Dating Violence: Outcomes Following a Brief Motivational Interviewing Intervention Among At-risk Adolescents in an Urban Emergency Department

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Abstract

Objectives: A recent study demonstrated the efficacy of the SaferTeens intervention in reducing peer violence among adolescents presenting to the emergency department (ED). The objective of this study was to determine the efficacy of this ED-based brief intervention (BI) on dating violence 1 year following the ED visit among the subsample of adolescents in the original randomized controlled trial reporting past-year dating violence.

Methods: Patients (aged 14 to 18 years) at an ED were eligible for inclusion if they had past-year violence and alcohol use. Participants were randomized to one of three conditions (BI delivered by a computer [CBI], BI delivered by a therapist and a computer (T+CBI), or control) and completed follow-ups at 3, 6, and 12 months. In addition to content on alcohol misuse and peer violence, adolescents reporting dating violence received a tailored module on dating violence. The outcome of interest was frequency of moderate and severe dating victimization and aggression (baseline and 3, 6, and 12 months after ED visit).

Results: Among eligible adolescents, 55% (n = 397) reported dating violence and were included in these analyses. Compared to the control group (who received a resource brochure only), participants in the CBI showed reductions in moderate dating victimization at 3 months (inter-rater reliability [IRR] = 0.71; 95% confidence interval [CI] = 0.51 to 0.99; p < 0.05) and 6 months (IRR = 0.56; 95% CI = 0.38 to 0.83; p < 0.01). Models examining interaction effects were significant for the CBI on moderate dating victimization at 3 months (IRR = 0.81; 95% CI = 0.67 to 0.98; p < 0.05) and 6 months (IRR = 0.81; 95% CI = 0.66 to 0.99; p < 0.05). Significant interaction effects were found for the T+CBI on moderate dating violence victimization at 6 months (IRR = 0.81; 95% CI = 0.69 to 0.96; p < 0.01) and 12 months (IRR = 0.76; 95% CI = 0.63 to 0.90; p < 0.001) and severe dating violence victimization at 3 months (IRR = 0.76; 95% CI = 0.59 to 0.96; p < 0.05).

Conclusions: ED-based BIs tailored to address multiple risk behaviors (i.e., peer violence, alcohol use, and dating violence) show promise for reducing moderate and severe dating victimization for up to 1 year following an ED visit.

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D ating violence is a serious cause of emotional and physical injury among adolescents; one in 10 high school students report being the victim of violence from a dating partner.1 Identifying and intervening early with adolescents involved in dating violence has important public health implications. Experiencing dating violence during adolescence increases the risk of involvement with violence among intimate relationships as an adult.2

Dating violence leads to a considerable number of emergency department (ED) visits.3,4 Carroll et al.5 found that over 50% of youth using a pediatric ED reported physical or sexual violence in their dating relationships. Despite the magnitude of the issue, dating violence among adolescents can be prevented. The Centers for Disease Control and Prevention characterizes adolescence as a window of opportunity—a time for adolescents to prepare for future relationships by learning healthy relationship skills such as negotiation, compromise, and conflict resolution.6

Due to the unique opportunity for staff at the ED to intervene on dating violence, the Joint Commission and the American Medical Association have standards, recommendations, and guidelines for the universal screening of patients over the age of 14 years in the ED for dating and intimate partner violence.7,8 Despite these guidelines, low numbers of patients are actually being screened.9–11 This lack of screening by medical staff in the ED has reportedly been due to a lack of dating violence knowledge, time constraints, lack of belief in the patient’s ability to change behavior, and a lack of available interventions or resources for dating violence victims after a positive screen is conducted.11–13 To date, no ED-based intervention studies focusing on preventing dating violence among adolescents have been reported.

This article presents findings from secondary analyses of dating violence outcomes from a randomized control trial (RCT; the SafERteens Study).14 The purpose of the overall SafERteens study was to examine the effectiveness of a brief intervention (BI) on a population of adolescents who sought care in an urban ED.3,4,15 The primary goal of the intervention was to reduce peer aggression and alcohol use. The single-session BI was delivered by a computer alone (CBI) or by a therapist with computer assistance (T+CBI), using principles of motivational interviewing.

