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The Effects of a Health Care–Based Brief Intervention on Dating Abuse Perpetration: Results of a Randomized Controlled Trial

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Abstract

Dating abuse (DA) is prevalent and consequential, yet there are no evidence-based interventions for the health care setting that prevent perpetration. The current study's purpose was to test a one-session brief motivational interview-style intervention to decrease DA perpetration. We conducted a two-arm RCT of the Real Talk intervention with follow-up at 3 and 6 months. Participants were 172 youth ages 15–19 years old, recruited from the pediatric emergency department or outpatient care services of an urban hospital in the USA in 2014–2017. The primary outcome was change in self-reported DA perpetration, including subtypes of DA such as physical, sexual, psychological, and cyber DA. Youth in both intervention and control arms reduced DA perpetration over time. GEE models indicated no overall intervention effects for any, physical, sexual, or psychological DA. There were overall effects for cyber DA (RR 0.49, 95% CI 0.27, 0.87). There were also effects at 3 months for psychological DA (RR 0.24, 95% CI 0.06, 0.93) and cyber DA (RR 0.39, 95% CI 0.19, 0.79). Analyses stratified by gender also found overall effects for males for any DA (RR 0.20, 95% CI 0.07, 0.55), physical DA (RR 0.30, 95% CI 0.10, 0.89), and cyber DA (RR 0.04, 95% CI 0.01, 0.27). For males, intervention effects on any DA persisted to 6 months (RR 0.13, 95% CI 0.02, 1.01). This health care-based one-session DA intervention is a potentially promising approach to reduce DA perpetration among adolescents.

Clinical trial registration: This study is registered at www.clinicaltrials.gov NCT02080923.

Keywords Dating abuse · Partner violence · Brief intervention · Motivational interview

Dating abuse (DA) is a prevalent and consequential problem. Ten percent of US high school-attending boys and 21% of girls who date experience physical or sexual DA victimization annually (Vagi et al. 2015). DA victimization can have substantial adverse consequences including depression, suicidality, disordered eating, increased risk for being re-victimized, injuries, and even death (Ackard et al. 2007; Coker et al. 2000; Exner-Cortens et al. 2013).

Psychological partner abuse, which may include threats, insults, or coercive or intimidating behaviors (Baker et al. 2018), is a form of DA that often co-occurs with physical and sexual DA (Sullivan et al. 2012), and carries a risk of even more severe and long-lasting harms than physical abuse (O'Leary 1999). Psychological DA is also more prevalent than physical and sexual DA victimization among adolescents. According to a nationally representative survey of US youth, as many as 66% of 12–18 year olds have experienced psychological abuse in their lifetimes, while 18% have experienced lifetime physical DA victimization (Taylor and Mumford 2016).

It is now accepted that providing help to victims, while ignoring perpetration, is insufficient to make a population-level sea-change (US Centers for Disease Control and Prevention 2016). In the past decade, experts have encouraged the development of prevention strategies designed to stop DA perpetration with the hope of achieving more sizable reductions in the incidence than have been achieved to date (US Centers for Disease Control and Prevention 2016). This is a logical step, as there appear to be nearly as many adolescents

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who have ever perpetrated DA as who have experienced it as victims (63% vs. 69%, respectively), and only a small minority, 12% of boys and 9% of girls, report only ever experiencing DA victimization and never engaging in perpetration (Taylor and Mumford 2016).

Girls appear to be as likely as boys to report that they have perpetrated physical DA in adolescence (Taylor and Mumford 2016), though the consequences of DA on female and male victims may differ. Girls are more likely than boys to sustain injuries or feel fear when victimized and to experience fatal DA (Jaffe et al. 2018). Importantly, there have been calls for interventions for young women who perpetrate DA, given that no effective interventions have yet been identified (Leisring 2013). Some nationally representative studies have found that Black and Hispanic youth are at heightened risk for DA (Halpern et al. 2001; Raiford et al. 2007), though other studies have found nearly equivalent rates by racial and ethnic subgroup (Ybarra et al. 2016). Regardless, there have been calls for increased attention to reducing DA among Black and Hispanic youth, and developing culturally informed DA prevention efforts, as part of the broader effort to decrease health inequities overall (Bent-Goodley 2001).

