

# Cyber Dating Abuse Among Teens Using School-Based Health Centers



**WHAT'S KNOWN ON THIS SUBJECT:** Cyber dating abuse victimization has been correlated with physical, sexual, and psychological adolescent relationship abuse.



**WHAT THIS STUDY ADDS:** This is the first clinic-based study of cyber dating abuse. Forty-one percent of youth reported cyber dating abuse victimization, female more than male respondents. Compared with nonexposed youth, abuse victims reported more sexual assault; female victims reported more contraceptive nonuse and reproductive coercion.

## abstract



**OBJECTIVE:** To estimate the prevalence of cyber dating abuse among youth aged 14 to 19 years seeking care at school-based health centers and associations with other forms of adolescent relationship abuse (ARA), sexual violence, and reproductive and sexual health indicators.

**METHODS:** A cross-sectional survey was conducted during the 2012–2013 school year (participant  $n = 1008$ ). Associations between cyber dating abuse and study outcomes were assessed via logistic regression models for clustered survey data.

**RESULTS:** Past 3-month cyber dating abuse was reported by 41.4% of this clinic-based sample. More female than male participants reported cyber dating abuse victimization (44.6% vs 31.0%). Compared with no exposure, low- (“a few times”) and high-frequency (“once or twice a month” or more) cyber dating abuse were significantly associated with physical or sexual ARA (low: adjusted odds ratio [aOR] 2.8, 95% confidence interval [CI] 1.8–4.4; high: aOR 5.4, 95% CI 4.0–7.5) and nonpartner sexual assault (low: aOR 2.7, 95% CI 1.3–5.5; high: aOR 4.1, 95% CI 2.8–5.9). Analysis with female participants found an association between cyber dating abuse exposure and contraceptive nonuse (low: aOR 1.8, 95% CI 1.2–2.7; high: aOR 4.1, 95% CI 2.0–8.4) and reproductive coercion (low: aOR 3.0, 95% CI 1.4–6.2; high: aOR 5.7, 95% CI 2.8–11.6).

**CONCLUSIONS:** Cyber dating abuse is common and associated with ARA and sexual assault in an adolescent clinic-based sample. The associations of cyber dating abuse with sexual behavior and pregnancy risk behaviors suggest a need to integrate ARA education and harm reduction counseling into sexual health assessments in clinical settings. *Pediatrics* 2014;134:e1560–e1567

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### KEY WORDS

adolescent relationship abuse, cyber dating abuse, sexual behavior, school health services, victimization

### ABBREVIATIONS

aOR—adjusted odds ratio  
ARA—adolescent relationship abuse  
CI—confidence interval  
SHCs—school-based health centers

Ms Dick assisted in designing the data collection instruments, supervised data management, carried out the initial analyses, and drafted the initial manuscript; Dr McCauley assisted in drafting the manuscript, conducting the analyses, and interpreting the results; Ms Jones carried out the final analyses, assisted in interpreting the results and drafting the manuscript, and reviewed and revised the manuscript; Dr Tancredi assisted in designing the data collection instruments and conducting the analyses; Ms Goldstein assisted in designing the data collection instruments, coordinated and supervised data collection, and critically reviewed the manuscript; Ms Blackburn recruited school-based health centers into the parent study and critically reviewed the manuscript; Ms Monasterio trained providers on the intervention, provided technical assistance to intervention school-based health centers, and critically reviewed the manuscript; Ms James assisted in design of the research study and facilitating recruitment and retention of the school-based health centers in the parent study and critically reviewed the manuscript; Dr Silverman assisted in designing the data collection and reviewed and revised the manuscript; Dr Miller conceptualized and designed the study, designed the data collection instruments, supervised data analyses, and assisted in drafting the manuscript; and all authors approved the final manuscript as submitted.