This planned subgroup analysis of the RCT is limited to adolescents who screened positive for past-year dating violence and who received tailored dating violence intervention messages in addition to the peer violence and alcohol use messages. No prior work has published any dating violence outcomes from the SafERteens intervention. Our hypotheses were: 1) the BIs will be more effective than the control condition on reducing moderate and severe dating violence aggression and victimization at 3, 6, and 12 months and 2) youth with more frequent dating violence history at baseline will be more receptive to the dating violence component of the interventions and the interventions will demonstrate increased efficacy among these youth.

METHODS

Study Design

This was a planned retrospective analysis of data from the SafERteens study. Research procedures were approved by the University of Michigan and Hurley Medical Center Institutional Review Boards for Human Subjects. A certificate of confidentiality was obtained from the National Institute on Alcohol Abuse and Alcoholism.

Study Setting and Population

The SafERteens RCT took place in Flint, Michigan, at a Level I trauma center (Hurley Medical Center). Detailed descriptions of screening procedures can be found in previous manuscripts.14,15 Participants (aged 14 to 18 years old) screening positive for both past-year aggression/violence14 and alcohol consumption (i.e., consumed alcohol more than two or three times in the past year16) were recruited for the RCT.

Study Protocol

Those eligible for the RCT completed a computerized baseline assessment and were randomized by a computer-generated program to one of three groups (T+CBI, CBI, or control). These groups were stratified by sex and age: 14 and 15 years, 16 to 18 years. Investigators were blinded to the intervention condition of the participants. Because this secondary analysis focused on dating violence, only participants who endorsed dating violence at baseline (and who were therefore assigned to receive tailored content specifically related to dating violence as part of the T+CBI or CBI) were included in this analysis of dating violence outcomes (n = 397 of 726). The control condition in the RCT was enhanced usual care and consisted of a brochure of resources that was given to participants after completion of baseline surveys.

Follow-up Interviews. Computerized assessments were self-administered at 3, 6, and 12 months. For detailed description see prior manuscripts.14,15 Measures were obtained via a self-administered computer survey.17–19 Dating victimization was measured using a collapsed version of the Conflict in Adolescent Dating Relationships Inventory (CADRI),20 which asks about fighting with someone you are dating, “going with,” consider to be a boy-/girlfriend. The CADRI assesses victimization and aggression based on a physical abuse scale (α = 0.8320). The original four-item subscale was collapsed into two past-year subscales assessing the frequency of victimization as moderate (e.g., threw something that could hurt you; twisted your arm or hair; pushed you; shoved, grabbed, or slapped you) and severe (e.g., punched or hit you with something that could hurt; choked; slammed against a wall; beat you up; burned or scalded you on purpose; kicked you; or used a knife or gun on you). Dating aggression was asked with parallel questions. Both the moderate and the severe scales were evaluated separately in analysis, as severe dating violence behaviors (i.e., choked) may require a different intensity of intervention efforts than moderate dating violence behaviors (i.e., slapped). Response choices were modified to be identical to the
Conflict Tactics Survey (CTS2)\textsuperscript{21}: never, one time, two times, three to five times, six to 10 times, 11 to 20 times, and more than 20 times. The response choices, modeled after the CTS2, were chosen to be consistent in the response choices throughout the survey (since participants would answer the CTS2 for peer violence prior to these questions). The scale was analyzed using the standard approach of Strauss et al.\textsuperscript{22} Specifically the midpoint of each response is used (e.g., 3 to 5 = 4; 5 to 8 = 7) to create a continuous frequency variable (see Data Supplement S1, available as supporting information in the online version of this paper, for exact survey questions).

**SafeERteens Intervention Content.** Methodology, including a description of the intervention, can be found in prior manuscripts.\textsuperscript{15,23} Specific to this analysis, adolescents who endorsed dating violence in the baseline survey received specific tailored content related to dating violence prevention strategies during a role play.

**T+CBI.** For adolescents reporting dating violence, in one of the role-play sections of the BI, the computer prompted therapists to discuss how the adolescent would handle an argument with a dating partner. The therapist provided information including weighing the pros and cons of talking to a partner when either the participant or his or her partner is drunk or angry. Safety plans were discussed if the participant felt afraid of a partner.

