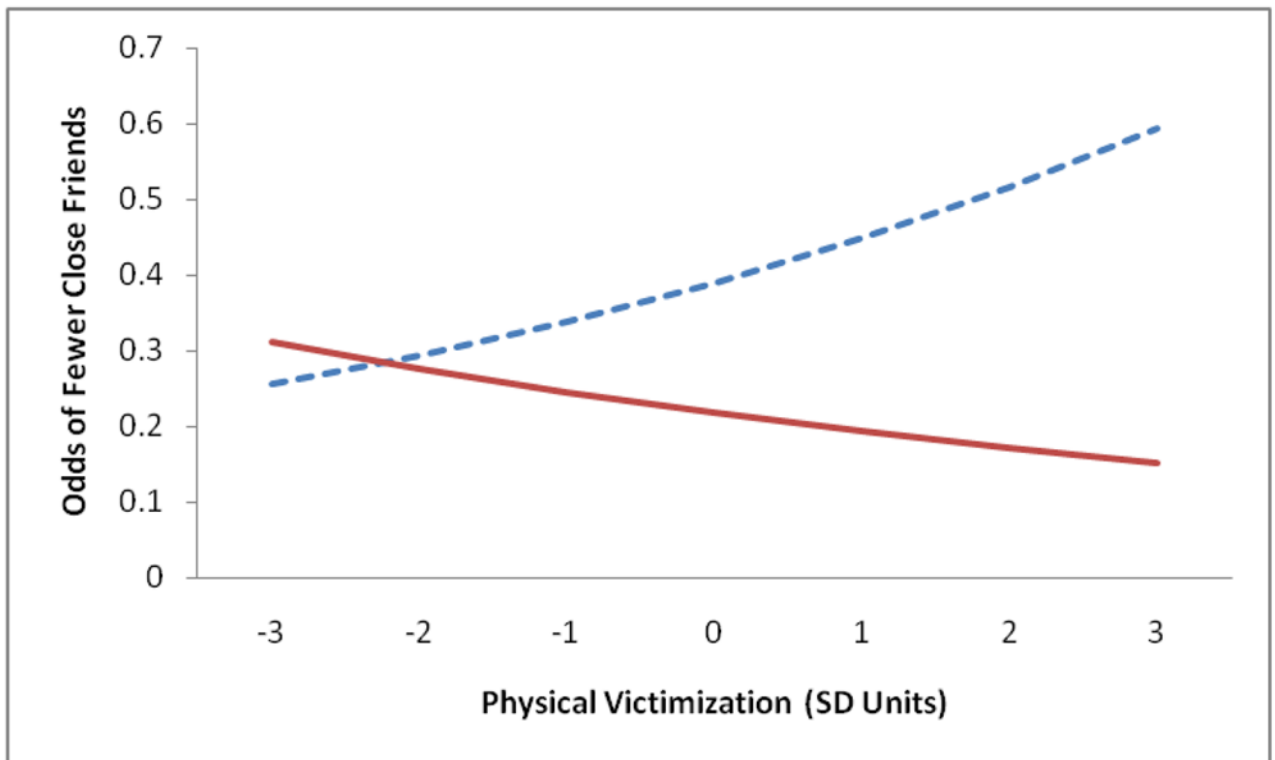


Figure 1. Prospective (lagged) effect of psychological victimization on internalizing symptoms by sex.



--- Male
— Female

Figure 2. Prospective (lagged) effect of physical dating abuse victimization on odds of reporting fewer close friends by sex.

Table 1

Descriptive information on the consequence outcomes across grades 8 through 12.

	Alcohol Use		Marijuana Use		Cigarette Use		Internalizing Symptoms		Reporting 10 or More Friends		Family Conflict		Reporting Both Academic Goals Being Important		Academic Grades	
	%		%		%		Mean (SD)		%		Mean (SD)		%		Mean (SD)	
Fall 8 th Grade	20.2		13.4		21.1		1.55 (1.12)		48.0		1.06 (1.19)		73.7		2.77 (.88)	
Spring 8 th Grade	24.4		14.2		20.9		1.59 (1.16)		42.8		1.10 (1.28)		71.1		2.78 (.85)	
Fall 9 th Grade	36.0		23.1		31.7		1.62 (1.10)		42.7		1.16 (1.24)		69.6		2.76 (.89)	
Spring 9 th Grade	34.2		25.1		32.0		1.66 (1.15)		37.4		1.19 (1.23)		67.9		2.74 (.79)	
Fall 10 th Grade	42.9		24.3		29.1		1.62 (1.08)		32.8		1.15 (1.23)		69.6		2.76 (.87)	
Spring 10 th Grade	46.7		26.1		27.4		1.68 (1.08)		28.0		1.12 (1.23)		70.5		2.89 (.78)	
Fall 11 th Grade	49.0		27.2		29.2		1.59 (1.05)		26.6		1.06 (1.16)		68.2		2.73 (.84)	
Fall 12 th Grade	54.0		22.9		20.2		1.58 (1.05)		22.3		1.02 (1.11)		70.2		2.83 (.83)	