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Technology is ubiquitous in adolescents' lives, with more than three-quarters (78%) of adolescents (ages 12–17) reporting having a cell phone and 93% their own computer.<sup>1</sup> Adolescents are increasingly using texting and online social networking sites to connect with other adolescents, with 63% reporting exchanging text messages daily and 29% reporting daily communication through social networking sites.<sup>2</sup> These technologies also present opportunities for harmful communication,<sup>3,4</sup> including abusive behaviors between peers or "cyberbullying."<sup>5,6</sup>

More recently, studies have highlighted how technology can facilitate or propagate abuse between adolescents in dating relationships.<sup>7,8</sup> A qualitative study of older adolescents, all with histories of abusive relationships, identified multiple ways in which technology was used to perpetrate abuse including monitoring or controlling the activities or whereabouts of a partner and being emotionally or verbally abusive to a partner.<sup>9</sup> Technology is also used to demand unwanted sex and publically distribute nude or seminude photos of peers.<sup>7,10</sup> "Cyber dating abuse" involves the use of technology to control, harass, threaten, or stalk another person in the context of a dating relationship and is described as an emerging challenge for today's youth.<sup>9,11</sup>

A related public health concern, adolescent relationship abuse (ARA<sup>12\*</sup>; ie, physical, sexual, psychological abuse in the context of a dating relationship) is prevalent and associated with myriad poor health outcomes.<sup>13–16</sup> Although conceptualized as a form of psychological ARA,<sup>17</sup> it is unclear whether cyber dating abuse shares similar detrimental health correlates as documented for physical and sexual ARA. Recent re-

search has shown that cyber dating abuse and other forms of ARA frequently overlap. Using a 3-state school-based sample of adolescents, Zweig and colleagues found that 26% of adolescents in dating relationships experienced cyber dating abuse and that cyber dating abuse was highly correlated with experiencing physical dating violence, psychological dating abuse, and sexual coercion.<sup>18</sup> Furthermore, Zweig et al identified the most significant health correlates of cyber dating abuse to be a history of sexual activity, and having higher levels of depressive symptoms and anger/hostility.<sup>19</sup> Whether cyber dating abuse correlates with poor health independent of its co-occurrence with other forms of ARA is not known. This may be particularly relevant for clinicians uncertain about the extent to which cyber dating abuse potentially contributes to the behaviors they are addressing in the clinical setting.

Possibly related to the health consequences of ARA, adolescents seeking care in confidential adolescent health settings have a higher prevalence of ARA than general population-based studies.<sup>20–23</sup> No studies to date have examined cyber dating abuse and the associations with other forms of ARA and sexual risk behaviors among a clinic-based sample of adolescents.

School-based health centers (SHCs) represent a particularly unique setting in which to examine the clinical correlates of cyber dating abuse and ARA. SHCs reduce barriers to health care faced by adolescents, such as concerns about confidentiality, lack of health insurance, and limited knowledge of the health care system.<sup>24–26</sup> These comprehensive clinics are well positioned to offer prevention education as well as interventions for youth experiencing abusive relationships.<sup>27</sup> The purpose of this study was to examine characteristics of cyber dating abuse and how such abuse may be associated with

other forms of ARA, nonpartner sexual violence victimization, and sexual and reproductive health risks among youth seeking care in SHCs. Understanding the prevalence and correlates of cyber dating abuse in this clinic-based sample may guide prevention and intervention efforts to reduce such abuse and improve adolescent health.

## METHODS

### Study Overview

Data are from a cross-sectional survey that served as baseline data for a cluster-randomized trial in SHCs to promote healthy relationships and reduce ARA (ClinicalTrials.gov, identifier NCT01678378). Eleven SHCs in Northern California were randomly assigned to intervention or a delayed-intervention control condition. Subsequent to randomization but before participant enrollment, 3 health centers (1 intervention, 2 control) withdrew from the study because of changes in school administrators who would not allow the SHCs to participate in research. During the 2012–2013 school year, 1062 youth aged 14 to 19 years seeking services at any of 8 participating SHCs were invited to participate. Over a 7-month enrollment period, all students were screened at clinic entry for age eligibility by trained research staff. Eligible students interested in participating were escorted to a private area in the clinic for consent or assent and survey administration. Because participants were receiving confidential clinical services, parental permission for participation was waived for minors. The study enrolled 1011 eligible students (771 female and 240 male students, 95% participation rate). Youth who chose not to participate reported not having enough time or being unavailable for the follow-up survey as the primary reason for nonparticipation. Before the clinical encounter, youth used a laptop with headphones to complete a 15-