**CBI.** The CBI was a stand-alone interactive animated program,\textsuperscript{24} and was tailored to match the sex of the participant. Specifically for dating violence, in one of the role-plays, a situation was presented in which friends were talking about a problem an adolescent was having with a boyfriend or girlfriend, setting the stage that the couple were angry with each other. The adolescent was then pressured to drink alcohol and go talk with the angry, intoxicated partner. The intervention messages included the increased likelihood of violence when drinking, waiting to resolve conflicts until both partners are calm and sober, anger management strategies, if your partner has hit you before or you are afraid of him or her do not talk to the partner alone, and ask someone for help. A brochure with numbers for domestic violence hotlines was given to participants in all conditions at the end of the intervention.

**Data Analysis**

Analyses were conducted using SAS Version 9 (SAS Institute, Inc., Cary, NC). First, to examine main outcomes, the efficacy of the CBI and T+CBI (compared to control condition) analyses were conducted using four separate Poisson regression models: 1) moderate dating victimization, 2) severe dating victimization, 3) moderate dating aggression, and 4) severe dating aggression, each at 3-, 6-, and 12-month follow-up assessments (Poisson regression was selected based on the distribution of the dependent variables). To assess the fit of all models, the goodness-of-fit chi-square test was used to verify the absence of overdispersion in the data. Independent variables included baseline dating violence (e.g., moderate or severe victimization or aggression consistent with the dependent variable) and intervention condition (CBI or T+CBI, with control as the reference group). It is common in the literature to examine moderate dating violence separately from severe dating violence.\textsuperscript{25–29} The behavior of a “push” is much different than “used a gun on, kicked or punched” in terms of both physical and mental health outcomes.\textsuperscript{30} There were no significant differences in examined covariates between the three study groups. Therefore, we did not control for covariates in the models.

Cohen’s effect sizes for continuous variables were calculated.\textsuperscript{31} Note that the study was not powered to evaluate the effects of the intervention by sex. There was sufficient power to evaluate moderate dating victimization as a dependent variable (for example, we found a mean difference of 0.20 [pooled SD ±0.6] for moderate victimization; given an alpha level of 0.05, to achieve a power of 0.80, \( n \geq 112 \) participants per group is required). However, it is critical to note that all analysis for aggression as well as severe victimization may be underpowered (specifically, we found a mean difference for moderate and severe dating aggression between 0.10 to 0.14, pooled SD ±0.42; to achieve a power of 0.80, we would need at least 194 participants per group to detect main effects).

Next, additional Poisson models were conducted to examine whether the efficacy of the interventions was moderated by the frequency of involvement with baseline dating victimization (including the interaction of baseline dating victimization frequency by intervention condition). Such models are commonly used for determination of subgroups for which the intervention was efficacious.\textsuperscript{32–43} As for the main effect analyses described above, separate analyses were run for the frequency of moderate and severe dating victimization; independent variables included baseline dating victimization, intervention conditions (CBI and T+CBI vs. control), and the interaction of baseline dating victimization frequency by intervention conditions.

**RESULTS**

Figure 1 provides enrollment data. No significant differences by group assignment were noted in the sample, which was 35.5% male \((n = 141)\) and 63.0% African American \((n = 250)\) and had a mean \((±SD)\) age of 16.8 \((±1.3)\) years, with 60.7% receiving public assistance. Table 1 presents the mean and percentage change over time in frequency of dating victimization in the three groups.

**Main Effects of Interventions on Dating Victimization and Dating Aggression**

Controlling for baseline moderate victimization, the CBI (compared to control) significantly predicted a reduction in moderate dating victimization at 3 months (intrarater reliability \([IRR] = 0.71\); 95% CI = 0.51 to 0.99; \( p < 0.05\), effect size 0.12) and 6 months (IRR = 0.56; 95% CI = 0.38 to 0.83; \( p < 0.01\), effect size 0.18), but not at 12 months. The T+CBI (compared to control) did not significantly affect moderate dating victimization at any follow-up. Neither intervention had main effects on severe dating victimization or moderate or severe aggression at any follow-up (data not presented). There-
ALL patients
Age 14-18 years in sample frame
n= 6,241

