

# Correlates of Cyber Dating Abuse Among Teens

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**Abstract** Recent advancements in technology (e.g., social networking, texting) have created new ways for dating youth to relate to one another, including in abusive ways via “cyber dating abuse.” Cyber dating abuse is a form of teen dating violence that overlaps with other types of abuse (e.g., psychological) but also has several unique characteristics. Given the phenomenon’s limited presence in dating violence literature, we focus on identifying how experiencing cyber dating abuse relates to youths’ individual behaviors and experiences (e.g., substance use, sexual activity), psychosocial adjustment, school connection, family relationships, and partner relationships. A total of 3,745 youth (52 % female, 74 % White) in three northeastern states participated in the survey and reported currently being in a dating relationship or having been in one during the prior year. We found that experiences of cyber dating abuse were most significantly correlated with being female, committing a greater variety of delinquent behaviors, having had sexual activity in one’s lifetime, having higher levels of depressive symptoms, and having higher levels of anger/hostility. Further, cyber dating abuse appeared somewhat more strongly related to depressive symptoms and delinquency than did other forms of teen dating violence and abuse.

**Keywords** Teen dating violence · Cyber dating abuse · Victimization

## Introduction

The percent of youth in romantic relationships increases throughout adolescence (Collins 2003) and these relationships impact developmental pathways—either positively or by placing youth at risk for future problems (Furman 2002). One serious potential problem is teen dating violence, which encompasses varying levels and types of abuse ranging from physical and sexual violence to forms of psychological and emotional abuse (Mulford and Giordano 2008). Recent advances in technology (e.g., social networking, texting on cellular phones) have expanded and changed the ways in which youth can experience teen dating violence, adding a new term “cyber dating abuse” to the developmental and dating violence literature. Cyber dating abuse can be defined as the control, harassment, stalking, and abuse of one’s dating partner via technology and social media. Although it can be conceptualized as a form of psychological abuse, it is unique in that it presents an opportunity for perpetrators to publicly degrade/humiliate victims to an extent never before possible and to gain access to victims at any time even absent their physical presence. Further, the ability to easily share private and embarrassing information about one’s partner may create a qualitatively different experience for the victim.

Youths’ extensive use of technology socially and in dating relationships, while providing a number of benefits, also heightens their vulnerability to cyber dating abuse. Yet, despite growth in the dating violence literature over the past two decades, most research does not examine the role of cyber dating abuse in youths’ development, or most notably, how being a victim relates to other aspects of youth’s lives. The goal of this study is to identify how experiencing cyber dating abuse relates to youths’ individual behaviors and experiences (e.g., substance use,

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sexual activity), psychosocial adjustment, school connection, family relationships, and partner relationships. By identifying the most significant correlates of cyber dating abuse, we envision this article as taking a first step toward examining what role cyber dating abuse might play across youths' development.

## Literature on Teen Dating Violence

### Rates of Teen Dating Violence and Technology Use

Rates of teen dating violence and abuse vary based on the samples included in studies and on how questions are asked. Data from the National Longitudinal Study of Adolescent Health (Add Health) indicate that 32 % of adolescents experienced some kind of abuse in their romantic relationships (including being sworn at or threatened by a partner) and 12 % reported experiencing physical violence (Halpern et al. 2001). Data from the nationally representative Commonwealth Fund Survey of the Health of Adolescent Boys and Girls show that about 17 % of girls and 9 % of boys reported dating victimizations, using a limited definition of such acts including having been threatened to be hurt, actually physically hurt, or forced to have sex when they did not want to (Ackard et al. 2003). For middle school youth, a recent study found that among nearly 1,500 seventh grade students, 37 % reported being a victim of psychological dating abuse in the 6 months prior to data collection and 15 % reported being a victim of physical dating violence (RTI International 2012). Depending on how questions have been asked, variation exists in teen dating violence prevalence rates.

Youth frequently use technology to interact with peers and dating partners. Based on data from a nationally representative sample of youth ( $n = 799$ ), most have cell phones (77 %; Lenhart 2012) and most are online (95 %; Lenhart et al. 2011). Eighty-percent of youth ages 12–17 report using social networking sites (e.g., Facebook, MySpace) and many report doing so daily (Lenhart et al. 2011). Abuse through technology presents a unique opportunity for perpetrators to gain access to victims at any time and to publicly humiliate victims to an extent never before possible.

Draucker and Martsof (2010) conducted a qualitative study with 56 participants to examine the role of electronic communications in dating violence and abuse and identified several ways youth use technology to abuse their partners. Specifically, they found six ways in which partners used electronic communications related to violence, abuse, or controlling behaviors: (1) arguing; (2) monitoring the whereabouts of a partner or controlling their activities;

(3) committing emotional aggression toward a partner; (4) seeking help during a violent episode; (5) distancing a partner's access to self by not responding to calls, texts, and other contacts via technology; and (6) reestablishing contact after a violent episode. Thus, it appears that technology provides a profound tool by which relationship partners can abuse one another.

Few studies have examined the nature and prevalence of cyber dating abuse, most relying on convenience samples of youth. In a survey by Picard (2007), dating youth reported being called names, harassed, or put down by their partner via texting (25 %) or via a social networking site (18 %); having their partners share private or embarrassing pictures or videos of them (11 %); and being physically threatened by their partner through technology (10 %). But, this study only provides descriptive frequencies without further examination of how these behaviors relate to other teen dating violence experiences. As part of an evaluation study, Cutbush et al. (2012) studied middle school youth and found that 32 % reported being victims of cyber dating abuse. Among ninth grade youth, Cutbush et al. (2010) found even higher rates of cyber dating victimization (56 %), with more females than males reporting victimization. Based on this limited information, it is clear that cyber dating abuse is an important, though understudied, form of teen dating violence.

### Factors Related to Teen Dating Violence and Abuse

There is a large literature on how experiencing teen dating violence and abuse relates to other areas of youth's lives. We organize these life factors using an *Ecological Systems Theory* (Bronfenbrenner 1979; Bronfenbrenner and Morris 1998) framework, which posits that individuals interact with multiple levels of social ecology throughout their development and lives. As applied to the lives of teens, this theoretical perspective emphasizes the importance of the broader context in which youth live, including family dynamics, relationships with peers, individual personality characteristics, and school performance. The theory specifies that these multiple systems interact throughout youth's development to affect their behavior and experiences. We posit that this includes effects on teens' experiences of dating violence and abuse. For the purposes of this study, we focus on youth's life factors in the individual (psychosocial and behavioral factors), school, family, and partner relationship domains. Below we review the literature on factors shown to be related to victimization in intimate relationships. This literature is primarily in reference to experiences of physical dating violence—though some studies combine measures of physical, psychological, and sexual dating victimization in various ways. Notably, none of the studies attempt to distinguish effects on aspects

of youth's lives by these different types of violence. Further, none of the studies focus on *cyber dating abuse* specifically, and how it relates to other life factors. No literature to date does so. The current study is an important step forward in understanding if the various forms of dating violence relate to the same correlates. That said, it is important to review the current knowledge base on these issues.