\*For a published explanation of the benefit of using the term "adolescent relationship abuse" over "teen dating violence," see page 6 of Miller and Levenson.<sup>12</sup>

minute audio computer-assisted survey about ARA and other forms of violence victimization, sexual behavior, and care seeking for sexual and reproductive health. Students received a \$10 gift card to thank them for their time. Study procedures were approved by institutional review boards at Public Health Institute and the University of Pittsburgh and were reviewed by administrators at respective schools and SHCs.

## Measures

All measures were self-reported. Single items assessed demographic characteristics, including gender, age, race, US nativity, relationship status, and sexual orientation. Dating partners were defined as persons the respondent reported “dating, going out with, or hooking up with.” All exposures and outcomes were assessed by using a referent time period of the past 3 months.

### Cyber Dating Abuse

We assessed cyber dating abuse by using 7 items modified from Ybarra<sup>5</sup> and Bennett<sup>28</sup> (Cronbach  $\alpha = .72$ ) that asked about behaviors occurring within a dating relationship using technology. These items were pilot tested using cognitive interviewing techniques with a sample of adolescents ( $n = 20$ ) from a separate SHC in the same region not participating in the parent study. In factor analyses conducted with the entire study sample, these items divided into 2 domains: sexual cyber dating abuse (eg, pressuring to talk about sex) and nonsexual cyber dating abuse (eg, monitoring one’s whereabouts). All items assessed frequency: “In the past 3 months, how many times has a partner [behavior] to you using mobile apps, social networks, texts, or other digital communication?” with 5 response options (0 = never, 1 = a few times, 2 = once or twice a month, 3 = once or twice a week, 4 = every day or

almost every day). For prevalence estimates, responses other than “never” were coded as having experienced cyber dating abuse. In regression models to account for frequency of cyber dating abuse experiences, the “once or twice a month” or greater response options were collapsed into a single (high) category, and the “never” and “a few times” responses were left unchanged.

### Requests for Sexual Images

An additional item asked about whether a respondent’s partner had asked them to send nude or seminude photos of themselves in the past 3 months.

### ARA Victimization

We used 3 items modified from the Conflict Tactics Scales—<sup>29</sup> and the Sexual Experiences Survey,<sup>30</sup> 1 for physical violence (“someone you were going out with or hooking up with hit, pushed, slapped, choked, or otherwise physically hurt you”) and 2 for sexual violence (“someone you were going out with or hooking up with used force or threats to make you have sex [vaginal, oral, or anal sex] when you didn’t want to” and “have you had sex with someone you were going out with or hooking up with when you didn’t want to, because you felt like you didn’t have a choice, even though they did not use physical force or threats?”).

### Nonpartner Sexual Violence

Two items modified from the Sexual Experiences Survey<sup>30</sup> were as follows: has someone you were not going out with or hooking up with (1) used force or threats to make you have sex (vaginal, oral, or anal sex) when you didn’t want to and (2) insisted that you have sex when you didn’t want to, without using force or threats.

### Sexual Behaviors

Single items assessed all participants for any oral, vaginal, and anal sex (de-

finied by using anatomic terms) and number of sex partners in the past 3 months. Female participants were assessed for having a male sex partner who was  $\geq 5$  years older than they were within the past 3 months.

### Pregnancy Risk

Female participants were presented a list of 12 contraceptive methods and asked to endorse all methods used in the past 3 months. The response option “I do not use anything to prevent pregnancy” indicated contraceptive nonuse, and the response “pull out” indicated unreliable pregnancy prevention.