Age 14-18 years
Eligible for screen n=4,296

RA Approached Teen
n=3,784 (88.1%)

Completed Screening
n=3,338 (88.2%)

Meet Criteria
n=829 (24.8%)

Refused
11.9% (n=512)
RA occupied with another participant
(n=375, 73.2%)
Other (n=137, 26.8%)

Missed
11.9% (n=512)
RA occupied with another participant
(n=375, 73.2%)
Other (n=137, 26.8%)

Excluded/ Ineligible for study
(n=1,945)
Age<18 years, no parent/guardian
(n=773, 39.7%)
Suicidal ideation: (n=387, 19.9%)
Abnormal vital signs/ICU admit
(n=332, 17.1%)
Insufficient cognitive orientation
(n=167, 8.6%)
Sexual assault/child abuse (n=54, 2.8%)
Schizophrenia (n=42, 2.2%)
Admitted before screen completed
(n=45, 2.3%)
Prisoner (n=27, 1.4%)
Sibling in study (n=14, 0.7%)
Other (n=104, 5.3%)

Not Meet Criteria
n=2,509 75.2%
No alcohol/aggression (n=629, 25%)
Alcohol only (n=140, 5.6%)
Aggression only (n=1,740, 69.4%)

Missed
(n=2, 0.2%) Data problems

Refused
12.2% (n=101)
Family refusal (n=15, 14.9%)
Discharged/did not want to stay: (n=31, 30.7%)
Too ill/too much pain (n=6, 5.9%)
Did not want to participate (n=27, 26.7%)
Other (n=22, 21.8%)

Family refused access (n=173, 38.8%)
Patient felt too sick/too much pain
(n=166, 37.2%)
Did not want to participate (n=56, 12.6%)
Too stressed (n=22, 4.9%)
Other (n=29, 6.5%)

Date of Violence
n=397 (54.7%)

Age 14-18 years
Complete baseline
n=726 (87.6%)

Therapist
n= 135
(127 complete prior to discharge)

Control
n= 131
(125 complete prior to discharge)

Computer
n= 131
(122 received prior to discharge)

3 Month follow-up
Complete (n=119, 90.8%)

6 Month follow-up
Complete (n=120, 91.6%)

12 Month follow-up
Complete (n=113, 86.3%)

3 Month follow-up
Complete (n=116, 85.9%)

6 Month follow-up
Complete (n=116, 85.9%)

12 Month follow-up
Complete (n=103, 76.3%)

6 Month follow-up
Complete (n=115, 87.8%)

12 Month follow-up
Complete (n=113, 86.3%)

Figure 1. SaferTeens flow chart (September 2006 to September 2009). ICU = intensive care unit; RA = research assistant.
fore, subsequent analyses focus on dating victimization frequency.

Frequency of Moderate Dating Victimization

Models examining the interaction of baseline dating victimization frequency by intervention condition were conducted and found that among adolescents who reported more than approximately four episodes of moderate baseline dating victimization in the past year, the CBI was more effective than the control condition in reducing moderate dating victimization at 3 months (IRR = 0.81; 95% CI = 0.67 to 0.98; p < 0.05) and 6 months (IRR = 0.81; 95% CI = 0.66 to 0.99; p < 0.05). Among adolescents with a higher frequency of moderate dating victimization at baseline (more than approximately eight times in the past year), the T+CBI was more effective than the control condition in reducing moderate dating victimization at 6 (IRR = 0.81; 95% CI = 0.69 to 0.96; p < 0.01) and 12 months (IRR = 0.76; 95% CI = 0.63 to 0.90; p < 0.001). Thus, the T+CBI effect is greatest at reducing dating violence among participants who more frequently endorse dating victimization at baseline.

Frequency of Severe Dating Victimization

Adolescents with a higher baseline frequency of severe dating violence victimization (more than approximately eight times in the past year) in the T+CBI group were more likely than those in the control group to report decreases in severe dating victimization at 3 months (IRR = 0.76; 95% CI = 0.59 to 0.96; p < 0.05); this effect was not significant at 6 and 12 months. The CBI × baseline severe victimization interaction term was not significant.