In *the individual domain*, teen dating violence has been linked to several behaviors and measures of adjustment. More specifically, dating victimization (both physical and sexual) has been linked with the risk factors and/or consequences of psychosocial maladjustment, depression, and suicidal ideation (Foshee et al. 2004; Howard et al. 2008); and alcohol and drug use (Eaton et al. 2007; Vezina and Hebert 2007). Measures combining threats of physical violence with physical violence and sexual activity against one's will were related to eating disorders and bingeing/purging (Ackard et al. 2003); and physical dating violence has been associated with early initiation of and unprotected sex (Eaton et al. 2007). Thus, several measures representing individual behavior and adjustment have been correlated with teen dating violence in past studies, yet none of these looked at how such measures may be differentially related to physical violence, sexual violence, psychological abuse, and cyber dating abuse.

Aspects of *the family domain* have been linked with both experiencing and protecting against dating violence. Witnessing domestic violence and experiencing abuse as a child predict physical dating violence victimization (e.g., Arriaga and Foshee 2004; Fergusson et al. 2008), as does low parental monitoring (Howard et al. 2003). Another study found that family adversity and dysfunction was related to a single measure that combined physical, psychological, and sexual dating victimization (Fergusson et al. 2008). Thus, no distinction was made between these various forms of dating victimization and their varying relationships to family adversity and dysfunction. Conversely, good relationships with parents are related to decreased likelihood of dating victimization (Vezina and Hebert 2007). Based on this, it seems that different aspects of families can be either protective against teen dating violence, or place individuals at greater risk for experiencing it.

Other correlates to experiencing teen dating violence can be identified in peer relationships and in school connection and achievement. In *the peer domain*, exposure to friends involved in violent relationships predicts physical dating violence victimization (Arriaga and Foshee 2004), while connectedness to positive non-deviant peers may protect against teen dating violence. In *the school domain*, girls who experience dating violence have more problems in school, but not necessarily with academics (see, e.g.,

Vezina and Hebert 2007, for a review of literature). Alternatively, girls who are connected to school and achieve academically are less likely to have experienced teen dating violence. In sum, features of peer relationships and school connectedness are correlated with experiences of teen dating violence. However, it is not clear which types of dating violence experiences—physical violence, sexual violence, cyber dating abuse, or psychological abuse—are related to these factors.

## Research Questions

It is clear that questions remain unanswered about how cyber dating abuse might relate to other areas of youth's lives. Given the cross-sectional nature of the current study, it was not possible to disentangle the causal direction of effects between life factors and cyber dating abuse. However, our goal was simply to identify the factors that appeared to be most related to cyber dating abuse. Thus, this study is guided by three research questions. First, is cyber dating victimization associated with: psychosocial measures (anxiety, depressive symptoms, and anger), behavioral measures (substance use, sexual activity, delinquency, and daily activities), school measures (grades and attendance), family measures (parental support and activities with parents), and partner measures (positive relationship qualities)? Second, do associations that exist between cyber dating victimization and other life factors exist when controlling for other relevant variables (e.g., demographics, technology use)? Third, are the factors associated with cyber dating abuse also associated with other forms of teen dating violence and abuse (specifically, physical violence, other non-cyber forms of psychological abuse, and sexual coercion), and do the strengths of those associations vary by type of abuse?

## Methods

### Design

This study employed a cross-sectional, research design with a large-scale survey of 7th–12th grade youth. It involves a convenience sampling of schools in the northeastern US that allowed access to youth to conduct a survey about sensitive topics, yielded a sample size large enough to examine the issues of interest, and provided some diversity. The design of the study involves 10 schools in five school districts in New York ( $n = 3$  high schools, 2 middle schools), Pennsylvania ( $n = 3$  high schools), and New Jersey ( $n = 2$  high schools). The New Jersey schools were in suburban areas, the New

York schools were rural areas, and the Pennsylvania schools were in small cities.

### Procedure

Students anonymously participated in the survey via paper–pencil format. The survey was piloted in one New York district by a group of 8th grade ( $n = 11$ ) and 12th grade ( $n = 12$ ) students, who completed both the survey and a feedback form upon which survey revisions were based. Survey completion ranged from 12 to 36 min. The institutional review board approved a two-stage consent process: passive parental consent and informed assent for students. Schools either mailed or e-mailed a letter to parents (depending on their main mode of communication with parents) authored by the Principal Investigators which described the purpose of the study and survey content, noting that the data would be anonymous and not linked to their children's names or other personally identifying information, and informed them of the rights their children had as participants in the study. Parents were allowed to review a copy of the survey in the school's main office or office of the school psychologist or counselor. Parents could opt-out their children from the survey by calling a toll-free, 1–800 number to reach project staff. For student assent, survey administrators provided each student a listing of their rights as participants in the study (e.g., being able to skip a question if they chose to) and reviewed it with youth before the survey. A student's willingness to start the survey was their implied assent.

Principal Investigators trained teachers administering the survey on appropriate procedures, including the protocols for confidentiality (e.g., youth would be taking one of three different versions of the survey so that classmates would not be able to know what questions each other were answering based on page number), collecting surveys (e.g., youth placed their own completed surveys into the provided envelopes and sealed them), and distressed respondent protocols (e.g., referral to appropriate school and research personnel). Teachers were given a survey administration script to read aloud to students prior to administration of the surveys.

The survey was conducted on a single day, and included the census of youth attending school that day. In eight of the ten schools, the survey was conducted during the first period of the day; thus, all students in the school took the survey simultaneously. In the other two schools, the survey was administered during English class throughout the day. Upon completion, each student was given contact information for local domestic violence and sexual assault service providers, and national domestic violence, sexual assault, and suicide prevention hotlines.

### Sample

The sample includes a total of 5,647 valid completed surveys. We achieved an overall response rate of 84 %, with rates in each school ranging from 70 to 94 %. Response rates from schools were calculated by documenting the number of students made available to take the survey, the number who were reported absent on the day of survey administration (9 %), the number who refused to take the survey (1 %), the number whose parents opted them out of the survey (3 %), and the number of student surveys removed from the data during the data entry and cleaning process due to irregularities in the answering of questions (4 %).

Of the 5,647 valid surveys, 3,745 youth reported currently being in a dating relationship or having been in one during the prior year. The survey defined a relationship as “a boyfriend or girlfriend, someone you have dated or are currently dating (e.g., going out or socializing without being supervised), someone who you like or love and spend time with, or a relationship that might involve sex.” Of these youth in a relationship: Fifty-two percent identified as female, 47 % as male, and 18 students (less than 1 %) as transgender. Ninety-four percent identified as heterosexual. Just under two-thirds (64 %) reported living with both parents. Approximately 26 % identified as non-White (5 % African American/Black, 8 % Hispanic/Latino, 2 % Asian, 10 % biracial, and less than 1 % Native American). Eighteen percent reported that neither parent had received a college education, but a high portion of youth (28 %) did not know or did not state their parents' highest level of educational attainment. Thus, for analyses that follow we omitted this measure and create a school-specific measure of socioeconomic status (SES) measured as the percent of youth not receiving reduced price or free lunch programs.