### Reproductive Coercion

Recent reproductive coercion was measured within the female sample by using 10 items (see Supplemental Material) developed by the investigative team and tested in previous clinic-based samples<sup>31,32</sup> (Cronbach  $\alpha = .74$ ). Any positive response was coded as positive for reproductive coercion.

## Analysis

The present analyses were restricted to participants with nonmissing values for the cyber dating abuse measure ( $n = 1008$ ;  $n = 3$  excluded). Prevalence of any cyber dating abuse was calculated and differences by demographic characteristics were tested via Wald log-linear  $\chi^2$  tests for clustered survey data with significance set at  $\alpha = .05$ . Prevalence of each of the 7 cyber dating abuse behaviors was calculated for the total sample and by sex. Wald log-linear  $\chi^2$  tests were used to assess differences in other forms of ARA and study outcomes by exposure to sexual and nonsexual cyber abuse. Logistic regression models for clustered survey data were specified to assess the relationship of cyber dating abuse frequency with physical or sexual ARA, nonpartner sexual violence, and sexual behavior

for the full sample and, for females only, having an older male sex partner, pregnancy risk, and reproductive coercion. Statistical analyses were conducted by using the survey data analysis procedures in SAS v9.3 (SAS Institute, Inc, Cary, NC).<sup>33</sup>

## RESULTS

### Demographic Characteristics

Seventy-six percent of the sample was female (Table 1). The majority of participants (56%) were aged 16 and 17. Reflecting the demographics of the schools in which these SHCs were located, 95% of the participants identified themselves as non-White, and 14% were born outside the United States. Forty-six percent reported being in a serious relationship, and 11% dating >1 person. Respondents reporting exposure to recent cyber dating abuse tended to be female; older; African American or multiracial; bisexual, gay, lesbian, or unsure; and not single.

### Prevalence of and Sex Differences in Cyber Dating Abuse Experiences

Forty-one percent reported any cyber dating abuse in the past 3 months (Table 1), with 13% reporting any sexual cyber dating abuse and 37% reporting nonsexual cyber dating abuse (Table 2). More female than male respondents reported nonsexual cyber dating abuse (40% vs 29%,  $P = .02$ ). A significantly greater proportion of female respondents reported their partner had repeatedly contacted them to see where they were or who they were with (31% vs 21%,  $P = .01$ ), which was also the most common form of cyber dating abuse.

Requests for sexual images, which was not included in the cyber dating abuse items but is a related behavior, were also more common for female respondents (33% vs 18%,  $P = .01$ ).

**TABLE 1** Sample Characteristics and Prevalence of Recent (Past 3 Months) CDA

Characteristics	Total <sup>a</sup>	Recent CDA <sup>b</sup>	No Recent CDA <sup>b</sup>
	( <i>n</i> = 1008)	( <i>n</i> = 417)	( <i>n</i> = 591)
Total sample, % (95% CI)		41.4 (35.8–46.9) <sup>c</sup>	58.6 (53.1–64.2) <sup>c</sup>
Sex, % ( <i>n</i> )			
Male	23.7 (239)	31.0 (74)	69.0 (165)
Female	76.3 (769)	44.6 (343)	55.4 (426)
$P^d$	—	—	.01
Age, % ( <i>n</i> )			
14–15 y	34.3 (346)	37.3 (129)	62.7 (217)
16–17 y	56.1 (565)	44.3 (250)	55.8 (315)
18–19 y	9.6 (97)	39.2 (38)	60.8 (59)
$P^d$	—	—	.13
Race, % ( <i>n</i> )			
Asian	15.5 (156)	41.0 (64)	59.0 (92)
African American	27.1 (273)	42.5 (116)	57.5 (157)
Hispanic or Latina/Latino	36.5 (368)	42.7 (157)	57.3 (211)
Native American/Pacific Islander	5.1 (51)	37.3 (19)	62.8 (32)
White	5.2 (52)	25.0 (13)	75.0 (39)
Multiracial/other	10.7 (108)	44.4 (48)	55.6 (60)
$P^d$	—	—	0.63
Born in United States, % ( <i>n</i> )			
Yes	86.1 (868)	41.1 (357)	58.9 (511)
No	13.9 (140)	42.9 (60)	57.1 (80)
$P^d$	—	—	.64
Relationship status, % ( <i>n</i> )			
Single	39.3 (396)	31.8 (126)	68.2 (270)
Dating multiple people	11.0 (111)	61.3 (68)	38.7 (43)
In a serious relationship	46.1 (465)	44.3 (206)	55.7 (259)
Not sure	3.6 (36)	47.2 (17)	52.8 (19)
$P^d$	—	—	.03
Sexual orientation, % ( <i>n</i> )			
Heterosexual/straight	83.8 (845)	39.6 (335)	60.4 (510)
Bisexual	11.6 (117)	56.4 (66)	43.6 (51)
Homosexual/gay/lesbian	1.4 (14)	42.9 (6)	57.1 (8)
Not sure	3.2 (32)	31.3 (10)	68.8 (22)
$P^d$	—	—	.04