To date, the main strategy for preventing DA has been school-based primary prevention programs that teach teenagers about healthy relationships. While some of these programs appear to have modest effects on DA-related knowledge and attitudes, adolescents' behavior is rarely influenced substantially, with some exceptions (De La Rue et al. 2017). As a result, there is an increasing interest in identifying secondary and tertiary prevention interventions designed to stop perpetration (US Centers for Disease Control and Prevention 2016). There is also an interest in identifying interventions for settings other than schools, given that historically some schools have protested that they are over-saturated with prevention programming, and because not all youth attend or graduate from high school (Institute of Medicine and Committee on Comprehensive School Health Programs in Grades K-12 1997).

Embedding a preventive intervention within primary care could be ideal given the overwhelming majority of adolescents that visit their doctors annually (Sege 2011). Importantly, the American Academy of Pediatrics now emphasizes that "Early anticipatory guidance about ...relationship dynamics and the risks of [DA] is paramount..." (Smith et al. 2009). Despite this call to action, few pediatricians screen patients for DA, perhaps because there are no evidence-based interventions that are focused on healthy dating relationships and designed to be delivered in adolescent health care settings (Cutter-Wilson and Richmond 2011).

Effects of interventions for DA perpetration in pediatric care settings are limited to one prior study. A one-session emergency department-based DA perpetration intervention for adolescents called "SafERteens," tested with 14–18-year old youth was found to reduce youths' peer aggression, but not DA perpetration (Walton et al. 2010). Other studies have tested the effects of one-session brief interventions (BIs) on adult partner violence perpetration. These have found either no effect (Rhodes et al. 2015), or a small, not statistically significant effect (Crane and Eckhardt 2013). However, given that one-session motivational interview BIs in pediatric settings have promoted healthier alcohol- and marijuana-related outcomes in youth (Bernstein et al. 2010, 2017), we were encouraged to use the BI model to attempt to change DA.

The Real Talk DA intervention is a one-session brief intervention. The intervention uses motivational interviewing (MI), which is a type of counseling that can be provided by trained non-clinician interventionists (Rollnick and Miller 1995). In the hospital setting, interventionists can be social workers, nurses, patient navigators, child life specialists, or substance abuse treatment specialists, for example. The intervention is highly structured and manual-based. Interventionists are trained to follow a series of 10 steps. In brief, interventionists establish rapport with the patient, elicit reasons why it might be worthwhile for the patient to change their DA behavior, discuss their readiness to make a change, review strategies for behaving less aggressively, engage the patient in a dialog about barriers to using those strategies, and create a plan for using the strategies in the future. The interventionists also attempt to contact each intervention participant up to three times in the 6 weeks after the intervention session to give them a booster, which is a reminder about the intervention content and their plan for change. Specifically, a booster-call typically lasts 10 min or less and involves the interventionist asking "How are you doing?", "Have you been thinking about what we discussed?", and "Do you have any questions for me?" More details about the content of the intervention, and a videotaped example intervention, are available elsewhere (video link http://sites.bu.edu/rothmanlab/real-talk/). The intervention is rooted in the Theory of Planned Behavior, Stages of Change model, and the theory of MI (Ajzen 1991; Norcross et al. 2011; Rollnick and Miller 1995) (Supplementary Fig. 1).

Our hypothesis was that those in the intervention group would experience greater reductions in DA perpetration at 3 months and at 6 months than those in the control group.

Methods

Study Sample

Participants were 172 adolescents, 15–19 years old, who sought medical care from the emergency or adolescent outpatient department of a large, urban, Safety Net hospital in the Northeast and were mostly Black or Hispanic (84%) and girls (85%). The study sample race/ethnicity reflects the race/ethnicity of the patients at the health care institution. Safety Net hospitals are in the top

quartile of US hospitals that provide care to indigent, uninsured, or underinsured patients (Agency for Healthcare Research and Quality 2016). Recruitment took place on January 2014–January 2017. Participants were recruited from waiting or treatment rooms. They were told that while they were waiting to see the doctor, they could participate in a research study about dating relationships. Eligibility criteria included perpetrating ≥ 1 acts of physical or sexual DA in the preceding 3 months based on the 23-item inventory (described under primary outcome) (Supplementary Table 1), English proficiency, not seeking health care because of dating or sexual assault victimization, and being medically stable. Of the 984 youth who were in the appropriate age range and approached for eligibility screening, 72% (n = 712) were found ineligible due to not having perpetrated DA in the prior 3 months. Youth were also ineligible if they had been in a batterer intervention program, or endorsed three or more items on a five-item dangerousness assessment, because the IRB determined that such youth were too potentially volatile for participation in our research. The IRB concern was that our intervention could aggravate more dangerous adolescents and increase their propensity for violence; the concern was mitigated by having our research team screen out the most dangerous adolescents and not interact with them further. The five dangerousness items were the following: have you ever injured a dating partner so severely that he/she required medical attention, been subject to a restraining order by the present dating partner, police even been called due to an incident with a partner, ever used physical force to have sex with a dating partner, or have a weapon or know where to get one if one was needed. Because the dangerousness screening questions pertain to ever having had the experiences, it was possible for a person to both answer the questions affirmatively and also not be a present threat. One individual screened endorsed three or more of the five dangerousness items and was found to be ineligible. An assessment was made that he presented no immediate threat of harm to himself or others, and he was offered standard care, which includes the option to speak to a behavioral health specialist.