In this sample, 26 % of relationship youth report being a victim of cyber dating abuse (23 % of males and 29 % of females), 30 % report being a victim of physical dating violence (36 % of males and 24 % of females), 47 % report other forms of psychological abuse (44 % of males and 49 % of females), and 13 % report sexual coercion (9 % of males and 16 % of females; Zweig et al. 2013). In terms of overlap between cyber dating abuse and other forms of dating violence, most cyber dating victims also experienced other psychological abuse (84 %), over half experienced physical violence (52 %), and nearly a third experienced sexual coercion (32 %).

### Measures

Below we describe the survey measures used in the present analysis. Each scale was initially calculated as a sum or average based on actual item responses; for the present

analysis, dichotomous versions of the teen dating violence and abuse scales were used to indicate the presence or absence of abuse. For a list of all scale items, please see the “Appendix” section.

## Teen Dating Violence and Abuse

### *Cyber Dating Abuse*

Cyber dating abuse was measured by 16 questions relating to cyber dating victimization ( $\alpha = .907$ ) by their current or most recent partner, six of which were adapted from Picard (2007) and 10 of which were created for the purposes of the current study; however, we examined a cyber bullying measure (Griezel 2007) and adapted several items from that work. Response options were (0) never, (1) rarely, (2) sometimes, and (3) very often. Items included pressuring partners to send sexual or naked photo of themselves, sending partners sexual or naked photos of him/herself that s/he knew the partner did not want, threatening partners if they did not send a sexual or naked photo of themselves, sending threatening text messages to partners, using partner’s social networking account without permission, sending partners so many messages (like texts, e-mails, chats) that it made them feel unsafe, threatening to harm the partner physically using a cell phone, text message, social networking page, etc., and writing nasty things about partners on his/her profile page (e.g., on Facebook, MySpace, etc.).

### *Physical Dating Violence*

Physical dating violence in the prior year was assessed using a 14-item victimization ( $\alpha = .896$ ) scale developed and validated by Foshee (1996). Response options were: (0) never happened, (1) happened 1–3 times, (2) happened 4–9 times, and (3) happened 10 or more times. Item examples include scratching, slapping, twisting arms, slamming or holding someone against walls, choking, and hitting with a fist.

### *Psychological Dating Abuse*

Other psychological dating victimization ( $\alpha = .897$ ) in the prior year was based on measures adapted from the Michigan Department of Community Health’s (MCH 1997) control and fear scales, as well as Foshee’s (1996) psychological abuse scale. These questions did not distinguish between psychological abuse that had occurred in person and that which might have occurred via technology, though they were originally developed without the technological aspect being a part of youth’s lives as it is today. Response options for all 21 items were (0) never, (1) rarely,

(2) sometimes, and (3) very often. Examples include damaging something that belonged to the partner, threatening to hurt the partner, not letting partner do things with others, telling a partner they could not talk to people of the gender that he/she dates, trying to limit contact with family and friends, insulting partners in front of friends, calling partner names to put them down or make them feel bad, making the partner feel unsafe or uneasy when they spend time alone together, and making the partner feel owned or controlled.

### *Sexual Coercion*

The sexual coercion victimization ( $\alpha = .737$ ) measure included two items from Foshee’s (1996) physical abuse scale (being forced to have sex and forced to do sexual things that person did not want to), one from Zweig et al. (2002) scale measuring unwanted sexual intercourse (having intercourse when the person did not want to; only included in the victimization measure), and one additional item (being pressured to have sex; Zweig et al. 1997). Response options for Foshee’s (1996) items and the additional items were: (0) never happened, (1) happened 1–3 times, (2) happened 4–9 times, and (3) happened 10 or more times. Zweig et al. (2002) binary measure had yes (1) and no (0) options.

*Other Life Factors* Survey measures of other life factors covered five separate domains: individual behaviors, psychosocial adjustment, family, school, and partner relationship.

### *Individual Behaviors*

Individual behaviors domain measures included several youth behaviors.

*Substance use.* We measured substance use using the Communities that Care (2006) drug use scale ( $\alpha = .776$ ), which included alcohol/binge drinking, marijuana use, and serious drug use (including non-prescription drugs) over the last 30 days ( $\alpha = .887$  for the serious drug use items). Response options were (0) never, (2) 1–3 times, (6.5) 4–9 times, and (15) 10 or more times.

*Sexual activity.* Sexual activity indicated youth who reported having had vaginal, anal, or oral sex previously in their lifetime.

*Delinquency.* Delinquency was measured by 9 items from the Communities that Care (2006) delinquency scale measuring the variety of delinquent activity youth participated in over the last year ( $\alpha = .734$ ). For one item (attacked someone with the intent to harm), the survey specified that the respondent should answer about anyone other than a person whom the respondent had dated in the

last year (thus measuring non-dating violence). Response options were yes (1) or no (0).

**Prosocial activities.** Prosocial activities were measured by 12 items from Add Health's Wave I Daily Activities scale, measuring prosocial activities, plus two additional items (reading and participating in school groups) ( $\alpha = .652$ ). Response options were (0) never, (2) 1–3 times, (6.5) 4–9 times, and (15) 10 or more times.

### *Psychosocial Adjustment*

The psychosocial adjustment domain included measures of respondents' answers to the depressive symptoms, anxiety, and anger/hostility subscales of the Symptom Assessment-45 (SA-45) Questionnaire (Strategic Advantage, Inc. 1998), shown to be reliable and valid on both patient and nonpatient adult and adolescent populations (see, e.g., Maruish 2004). All three scales ranged in value from zero to 20, with higher values indicating more depressive symptoms, anxiety, or anger/hostility. Response options were not at all (0), a little bit (1), moderately (2), quite a bit (3) and extremely (4).

**Depressive symptoms.** Depressive symptoms ( $\alpha = .892$ ) were measured by five items assessing symptoms of loneliness, hopelessness, worthlessness, disinterest in things, and feeling blue.

**Anxiety.** Anxiety ( $\alpha = .861$ ) was measured by five items assessing symptoms of fearfulness, panic, tension, and restlessness.

**Anger/hostility.** Anger/hostility ( $\alpha = .839$ ) was measured by five items assessing symptoms such as uncontrollable temper outbursts, getting into frequent arguments, shouting, and feeling urges to harm others or break things.

### *Family*

The family relationship quality domain was measured using items adapted from the Add Health's Wave II Relations with Parents survey that tapped into respondents' involvement in activities with their parents and feelings of closeness to their parents.