CDA, cyber dating abuse.

<sup>a</sup> Reported as column frequencies and totals.

<sup>b</sup> Reported as row frequencies and totals.

<sup>c</sup> Wald CIs for clustered data (design effect = 2.14).

<sup>d</sup> Wald log-linear  $\chi^2$  test, adjusted for clinic-level clustering.

### Co-occurrence of Cyber Dating Abuse With Physical ARA, Sexual ARA, and Nonpartner Sexual Violence Victimization Among the Total Sample

More than two-thirds (69%) of respondents reporting sexual cyber dating abuse also reported nonsexual cyber dating abuse victimization (Table 3). Those reporting sexual cyber dating abuse were also more likely to report sexual ARA victimization (18% vs 6%,  $P = .01$ ), as well as sexual violence victimization by a nonpartner (36% vs 10%,  $P < .01$ ), compared with youth reporting no sexual cyber dating abuse. Youth

reporting nonsexual cyber dating abuse reported more physical ARA victimization (14% vs 2%,  $P < .0001$ ), sexual ARA victimization (14% vs 4%,  $P < .001$ ), and nonpartner sexual violence (22% vs 9%,  $P = .01$ ), compared with youth who did not report nonsexual cyber dating abuse.

### Frequency Specific Associations of Cyber Dating Abuse With Violence, Sexual Behaviors, and Pregnancy Risk

In adjusted analyses of the entire sample, all outcomes were significantly associated with cyber dating abuse frequency with the exception of anal sex



**TABLE 2** Prevalence of Recent CDA Experiences and Sexting Requests, by Sex

CDA Perpetrated by a Partner <sup>a</sup>	Total (N = 1008), % (n)	Male (n = 239), % (n)	Female (n = 769), % (n)	P <sup>b</sup>
Sexual CDA	12.6 (127)	9.2 (22)	13.7 (105)	.15
Tried to get you to talk about sex when you did not want to	8.0 (80)	5.5 (13)	8.8 (67)	.15
Asked you to do something sexual that you that you did not want to do	8.0 (80)	4.2 (10)	9.1 (70)	.07
Posted or publicly shared a nude or seminude picture of you	1.5 (15)	2.1 (5)	1.3 (10)	.43
Nonsexual CDA	37.4 (377)	28.9 (69)	40.1 (308)	.02
Repeatedly contacted you to see where you were/who you were with	28.4 (286)	20.5 (49)	30.9 (237)	.01
Made mean or hurtful comments	14.7 (148)	11.0 (26)	15.9 (122)	.09
Spread rumors about you	7.0 (70)	6.7 (16)	7.0 (54)	.74
Made a threatening or aggressive comment to you	7.8 (78)	7.6 (18)	7.8 (60)	.92
Partner <sup>a</sup> Requested Sexual Images (not included in cyber dating abuse)				
Asked you to send nude or seminude pictures of yourself	29.0 (291)	17.6 (42)	32.6 (249)	.01

CDA, cyber dating abuse.