When youth > 18 years were at the hospital with a parent or guardian, both parental consent and youth assent were obtained. In cases when youth were > 18 years old, but attending their health care appointment without a parent/guardian and making their own health care-related decisions, they could assent to study participation and no parent/guardian consent was sought. Of the 272 individuals eligible for study participation, 81% provided informed assent/consent and were enrolled in the study. All procedures were approved by the first author's IRB.

Randomization

Participants were assigned to the intervention treatment condition or the control condition using permuted block randomization via index cards in sequenced envelopes that were opened by study staff after baseline assessments were completed (Lachin et al. 1988). Of the 220 patients that were randomized, 50% were allocated to intervention (n = 110), and 50% were allocated to control (n = 110) (Fig. 1). Four participants in the intervention arm were withdrawn for administrative reasons (see Fig. 1). Of the 216, 44 (22%) did not contribute any follow-up data at 3 months or 6 months and were not included in the analyses. Thus, the analytic sample was n = 172 at baseline.

Intervention and Control Conditions

Those assigned to the intervention participated in a 30–45-min brief MI-style intervention conducted by a trained non-clinician. Detail about the development and pilot-testing of the intervention is described elsewhere (Rothman and Wang 2016). Interventionists were local community members who had prior experience in DA education with youth or were Master in Public Health (MPH) students. All interventionists went through a standardized 20-h training provided by the PI. The training included didactic information about MI and brief interventions, reading about MI, watching MI videos, and roleplaying the intervention with the PI a minimum of three times. Consistent with other MI interventions, the 10 steps of Real Talk included (1) establishing a rapport; (2) eliciting information about DA perpetration; (3) providing tailored feedback; (4) assessing readiness to change; (5) reviewing healthy relationship strategy choices; (6) contemplating the pros and cons of behavior change; (7) identifying barriers to change; (8) re-assessing readiness to change; (9) making referrals to desired resources; and (10) 1–3 supportive booster calls in the 6 weeks following the intervention. Fidelity of intervention delivery was assessed by scoring audio recordings of intervention sessions using a checklist that scored the intervention on introduction and assessment (15 points), detailed assessment (20 points), feedback (20 points), eliciting a change plan (15 points), strategies for addressing barriers (15 points), and reassessing readiness to change (15 points). All intervention sessions scored in the 90–100% range. The PI assessed the fidelity of 20% of the sessions and a trained RA assessed the fidelity of the remaining 80%. Those assigned to the control condition were given a booklet about DA perpetration and hotline numbers for domestic violence, sexual assault, runaway, and suicide.

Outcomes

Youth outcome measures were collected immediately prior to the intervention, 3 months after the intervention, and 6 months after the intervention. Baseline outcomes were assessed via self-report paper-based surveys which took approximately 15 min. Follow-up data were collected via surveys that were emailed to participants (64% and 71% at 3 and 6 months,