Table 2

Means, standard deviation and prevalence of past-three month physical and psychological victimization across grades 8 through 12.

	Physical Victimization		Psychological Victimization	
	Mean (SD)	%	Mean (SD)	%
Fall 8 th Grade	.13 (.49)	20%	.28 (.65)	33%
Spring 8 th Grade	.16 (.58)	19%	.29 (.70)	32%
Fall 9 th Grade	.16 (.56)	21%	.31 (.69)	36%
Spring 9 th Grade	.19 (.67)	20%	.37 (.82)	35%
Fall 10 th Grade	.16 (.56)	20%	.36 (.73)	40%
Spring 10 th Grade	.22 (.72)	21%	.44 (.83)	44%
Fall 11 th Grade	.11 (.44)	20%	.34 (.65)	43%
Fall 12 th Grade	.13 (.51)	18%	.38 (.75)	43%

Table 3

Lagged effects of physical and psychological dating abuse victimization on health outcomes.

Outcome	B	SE	p value
<i>Alcohol Use^a</i>			
Intercept	-.02	.16	.90
Male	-.34	.12	<.01
Grade	.17	.03	<.001
Physical Victimization	-.05	.09	.59
Psychological Victimization	.25	.09	<.01
<i>Marijuana Use^a</i>			
Intercept	-1.61	.23	<.001
Male	.41	.17	.02
Grade	.20	.05	<.001
Physical Victimization	.45	.20	.03
Psychological Victimization	.04	.14	.80
Physical Victimization *Grade	.20	.09	.02
Physical Victimization *Sex	-.86	.27	<.01
<i>Cigarette Use^a</i>			
Intercept	-.56	.21	<.01
Male	.12	.16	.48
Grade	.07	.05	.15
Physical Victimization	.31	.14	.03
Psychological Victimization	.06	.13	.64
<i>Internalizing Symptoms^b</i>			
Intercept	2.02	.06	<.001
Male	-.36	.05	<.001
Grade	-.01	.01	.18
Physical Victimization	.01	.03	.85
Psychological Victimization	.18	.03	<.001
Psychological Victimization*Male	-.10	.04	.02
<i>Close Friends^c</i>			
Intercept_0	-.86	.14	<.001
Intercept_1	.35	.14	.01
Intercept_2	2.11	.14	<.001
Male	.58	.10	<.001
Grade	-.18	.02	<.001
Physical Victimization	-.12	.09	.18
Psychological Victimization	-.04	.07	.51
Physical Victimization *Male	.26	.09	<.01
<i>Conflict with Parents^d</i>			
Intercept	.31	.07	<.001

Outcome	B	SE	<i>p</i> value
Male	-.01	.05	.84
Grade	-.02	.01	.08
Physical Victimization	.05	.03	.11
Psychological Victimization	.05	.03	.15
<i>Academic Aspirations^a</i>			
Intercept	-.66	.14	<.001
Male	.85	.10	<.001
Grade	.00	.02	.96
Physical Victimization	.06	.07	.38
Psychological Victimization	-.01	.07	.94
<i>Grades^b</i>			
Intercept	2.72	.08	<.001
Male	-.20	.06	<.001
Grade	-.02	.02	.39
Physical Victimization	.10	.06	.09
Psychological Victimization	-.08	.05	.12

Note. Only fixed effects are reported in this table to aid readability. Interactions between victimization and sex and victimization and grade were tested and removed if non-significant. Grade was centered at 8.5 (mid-way through eighth grade). Victimization measures were standardized using the grand mean. All models control for race/ethnicity, parent education, and single-parent family structure.

^aBinary distribution modeled with a logit link

^bNormal distribution modeled with an identity link

^cMultinomial distribution modeled with a cumulative logit link function

^dNegative binomial distribution modeled with a log link