**Parental closeness.** Parental closeness was the mean of two items measuring closeness between the respondent and his/her primary parent or guardian. Response options were (0) not at all, (1) a little bit, (2) moderate, (4) quite a bit, and (5) extremely.

**Parental activities.** The parental activities frequency scale ( $\alpha = .677$ ) consisted of 5 items measuring the extent to which respondents spent time doing activities with the parent or guardian with whom they spent the most time. Response options were (0) never, (1) rarely, (2) sometimes, and (3) often.

**Parental communication.** Parental communication frequency ( $\alpha = .624$ ) consisted of 4 items measuring the

extent to which respondents spent time talking with their parents about things going on in their lives. Response options were (0) never, (1) rarely, (2) sometimes, and (3) often.

### *School*

The school performance domain captured respondents' attendance at school and performance in the classroom, as reported by the youth.

**School attendance.** School attendance response options ranged from (3) every weekday, (2) 3–4 days per week, and (1) 1–2 days per week. For analysis purposes, we created a binary measure of attending school every weekday (2) or less than every weekday (1).

**School grades.** Grades in school response options included (1) mostly As, (2) As and Bs, (3) mostly Bs, (4) Bs and Cs, (5) mostly Cs, (6) Cs and Ds, (7) mostly Ds, (8) Ds and Fs, and (9) mostly Fs. For analysis purposes, we created an ordinal measure grouping students into three categories: (1) As and Bs, (2) Bs and Cs, and (3) Ds and Fs.

### *Partner Relationship*

The partner relationship quality domain included one measure of positive relationship qualities: Students who were currently or recently in a relationship were asked 20 questions about the positive qualities of their relationship, such as feeling loved and cared for by a partner, feeling proud to be with that partner, and having a partner who is supportive of their activities and interests ( $\alpha = .973$ ). These items were adapted from the MCH (1997) affection measure. Response options were (0) never, (1) rarely, (2) sometimes, and (3) very often.

**Control Variable Measures** We included the following control variables in models: gender (male = 1, female = 2); age; race/ethnicity; sexual orientation (lesbian, gay, bisexual, transsexual, or queer; LGBTQ = 1, non-LGBTQ = 0); computer use (hours of use per day); cell phone use (hours of use per day); school-level SES (the percentage of students who were *not* receiving a free or reduced price lunch); and state (New Jersey, New York, and Pennsylvania). Computer use was based on six items identifying computer use activities ( $\alpha = 0.658$ ) and cell phone use was based on six items identifying cell phone use activities ( $\alpha = 0.773$ ).

### *Analytic Strategy*

Our analytic strategy can be described in relationship to the three research questions. For the first research question, we compared the prevalence rates and mean scores for cyber abuse victims and non-victims across the series of life

factors (e.g., behavioral, psychosocial). We used either Chi squared or t test statistics, as applicable, to detect which of these life factors was a statistically significant bivariate correlate to cyber abuse. For the second research question, we used a series of logistic regression models predicting the likelihood of cyber abuse to identify which of the bivariate correlates retained significance—when tested by domain—even after controlling for youths' gender, age, race/ethnicity, sexual orientation, computer use, cell phone use, school-level SES, and state. Then, we estimated one logistic regression model with all significant correlates from the domain-specific regressions (plus the control variables) to identify the most significant correlates of cyber abuse in a multivariate model. For the third research question, we estimated this same, final multivariate model on other types of teen dating violence/abuse, and statistically compared the resulting beta coefficients for each life factor with those in the cyber abuse model using z-score comparisons, as described in Paternoster et al. (1998). The purpose of this step was to compare the strength of the relationships between life factors and cyber abuse with the strength of life factors and other types of dating violence experiences, to explore whether the associations between such life factors and cyber abuse were the same or different than those between life factors and other dating violence.

Prior to implementation of the strategies described above, we examined the extent of missing data among youth surveys and noted that in nearly all cases (except as noted in tables), missing data amounted to 10 % or less of the sample for any particular measure, including those related to teen dating violence experiences. According to Allison (2001), whenever valid, non-missing data is present for at least 90 % of respondents, deletion of cases with missing data is an entirely acceptable approach to data analysis. For that reason, we did not impute or otherwise correct for missing data in any model and instead reported the valid data for each measure exactly as it occurred among youth responses. Notably, for the multivariate models, the percentage of respondents with valid data across all included variables dropped to approximately three-quarters of the sample. However, in those final analytic stages, our focus was strictly on identifying those correlates of teen dating violence that retained significance at each prior stage (e.g., bivariate analysis, domain-specific modeling), when the percentages of valid data were far greater, and in the final multivariate stage; for that reason, we leave the multivariate models unaltered.

Although these data are cross-sectional, the analytic approach we selected makes a distinction between correlates and types of teen dating violence, and we examine the relationships between those two phenomena knowing that we cannot specifically distinguish predictors from consequences of dating violence. We did not believe it

appropriate to treat any types of dating violence as correlates, controls, or predictors of other types of dating violence (namely, cyber dating abuse). We might have, alternatively, examined the associations between correlates of dating violence in a structural equation model that treated different types of dating violence as different but correlated outcomes, but such a model is inappropriate without longitudinal data and appropriate exclusion restrictions (e.g., factors that conceptually affect one type of dating violence but not the other). Therefore, we compromised with an easier-to-interpret methodological approach that gives precedence to the article's primary focus (i.e., identification of correlates of cyber dating abuse), while also permitting a preliminary exploration of whether those same correlates are similarly related to other types of dating violence. We acknowledged previously that there was overlap in types of dating violence in this data but that we cannot distinguish predictors from consequences given its cross-sectional nature. More complex types of analyses of these important issues are best suited to future studies involving longitudinal data. In the next section, we present results of the analyses we performed.

## Results

### Correlates of Cyber Dating Abuse

As shown in Table 1, we first identified all of the life factors that had statistically significant bivariate relationships to cyber dating victimization using variables from each of the domains just described. All of the variables showed statistically significant differences between victims of cyber dating abuse and non-victims with the exception of school-level SES, frequency of activities with parents, and frequency of communication with parents.