DISCUSSION

The SafERteens CBI, delivered during an ED visit, decreased adolescent dating violence victimization up to 6 months post-BI among at-risk youth. Among those youth with more frequent past experience with severe dating violence (more than eight episodes), the therapist intervention reduced future episodes over the 12 months after the ED visit. Overall, data presented here extend the prior findings of SafERteens to provide novel findings on the effect of the BI on dating violence among youth in an ED setting, while highlighting the role of stand-alone computer interventions in busy health care settings.

The efficacy of the CBI, as a stand-alone intervention without requiring a trained therapist, to reduce dating victimization represents a novel and important contribution to both the ED and the BI literature. Although small, effect sizes found in this study for the CBI are similar to prior prevention literature in which effect sizes ≥ 0.10 are considered clinically meaningful. The Cohen effect size for the main effect of moderate dating violence was 0.12 at 3 months and 0.18 at 6 months. A small effect size was expected in this analysis, since dating violence was only from one component of the BI (which focused mainly on peer violence and alcohol use, with a small portion devoted to dating violence among youth who reported dating violence).

It is noteworthy that both delivery modes of the intervention, computer and therapist, were more successful at decreasing dating victimization when the adolescent reported a stronger history of past dating violence (i.e., more episodes). In addition, the therapist condition was also effective in the short term at reducing not only moderate but also severe dating victimization compared to the control condition for those adolescents with stronger histories of past severe dating violence. It may be that the salience of the intervention messages was increased for adolescents with more dating violence experience. Alternatively, it may be that floor effects attenuated the detection of intervention effects among those with less exposure. Thus, to increase the efficacy of the interventions and to focus limited resources, future interventions could consider focusing on adolescents with higher baseline exposure to dating violence. Alternatively, given the importance of preventing dating violence, the computer intervention could be given to all adolescents reporting dating violence, followed by the therapist intervention for more frequent or severe dating violence.

It is important to recognize that the computer also played a role in the therapist BI in this analysis. The computerized survey identified youth with dating violence and a tailored screen prompted the therapist to discuss dating violence. These prompts to address dating violence may be essential to ensure fidelity of an intervention in a busy clinical setting.

These results are clinically relevant to emergency physicians as they may help increase the motivation to complete mandated screening for intimate partner violence and dating violence if it is more clearly supported with
data that there are promising ED-based interventions available that will reduce future dating victimization.

LIMITATIONS

These novel findings with small effect sizes require replication in other EDs and in a full RCT focused only on dating violence content. Replication could include adolescents presenting during overnight shifts, with acute suicidal ideation/attempt or sexual assault, or with different patient samples (e.g., rural/suburban settings, different racial/ethnic compositions such as Hispanics). Adolescents presenting to the ED for sexual assault were excluded from this study, as the focus of the full RCT was peer violence, and those seeking care for sexual assault are already receiving some social services and referrals that differ substantially from other youth.

Although self-reported data are a potential limitation, the use of self-administered computerized assessments helps to reduce reactivity; further, reliability and validity are increased when confidentiality is assured. It should be noted that the original CADRI scale was condensed into two questions. We do not expect that this had any effect on the validity of the scale since the content of the scale remained (see Data Supplement S1). Finally, it should be noted that youth were screened into this trial for aggressive behaviors and not behaviors solely related to victimization. We do not know how many screened participants had victimization only, since these questions were not obtained until the baseline survey. Nonetheless, due to the high levels of reciprocal violence by adolescents involved with dating violence,56,57 it is likely that these numbers are small. Future studies should include victimization in their screening questions as participants with victimization only may have different outcomes from this intervention, and those conclusions cannot be drawn from this sample.

CONCLUSIONS

Given the morbidity and health consequences associated with dating violence among adolescents, ED-based brief interventions addressing multiple risk behaviors (peer violence and alcohol use) including dating violence content, delivered feasibly and efficiently on a computer, could have important public health effects on the lives of at-risk adolescents and show promise for reducing moderate and severe dating victimization following an ED visit.

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References


Supporting Information
The following supporting information is available in the online version of this paper:
Data S1. Questions from the survey to measure dating victimization and dating aggression.

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