<sup>a</sup> Partner defined as someone you were dating, going out with, or hooking up with.<sup>b</sup> Wald log-linear  $\chi^2$  test, adjusted for clinic-level clustering.

(Table 4). For instance, compared with participants with no exposure, exposure to occasional (low-frequency) cyber dating abuse was associated with a greater likelihood of recent physical or sexual ARA victimization (adjusted odds ratio [aOR] 2.8, 95% confidence interval [CI] 1.8–4.4). Then, exposure to more frequent (high) cyber dating abuse was associated with an even greater likelihood of recent physical or sexual ARA victimization (aOR 5.4, 95% CI 4.0–7.5). In the sample restricted to female participants, more frequent exposure to cyber dating abuse was associated with greater likelihood of contraceptive non-use (low-exposure aOR 1.8, 95% CI 1.2–2.7; high-exposure aOR 4.1, 95% CI 2.0–8.4). A similar pattern emerged for reproductive coercion (low-exposure aOR 3.0, 95% CI 1.4–6.2; high exposure aOR 5.7, 95% CI 2.8–11.6). Having an older male sex partner and using an unreliable method for pregnancy prevention were not related to cyber dating abuse in this sample of female adolescents.

## DISCUSSION

The present investigation expands on previous studies of cyber dating abuse by examining the relationship between this abuse and other forms of ARA and sexual assault outside the context of a dating relationship. Although technology expands opportunities for learning, and positive interaction among youth,<sup>34</sup> the intersection between technology and unhealthy behaviors in dating relationships assessed in this study clearly represents a challenge for adolescent health promotion. The prevalence of recent cyber dating abuse in this clinic-based sample is high. In comparison, the Zweig study (using similar measures)<sup>18</sup> reported a past-year prevalence of 26% for any cyber dating abuse in a school-based sample, restricted to youth reporting a current or past year dating relationship. In our clinic-based sample, recent cyber dating abuse was measured in the past 3-month time frame and was not restricted to youth in dating relationships. The overall prevalence was 41%,

suggesting, as has been documented with physical and sexual ARA victimization, that cyber dating abuse appears to be more common among youth seeking care in confidential health settings compared with the general adolescent population. This finding suggests a need to prioritize targeted interventions within school health settings.

The Zweig study<sup>18</sup> examined the co-occurrence of cyber dating abuse (both sexual and nonsexual) with physical, sexual, and psychological ARA and identified significant overlap with each of these. The proportions reported by Zweig are similar to the overlap identified in this study. A strength of the current study is our ability to classify frequency of cyber dating abuse and associations with health behaviors. These analyses found a significant relationship between frequency of cyber dating abuse and ARA, nonpartner sexual violence, and sexual activity. Nonpartner sexual violence victimization is a particularly novel finding that suggests

**TABLE 3** Overlap of CDA With ARA Victimization and Nonpartner Sexual Violence Victimization (n = 1008)

	Sexual CDA (n = 127)	No Sexual CDA (n = 881)	P <sup>a</sup>	Nonsexual CDA (n = 377)	No Nonsexual CDA (n = 631)	P <sup>a</sup>
	% (n)	% (n)		% (n)	% (n)	
Nonsexual CDA	68.5 (87)	32.9 (290)	<.0001	—	—	—
Sexual CDA	—	—	—	23.1 (87)	6.3 (40)	<.0001
Physical ARA	12.6 (16)	6.0 (53)	.13	14.3 (54)	2.4 (15)	<.0001
Sexual ARA	18.1 (23)	6.4 (56)	.01	13.5 (51)	4.4 (28)	<.01
Nonpartner sexual violence	36.2 (46)	10.4 (91)	<.01	21.5 (81)	8.9 (56)	.01

All items measure past 3-month experiences. CDA, cyber dating abuse.

<sup>a</sup> Wald log-linear  $\chi^2$  test, adjusted for clinic-level clustering.