To assess the relative importance of these bivariate correlates to cyber dating victimization, we estimated a series of logistic regression models (each with "cyber dating victimization" as the "yes/no" outcome). The first set of these models tested significant correlates ( $p < .05$ ) from bivariate tests by domain, with control variables present in each model (see Table 2). From these domain-specific models, we kept all correlates that remained statistically significant ( $p < .05$ ) and tested them in a final multivariate model. From Table 3, it is clear that the life factors that have the strongest overall correlations to cyber dating abuse, when other life factors are held constant; being female; committing a greater variety of delinquent behaviors; having had sexual activity in one's lifetime; having higher levels of depressive symptoms; and having higher levels of anger/hostility. Note that we do not highlight state-level findings because in this sample, state is

**Table 1** Bivariate relationships of life factors and cyber dating abuse

	Total %/Mean (N = 3,745)	Victim %/Mean (N = 944)	Non-victim %/Mean (N = 2,645)	$\chi^2$ or t value
<i>Control variables</i>				
State				24.029***
New Jersey	39.3 %	33.6 %	26.5 %	
New York	33.0 %	33.4 %	41.4 %	
Pennsylvania	27.7 %	33.1 %	32.1 %	
Female	52.5 %	58.0 %	51.0 %	13.570***
White	73.7 %	71.9 %	75.3 %	4.131*
Live with both parents	64.0 %	61.3 %	65.6 %	5.415*
Age	15.53	15.72	15.47	4.524***
LGBTQ	6.1 %	8.6 %	5.2 %	13.725***
School SES	71.9 %	72.7 %	72.3 %	0.446
Hours per day on computer	2.79	3.11	2.69	5.129***
Hours per day on cell phone	5.64	5.96	5.54	4.370***
<i>School performance</i>				
Attend school every day	95.0 %	92.9 %	95.8 %	12.644***
Grades				18.494***
As and Bs in school	60.5 %	56.2 %	62.2 %	
Bs and Cs in school	38.2 %	41.3 %	36.8 %	
Ds and Fs in school	1.4 %	2.5 %	1.0 %	
<i>Parent involvement</i>				
Closeness to primary parent	3.12	2.99	3.17	-4.185***
Frequency of activities with parent	6.52	6.32	6.59	-1.832 <sup>†</sup>
Frequency of communication with parent	6.19	6.33	6.15	1.386
<i>Risk behaviors</i>				
Frequency of drug use in last 30 days				
Alcohol use	2.22	3.10	1.91	7.364***
Binge drinking	1.65	2.40	1.38	6.685***
Marijuana use	2.14	3.03	1.81	6.202***
Any drug use	5.68	8.47	4.64	6.657***
Serious drug use	1.34	2.38	0.94	3.774***
Variety of delinquent behaviors last year	0.76	1.21	0.59	9.736***
Sexual activity in lifetime	51.1 %	65.5 %	45.7 %	97.143***
Age of first sexual encounter	14.61	14.44	14.71	-3.324**
Exchanged sex for something of value	4.6 %	7.0 %	3.1 %	12.326***
<i>Psychosocial measures (in last 7 days)</i>				
Frequency of feelings of depressive symptoms	3.40	5.24	2.74	12.574***
Frequency of feelings of anger/hostility	2.60	4.20	2.02	12.124***
Frequency of feelings of anxiety	1.99	3.28	1.53	11.142***
Prosocial activities (frequency)	49.48	47.68	50.13	-2.526*
Relationship quality (mean frequency)	2.47	2.51	2.47	1.602*

Valid, non-missing data on measures in this table were present for 89–100 % of respondents, except as follows: valid, non-missing data for age of first sexual encounter and exchanged sex for something of value were 59 and 59 %, respectively; these variables were deemed unreliable and were not used in further analyses

<sup>†</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$



**Table 2** Domain-specific logistic regression models predicting likelihood of cyber dating abuse among teens in a relationship

	Controls only		School domain		Parent domain		Risk behavior domain		Psychosocial domain		Prosocial activities domain		Relationship domain	
	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE
Female	0.247	0.083**	0.299	0.085***	0.252	0.088**	0.509	0.096***	0.128	0.091	0.231	0.085**	0.221	0.085**
Pennsylvania	0.150	0.206	0.145	0.210	0.153	0.236	0.199	0.246	0.220	0.231	0.108	0.214	0.143	0.215
New Jersey	0.306	0.129*	0.338	0.131**	0.362	0.137**	0.417	0.145**	0.292	0.137*	0.349	0.133**	0.314	0.131*
White	-0.091	0.099	-0.090	0.101	-0.090	0.106	-0.016	0.110	-0.118	0.106	-0.125	0.101	-0.087	0.102
Both parents	-0.167	0.088†	-0.104	0.090	-0.121	0.094	-0.037	0.100	-0.112	0.094	-0.148	0.090	-0.167	0.090†
Age	0.081	0.029**	0.079	0.030**	0.076	0.032*	-0.018	0.036	0.083	0.032**	0.062	0.031*	0.079	0.030**
LGBTQ	0.282	0.163†	0.186	0.169	0.339	0.173*	0.097	0.180	-0.068	0.179	0.294	0.167†	0.257	0.166
School SES	0.001	0.004	0.001	0.004	0.000	0.005	0.002	0.005	0.002	0.005	0.000	0.004	0.000	0.004
Computer time	0.059	0.020**	0.050	0.020*	0.055	0.021**	0.065	0.022**	0.024	0.022	0.050	0.021*	0.065	0.020**
Cellphone time	0.057	0.016***	0.054	0.017***	0.055	0.017***	0.018	0.018	0.050	0.017**	0.058	0.017***	0.057	0.017***
Daily school			-0.490	0.183**										
Bs and Cs			0.860	0.360*										
Ds and Fs			0.227	0.088**										
Parent close					-0.147	0.042***								
Sex (ever)							0.685	0.104***						
Alcohol use							0.020	0.013						
Marijuana use							-0.016	0.012						
Serious drugs							0.005	0.006						
Delinquency							0.273	0.039***						
Depressive sym									0.059	0.013***				
Anger									0.068	0.013***				
Anxiety									0.019	0.018				
Prosocial acts											-0.004	0.002*		
Positive relat.													0.012	0.068
Constant	-2.953	0.572***	-2.640	0.621***	-2.458	0.658***	-2.245	0.691***	-3.387	0.647***	-2.411	0.619***	-2.914	0.599***
R <sup>2</sup>	0.035		0.044		0.041		0.116		0.113		0.037		0.035	

†  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

**Table 3** Multivariate model of most significant correlates of cyber dating abuse

	$\beta$	SE	Exp( $\beta$ )
<i>Control variables</i>			
State			
New York (reference category)			
New Jersey	0.463**	0.151	1.589
Pennsylvania	0.139	0.261	1.149
Female	0.344***	0.103	1.410
White	-0.053	0.116	0.948
Live with both parents	0.046	0.105	1.047
Age	-0.016	0.038	0.984
LGBTQ	-0.119	0.196	0.888
School SES	0.000	0.005	1.000
Hours per day on computer	0.023	0.023	1.023
Hours per day on cell phone	0.028	0.019	1.029
<i>School performance</i>			
Attend school every day	-0.105	0.221	0.900
Grades			
As and Bs in school (reference category)			
Bs and Cs in school	0.373	0.505	1.453
Ds and Fs in school	-0.036	0.105	0.964
<i>Parent involvement</i>			
Closeness to primary parent	0.050	0.050	1.052
<i>Risk behaviors</i>			
Variety of delinquent behaviors in last year	0.224***	0.038	1.251
Sexual activity in lifetime	0.654***	0.107	1.923
<i>Psychosocial measures (in last 7 days)</i>			
Frequency of feelings of depressive symptoms	0.068***	0.012	1.070
Frequency of feelings of anger/hostility	0.047***	0.014	1.048
Prosocial activities (frequency)	-0.002	0.002	0.998
Constant	-2.324**	0.810	0.098

Nagelkerke  $R^2 = 0.161$ ;  $N = 2,751$  youth with valid, non-missing data across all measures, which represents 74 % of respondents in a relationship

†  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

confounded with SES, size of geographic location, and race/ethnicity.

Next, we examined if these same remaining factors related to cyber dating abuse were also related to other forms of dating violence and abuse, that is, physical violence, psychological violence, and sexual coercion. Results from these re-estimations are summarized in Table 4, where the answers are overwhelmingly “Yes.” In sum, nearly all of the factors that were correlated with cyber

**Table 4** Do the most important correlates of cyber dating abuse also matter to other types of teen dating violence and abuse?

Correlate	Physical dating violence	Psychological dating abuse	Sexual coercion
Female	(Male)***	Yes*	Yes***
Variety of delinquent behaviors	Yes***	Yes***	Yes**
Sexual activity in lifetime	Yes***	Yes***	Yes***
Depressive symptoms	Yes**	Yes***	Yes***
Anger/hostility	Yes***	Yes***	NS

NS = not a significant correlate in multivariate model. All correlates indicated the same direction of effects, except as noted for the gender correlate with regard to physical dating violence victimization

†  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

dating abuse also mattered for other types of dating victimization.

We also asked whether the strengths of those correlations mattered more for cyber abuse than for other types of teen dating victimization. Toward this end, we statistically compared the strength of each life factor’s resulting correlation/effect (i.e., its  $\beta$  value) to that in the model for cyber dating abuse (see Table 5). These comparisons revealed the following. Female’s strength as a correlate for cyber dating victimization differed significantly from that for physical dating violence (where being male mattered) and sexual coercion (where being female mattered more). Delinquency’s strength as a correlate for cyber dating victimization had a marginally significant difference from that for psychological dating abuse (where it appeared to matter less). Sexual activity’s strength as a correlate for cyber dating victimization differed significantly from that for sexual coercion (where it mattered more). Depressive symptoms’ strength as a correlate for cyber dating victimization had a marginally significant difference from that for physical dating violence (where it appeared to matter less). Finally, there were no significant differences for other variables in the strength of other correlates’ relationship to other types of teen dating victimization.

### Discussion

Despite large growth in our knowledge about adolescent dating violence and abuse in the past two decades, critical questions remain unanswered as new technologies have emerged, creating new ways for people to relate to one another socially. To date, little is known about how cyber dating abuse relates to other areas of youths’ lives. Thus,

**Table 5** Z-score comparisons of final, multivariate regression model predicting cyber dating abuse, among teens in a relationship, with models predicting other types of teen dating violence and abuse

	Model 1 Cyber abuse		Model 2 Physical violence		Model 3 Psychological abuse		Model 4 Sexual coercion		Z-score Model 1 versus 2	Z-score Model 1 versus 3	Z-score Model 1 versus 4
	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	z	z	z
Female	0.344	0.103***	-0.667	0.098***	0.189	0.088*	0.832	0.140***	7.111***	1.400	-3.972**
Pennsylvania	0.139	0.261	0.062	0.238	-0.245	0.220	0.269	0.337	0.218	-0.051	-0.663
New Jersey	0.463	0.151**	0.079	0.147	0.397	0.130**	0.531	0.197**	1.822†	1.450	-0.505
White	-0.053	0.116	-0.264	0.110*	0.055	0.103	0.017	0.150	1.320	-0.606	-0.533
Both parents	0.046	0.105	0.089	0.101	0.006	0.092	0.118	0.135	-0.295	0.486	-0.602
Age	-0.016	0.038	0.026	0.037	0.016	0.032	0.034	0.050	-0.792	-0.897	-1.235
LGBTQ	-0.119	0.196	0.126	0.186	0.038	0.184	0.057	0.225	-0.907	-0.670	-0.714
School SES	0.000	0.005	-0.004	0.005	-0.009	0.005*	0.001	0.007	0.566		
Computer time	0.023	0.023	-0.047	0.024*	-0.032	0.021	-0.008	0.030	2.106*	2.346†	1.297
Cellphone time	0.028	0.019	0.051	0.018**	0.036	0.016*	-0.018	0.025	-0.879	-0.415	2.344
Daily school	-0.105	0.221	-0.231	0.207	0.133	0.214	-0.049	0.268	0.416	-0.892	-0.191
Bs and Cs	0.373	0.505	-0.060	0.467	-0.211	0.490	0.377	0.538	0.630	0.729	-0.004
Ds and Fs	-0.036	0.105	-0.061	0.100	0.033	0.092	-0.186	0.136	0.172	-0.775	1.233
Parent close	0.050	0.050	-0.110	0.046*	-0.052	0.044	-0.146	0.059*	2.355*	2.120	3.754*
Sex (ever)	0.654	0.107***	0.794	0.104***	0.648	0.092***	1.084	0.147***	-0.938	0.035	-3.336*
Delinquency	0.224	0.038***	0.150	0.035***	0.133	0.036***	0.131	0.043**	1.432	2.367†	2.334
Depressive symptoms	0.068	0.012***	0.035	0.012**	0.073	0.012***	0.072	0.014***	1.945†	-0.329	-0.328
Anger	0.047	0.014***	0.053	0.014***	0.058	0.014***	0.027	0.017	-0.303	-0.845	1.400
Prosocial acts	-0.002	0.002	-0.001	0.002	-0.004	0.002*	0.007	0.002**	-0.354	0.998	-4.491**
CONSTANT	-2.324	0.810**	-0.992	0.759	-0.618	0.693	-4.226	1.055***	-1.200	-0.928	1.296
R <sup>2</sup>	0.161		0.171		0.158		0.169				

†  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

the goal of this study was to examine how experiencing cyber dating abuse relates to other behaviors (e.g., substance use, sexual activity), psychosocial adjustment, school connection, family relationships, and partner relationships—associations that previous research had yet to explore.

In addressing this study's three research questions, we note the following key findings. First, cyber dating abuse was significantly associated with a number of correlates, including those that were psychosocial, behavioral, and school-, family-, and partner-related in nature. Second, even after controlling for other relevant variables, we found that the most significant correlates of cyber abuse were being female, committing a greater variety of delinquent behaviors, having had sexual activity in one's lifetime, having higher levels of depressive symptoms, and having higher levels of anger/hostility. Third, nearly all of these factors were also associated with teen dating violence and abuse that was physical, psychological, and sexual in nature; however, the strengths of those associations (regarding youths' gender, prior delinquency, prior sexual activity, and levels of depressive symptoms) varied somewhat by the type of abuse.