**TABLE 4** Frequency of CDA With ARA, Sexual Assault, and Sexual Behaviors (Male and Female Respondents,  $n = 1008$ ) and With Older Sex Partners, Pregnancy Risk, and Reproductive Coercion (Female Respondents Only,  $n = 769$ )

CDA by Frequency	Total % ( $n$ )	aOR (95% CI) <sup>b</sup>
Entire Sample ( $n = 1008$ ), % ( $n$ )		
No cyber dating abuse	58.6 (591) <sup>a</sup>	—
Low ("a few times")	21.3 (215) <sup>a</sup>	—
High ("once or twice a month" or more)	20.0 (202) <sup>a</sup>	—
Physical or sexual ARA		
No CDA	6.4 (38)	Ref
Low	16.7 (36)	2.8 (1.8–4.4)
High	27.7 (56)	5.4 (4.0–7.5)
Nonpartner sexual violence		
No CDA	7.6 (45)	Ref
Low	18.7 (40)	2.7 (1.3–5.5)
High	25.7 (52)	4.1 (2.8–5.9)
Sexual behaviors		
Vaginal sex		
No CDA	50.9 (300)	Ref
Low	65.0 (139)	1.5 (1.1–2.0) <sup>c</sup>
High	71.3 (144)	1.8 (1.2–2.8) <sup>c</sup>
Oral sex		
No CDA	34.9 (205)	Ref
Low	40.7 (87)	1.1 (0.8–1.5) <sup>c</sup>
High	58.9 (119)	2.2 (1.7–3.0) <sup>c</sup>
Anal sex		
No CDA	7.3 (43)	Ref
Low	11.2 (24)	1.3 (0.8–2.3) <sup>c</sup>
High	10.9 (22)	1.2 (0.7–2.0) <sup>c</sup>
$\geq 2$ sex partners		
No CDA	11.5 (68)	Ref
Low	13.6 (29)	1.1 (0.8–1.7) <sup>c</sup>
High	28.7 (58)	2.8 (1.8–4.3) <sup>c</sup>
Females only ( $n = 769$ ), % ( $n$ )		
No CDA	55.4 (426) <sup>a</sup>	—
Low ("a few times")	23.5 (181) <sup>a</sup>	—
High ("once or twice a month" or more)	21.1 (162) <sup>a</sup>	—
Male sex partner $\geq 5$ y older		
No CDA	4.0 (17)	Ref
Low	6.1 (11)	1.4 (0.5–3.8)
High	8.6 (14)	1.4 (0.9–2.3)
Pregnancy risk		
Contraceptive nonuse		
No CDA	1.9 (8)	Ref
Low	3.9 (7)	1.8 (1.2–2.7)
High	8.6 (14)	4.1 (2.0–8.4)
Unreliable pregnancy prevention		
No CDA	18.6 (79)	Ref
Low	21.0 (38)	1.1 (0.6–2.0)
High	24.1 (39)	1.2 (0.8, 2.0)
Reproductive coercion		
No CDA	4.0 (17)	Ref
Low	11.6 (21)	3.0 (1.4–6.2)
High	21.6 (35)	5.7 (2.8–11.6)

All items measure past 3-month experiences. Sample size for each model varies slightly because of small amounts of missing data. CDA, cyber dating abuse; Ref, reference.

<sup>a</sup> Reported as column frequencies and totals.

<sup>b</sup> Adjusted for sex, age, race (African American, Hispanic, or other), nativity (United States or other), sexual orientation (heterosexual or other), and clinic-level clustering.

<sup>c</sup> Also adjusted for past 3-month physical or sexual ARA victimization.

<sup>d</sup> Adjusted for past 3-month physical or sexual ARA victimization, age, race (African American, Hispanic, or other), nativity (United States or other), sexual orientation (heterosexual or other), and clinic-level clustering.

cyber dating abuse may be occurring in the context of social networks that involve greater sexual risk or that cyber dating abuse may increase vulnerability to sexual violence more generally. The mechanisms for these associations and how cyber dating abuse fits into the trajectory of adolescent relationship development merit further study to guide intervention development.