The current study's findings both are similar to and extend findings from previous research. The findings are similar in that like previous studies that have found physical violence in dating relationships is related to psychosocial adjustment (Foshee et al. 2004) and sexual behavior (Howard et al. 2007, 2008), we found that cyber dating abuse is also related to these measures. In addition, the life factors in this study that had the strongest overall correlations to cyber dating abuse (when control variables and other factors were held constant in regression models) included having previously engaged in sexual activity, reporting a higher level of recent depressive symptoms, and reporting a higher level of recent anger/hostility. This study also found that cyber dating abuse was associated with committing a greater variety of delinquent behaviors. Therefore, like other forms of dating violence, cyber dating abuse is related to several other aspects of youth's lives.

The study's findings further examine the strength of relationships for various forms of teen dating violence. In fact, the strength of the associations between delinquency and cyber dating abuse and between depressive symptoms and cyber dating abuse were marginally greater than associations between these factors and other forms of teen dating violence, indicating the appearance of a stronger connection between such victimization and depressive symptoms and delinquency than other dating violence experiences. It is necessary to examine other forms of dating violence in this context because most cyber dating victims also experience other types of psychological abuse, sexual coercion, and/or physical violence. We did so by

exploring whether the strength of the associations between other life factors and different forms of teen dating violence varied. Specifically, we found that delinquency mattered marginally more to cyber dating abuse than to psychological dating abuse and depressive symptoms mattered marginally more to cyber dating abuse than to physical dating violence victimization.

From this study, we cannot know whether depressive symptoms and/or delinquency preceded cyber dating abuse for victims or was a consequence of such experiences; thus, it is important to explore in future studies why each mattered more to cyber dating abuse. If we consider these as consequences of experiencing cyber dating abuse, then perhaps something unique about experiencing abuse via technology contributes to these specific issues. For example, does a victim feel particularly shamed, harassed, or controlled as a result of cyber dating abuse, more so than other teen dating violence experiences? Do these feelings then contribute to higher levels of depressive symptoms and depression? Does experiencing cyber dating abuse embolden youth to commit other overt delinquent acts? While these questions remain empirical ones, it would be useful to further explore the distinct experience of cyber dating abuse using longitudinal methods.

As with all research, this study is subject to some limitations. First, the design of the study is cross-sectional in nature and, thus, we cannot ascertain the exact nature of the relationships between cyber dating abuse and other life factors. For example, we cannot determine if the correlates to victimization occurred before such experiences and were essentially *risk factors* for cyber dating abuse, or if they occurred after such experiences and were essentially *consequences*. Second, the sample is limited to those youth who attend school (which excludes those who have dropped out or who are chronically truant) and specifically, those who attend schools with administrators willing to allow students to be surveyed about sensitive topics. In addition, the sample is largely white and has a lower proportion of middle school youth compared to high school youth. Regarding measurement, the cyber abuse measures for this study indicated strong internal consistency, but the extent of youths' underreporting and/or overreporting of violence and abuse experiences cannot be assessed.

## Conclusions

The current findings extend our knowledge about teen dating violence and abuse; that is, cyber dating abuse in particular is important to understand and address. Cyber dating abuse is related to victim's depressive symptoms and delinquency, possibly more so than experiencing other kinds of teen dating violence and abuse. Such an

examination of the issues has not been previously conducted or documented in the literature on teen dating violence. Importantly, these current research findings lead directly to suggestions for future research endeavors. Much remains to be learned about cyber dating abuse and the field would benefit from a national, longitudinal, multi-year study to further examine teen dating violence/abuse, with a particular focus on cyber dating abuse. Such a study could examine causality related to the risk factors and consequences of cyber dating abuse, and also would allow us to identify protective factors related to *not* experiencing such violence and abuse. It would also allow us to more appropriately determine than we are able to here if cyber dating abuse should continue to be distinguished separately from other forms of psychological dating abuse or if these two forms of abuse can be combined moving forward. In sum, this study is an important first step in understanding the role of cyber dating abuse in teen dating violence and how such experiences relate to other areas of individuals' lives.

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**Author Contributions** JZ and MD conceived of the larger study, directed and participated in its design and coordination, and assisted in writing of the manuscript; PL participated in the study's design and coordination, performed most statistical analyses, and assisted in writing of the manuscript; JY assisted in the study's design and interpretation of the data, performed some statistical analyses, and assisted in writing of the manuscript. All authors read and approved the final manuscript.

## Appendix: Description of Scale Items

See Tables 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 17.

**Table 6** Items for cyber dating abuse ( $\alpha = 0.907$ )

---

Sent me sexual photos or naked photos of himself/herself that he/she knew I did not want
Threatened me if I did not send a sexual or naked photo of myself
Pressured me to send a sexual or naked photo of myself
Sent me text messages, e-mail, IM, chats, etc., to have sex or engage in sexual acts with him/her when he/she knew I did not want to <sup>a</sup>
Posted embarrassing photos or other images of me online <sup>a</sup>
Sent threatening text messages to me
Took a video of me and sent it to his/her friends without my permission
Used my social networking account without permission
Sent me instant messages or chats that made me feel scared
Wrote nasty things about me on his/her profile page (e.g., on Facebook, Myspace)
Created a profile page (like Facebook, Myspace, or YouTube) about me knowing it would upset me
Sent me so many messages (like texts, e-mails, chats) that it made me feel unsafe
Spread rumors about me using a cell phone, e-mail, IM, web chat, social networking site, etc. <sup>a</sup>
Used information from my social networking site to harass me or put me down <sup>a</sup>
Made me afraid when I did not respond to my cell phone call, text, posting on social networking page, IM, etc. <sup>a</sup>
Threatened to harm me physically using a cell phone, text message, social networking page, etc. <sup>a</sup>

---

<sup>a</sup> Item adapted from Picard (2007)

**Table 7** Items for physical dating violence victimization ( $\alpha = 0.896$ )

---

Scratched me
Slapped me
Pushed, grabbed, or shoved me
Physically twisted my arm
Slammed me or held me against a wall
Kicked me
Bent my fingers
Bit me
Tried to choke me
Burned me
Hit me with a fist
Hit me with something hard besides a fist
Beat me up
Assaulted me with a knife or gun

---

Items are adapted from Foshee (1996)

**Table 8** Items for psychological dating abuse ( $\alpha = 0.897$ )

---

Damaged something that belonged to me<sup>a</sup>  
 Started to hit me but stopped<sup>a</sup>  
 Threatened to hurt me<sup>a</sup>  
 Harmed or threatened to harm someone close to me<sup>b</sup>  
 Would not let me do things with other people<sup>a</sup>  
 Told me I could not talk to a person of the gender I date<sup>a</sup>  
 Made me describe where I was every minute of the day<sup>a</sup>  
 Insisted on knowing who I am with and where I am at all times<sup>b</sup>  
 Tried to limit my contact with family<sup>b</sup>  
 Tried to limit my contact with friends<sup>b</sup>  
 Insulted me in front of others<sup>a</sup>  
 Put down my looks<sup>a</sup>  
 Blamed me for bad things he/she did<sup>a</sup>  
 Called me names to put me down or make me feel bad<sup>b</sup>  
 Made me feel unsafe or uneasy when we spend time alone together<sup>c</sup>  
 Said things to hurt my feelings on purpose<sup>a</sup>  
 Threatened to start dating someone else<sup>a</sup>  
 Brought up something from the past to hurt me<sup>a</sup>  
 Made me feel owned or controlled<sup>c</sup>  
 Threatened to harm himself/herself if I broke up with him/her<sup>d</sup>  
 Made me afraid to tell others the truth<sup>c</sup>

---

<sup>a</sup> Items are adapted from Foshee (1996)  
<sup>b</sup> The control measure is from Michigan Department of Community Health (1997) and the item is adapted from Statistics Canada (2000)  
<sup>c</sup> The fear measure is from Michigan Department of Community Health (1997)  
<sup>d</sup> The item was developed for the current study

**Table 9** Items for sexual coercion victimization ( $\alpha = 0.737$ )

---

Pressured me to have sex when he/she knew I didn't want to<sup>a</sup>  
 Forced me to have sex<sup>b</sup>  
 Forced me to do other sexual things that I did not want to do<sup>b</sup>  
 Had unwanted sexual intercourse<sup>c</sup>

---

<sup>a</sup> Item adapted from Zweig et al. (1997)  
<sup>b</sup> Item adapted from Foshee (1996)  
<sup>c</sup> Victimization measure for item adapted from Zweig et al. (2002)

**Table 10** Items for drug use, last 30 days (Communities that Care 2006) ( $\alpha = 0.776$ )

---

Drank alcoholic beverages (beer, wine, and hard liquor)  
 Used marijuana/hashish (grass, pot, hash)  
 Used hallucinogens (LSD, ecstasy, mescaline, peyote, acid)  
 Used inhalants (e.g., spray paints, glue, lighter gases)  
 Used amphetamines (uppers, speed, whites)  
 Taken pain relievers not prescribed for a medical condition (e.g., Percocet, Vicodin, Codeine)  
 Taken tranquilizers not prescribed for a medical condition (e.g., Valium, Xanax)  
 Used barbiturates (downers, reds)  
 Used heroin (horse, smack)  
 Used cocaine (coke, crack)

---

**Table 11** Items for delinquency (Communities that Care 2006) ( $\alpha = 0.734$ )

---

Attacked someone with the intent to hurt him/her (other than a person you may have dated in the past year, whom we already asked you about)  
 Attempted to steal a vehicle  
 Been arrested  
 Been drunk or high at school  
 Carried a handgun  
 Gotten suspended  
 Sold drugs  
 Taken a handgun to school  
 Damaged or destroyed property that did not belong to you

---

**Table 12** Items for prosocial activities ( $\alpha = 0.652$ ) (Add Health Wave I)

---

Work around the house (cleaning, cooking, laundry, yard work, caring for a pet)  
 Play active sports (baseball, softball, basketball, football, swimming, etc.)  
 Exercise (jogging, walking, karate, jumping rope, gymnastics, dancing, etc.)  
 Other activity (roller-skating/blading, skateboarding, or bicycling)  
 Hang out with friends  
 Other hobbies (collecting baseball cards, playing a musical instrument, shopping, arts and crafts)  
 Reading<sup>a</sup>  
 Homework/schoolwork  
 Volunteer work  
 Community groups/activities (boys and girls clubs, the Y, etc.)  
 After-school programs  
 School groups (dance, theater, clubs, etc.)<sup>a</sup>

---

<sup>a</sup> Item added for this study

**Table 13** Items for psychosocial measures, past 7 days (Symptom Assessment-45)

---

Depressive symptoms ( $\alpha = 0.892$ )  
 Feeling lonely  
 Feeling of worthlessness  
 Feeling blue  
 Feeling hopeless about the future  
 Feeling no interest in things  
 Anger/hostility ( $\alpha = 0.861$ )  
 Having urges to break or smash things  
 Having urges to beat, injure or harm someone  
 Temper outbursts that you could not control  
 Shouting or throwing things  
 Getting into frequent arguments  
 Anxiety ( $\alpha = 0.839$ )  
 Being suddenly scared for no reason  
 Spells of terror or panic  
 Feeling so restless you could not sit still  
 Feeling fearful  
 Feeling tense or keyed up

---

**Table 14** Items for family domain

---

Parent closeness (Add Health Wave II)

How close do you feel to the parent or guardian you spend the most time with or live with the most?

How much do you think the parent or guardian you spend the most time with or live with the most cares for you?

Parent activities (Add Health Wave II) ( $\alpha = 0.677$ )

Gone shopping

Played a sport

Gone to a religious service or church-related event

Gone to a movie, play, museum, concert, or sports event

Worked on a project for school

Parent communication (Add Health Wave II) ( $\alpha = 0.624$ )

Talked about someone you're dating

Had a talk about a personal problem you were having

Talked about your school work or grades

Talked about other things you're doing in school

---

**Table 15** Items for positive relationship qualities ( $\alpha = 0.973$ )

---

I made him/her feel close to me

I showed affection toward him/her<sup>a</sup>

I got his/her advice before making an important decision<sup>a</sup>

I made her/him laugh

I made her/him feel good about herself/himself because he/she is with me

I made her/him feel proud to be dating me

I told her/him I care about him/her or loved him/her

I encouraged him/her to do things with his/her friends<sup>a</sup>

I supported him/her in school and after-school activities, such as sports<sup>a</sup>

I said his/her feelings were important to me

He/she made me feel close to him/her

He/she showed affection toward me<sup>a</sup>

He/she got my advice before making an important decision<sup>a</sup>

He/she made me laugh

He/she made me feel good about myself because I am with him/her

He/she made me feel proud to be dating him/her

He/she told me he/she cared about me or loved me

He/she encouraged me to do things with my friends<sup>a</sup>

He/she supported me in my school and after-school activities, such as sports<sup>a</sup>

He/she said my feelings were important to him/her

---

<sup>a</sup> Item adapted from Michigan Department of Community Health (1997) affection measure

**Table 16** Items for computer activities ( $\alpha = 0.658$ )

---

Using a computer to access social networking sites (e.g., Facebook)

Reading or researching on the internet

Visiting web sites with user-generated content (e.g., Wikipedia)

Writing or posting on blogs/microblogs (Tumblr, Twitter, LiveJournal, etc.)

Using a computer for instant messaging or online chatting

Using a computer for e-mail

---

**Table 17** Items for cell phone activities ( $\alpha = 0.773$ )

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Using a cell phone for instant messages or online chatting

Using a cell phone for talking to others

Using a cell phone for texting others

Using a cell phone to access social networking sites (e.g., Facebook)

Using other web sites

Using a cell phone for e-mail

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