SHC patients are predominantly female<sup>35</sup> (76% in this study). The female participants in this study exposed to any recent cyber dating abuse were 2 to 4 times more likely not to use any form of contraception and 3 to 6 times more likely to have experienced recent reproductive coercion, compared with unexposed females. Because these associations were found after controlling for recent physical and sexual ARA, cyber dating abuse may be independently associated with these sexual and reproductive risks. Clinically, this means that inquiring about cyber dating abuse when assessing a youth's sexual health behaviors may identify youth in particular need for ARA intervention. Furthermore, because more frequent cyber dating abuse exposure is associated with greater health risk, a harm reduction approach to reduce frequency of cyber dating abuse may be helpful.

The study has several limitations including the cross-sectional nature of these data, which precludes causal inference. As all items measured behaviors and exposures in the past 3 months, the data do offer some clarity about recency and co-occurrence of various forms of victimization. To create a brief survey, the ARA measures did not include other aspects of abuse, such as verbal and psychological abuse. A related limitation is the lack of male-specific sexual health outcomes, such as consistent condom use. Further studies with larger samples of young men and transgender youth seeking care in confidential clinic settings are warranted. Additionally, the prevalence of cyber

dating abuse appears to be significantly higher for female adolescents, consistent with findings from nonclinical settings that also report more female than male victimization.<sup>18</sup> Analyses of differential sexual health outcomes were limited by the measures and the predominantly female sample. Future studies are needed to assess whether sex differences in cyber dating abuse persist in larger samples and whether meaning, motivations, and health consequences of such abuse may differ for male compared with female adolescents. Because population-based studies have found similar prevalence of physical ARA victimization among both males and females,<sup>36–38</sup> sex differences in cyber dating abuse should be investigated at a population level. Additionally, our finding regarding the sex differences in the “sexting” request item suggests there is a gendered context for this abuse with females bearing the increased burden for refusing or acquiescing to sexting requests. This is consistent with a recent study of younger adolescents (ages 10–15) finding boys more likely than girls to send sexually explicit messages or photos.<sup>39</sup> Finally, findings from this nonrepresentative sample from 8 SHCs in 1 Northern California region cannot be generalized to all high school–age students.

An ongoing challenge in the field of adolescent interpersonal violence prevention is the constant shifting of adolescent behaviors. Capturing the use of technology to perpetrate ARA in standardized survey items is uniquely challenging because of the rapidly evolving nature of technology and because this newer mode of communication (versus in-person or phone conversation) brings new capacities to victimize. For instance, cyber communication can be rapidly shared with others, potentially magnifying the harmful effects for victims. Therefore, behaviors that may not be harmful when enacted in person may become harmful when the communication mechanism has permanency (ie, leaves a digital footprint), can be repeatedly viewed by the recipient, and can be easily spread to nonrecipients. In particular, our measurement of cyber dating abuse includes behaviors that could be perceived as part of normal sexual negotiation. However, we conducted extensive cognitive interviewing of these items, modified only slightly from previous studies to simplify language, and youth were clear that they perceived these items to be asking about abusive behaviors. Moreover, frequency data indicate that youth experienced these

behaviors often, and frequent unwanted behavior is consistent with other studies of ARA. It is possible, however, that the prevalence reported here is an overestimation of cyber dating abuse.

These limitations notwithstanding, our findings of cyber dating abuse prevalence and correlates are particularly salient for health care providers and health educators working in clinical or school-based settings. Providers need to be aware of the extent to which cyber dating abuse may be associated with sexual behavior, other forms of partner abuse, and with nonpartner sexual violence. That cyber dating abuse associations with pregnancy risk were found for female adolescents in this sample even after controlling for recent physical or sexual ARA underscores the importance of assessing for multiple dimensions of abuse. Educating youth about what constitutes cyber dating abuse and offering strategies on how to manage technology to reduce risk for such abuse may be helpful intervention components to implement in SHC settings.

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