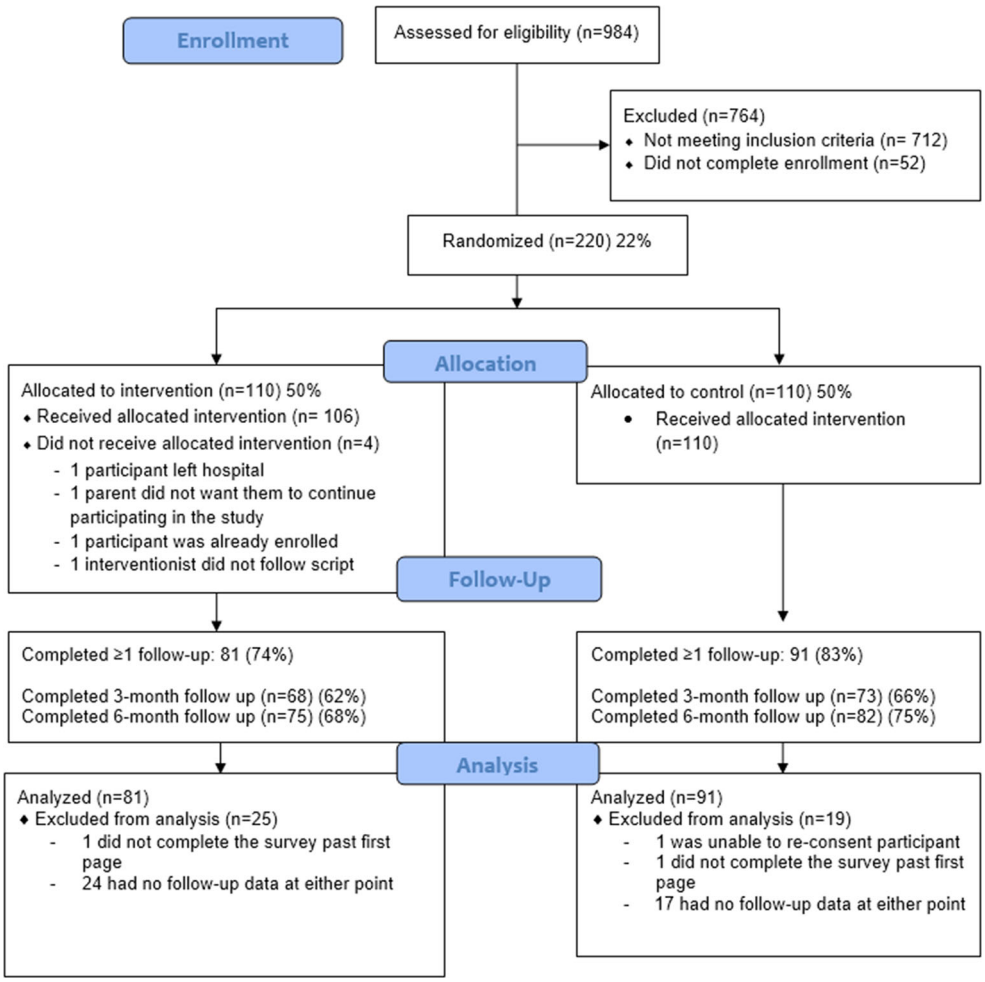

Fig. 1 CONSORT diagram; US study 2014–2017

respectively) (Supplementary Table 2), paper-based surveys at a location of participants' choosing (e.g., the hospital, a local library) (22% and 21% at 3 and 6 months respectively), or over the phone (14% and 8% at 3 and 6 months, respectively). Participants were remunerated $20 for completing baseline surveys, $25 for 3 month surveys, and $30 for 6 month surveys. Approximately 78% of participants contributed data at either 3 or 6 months (Fig. 1). There were some differences in the demographics of those who were retained vs. lost to follow-up; those lost to follow-up were less likely to be Black than another race, more likely to have been recruited from the outpatient setting instead of the emergency department, and to report DA victimization at baseline. However, loss to follow-up patterns did not vary by study group assignment (Supplementary Table 2).

Primary Outcome: Dating Abuse Perpetration

The primary outcome was DA perpetration which was categorized as any vs. no DA, and also as any vs. no physical DA, sexual DA, psychological DA, and cyber DA. DA perpetration was assessed using a 23-item measure established as valid and reliable, including subscales for physical, sexual, and psychological DA (Goncy and Rothman 2019). Respondents were asked how frequently in the past 3 months they had done any of a list of acts to a dating or sexual partner. Instructions specified only to include acts that they did first, in other words, not in self-defense, and not to include incidents when they were joking around. Response options were 0 times, 1–3 times, 4–9 times, and ≥ 10 times. The Cronbach's alpha was $\alpha = 0.82$ at baseline, 0.94 at time 1, and 0.96 at time 2. Dummy variables indicating "any" versus "no" perpetration were created for each time-point, where 0 represented no DA perpetration and 1 represented any DA perpetration.

In addition to calculating an overall score for any DA perpetration, we also created dummy variables to indicate any or no abuse for four DA subtypes: physical, sexual, psychological, and cyber. Physical abuse included any of the following 16 acts: scratched, slapped, physically twisted their arm, slammed them or held them against a wall, kicked them, bent their fingers, bit them, tried to choke them, gave them an injury (or hurt them so that they needed medical attention), threw something at them that hit them, burned them, hit them with a fist, hit them with something hard besides a fist, beat them up, assaulted them with a

knife or gun, and pushed, grabbed or shoved them. The internal consistency for the physical DA subscale was good ($\alpha = 0.83$). Sexual DA was assessed via two items: forced them to have sex, or forced them to do other sexual things that they did not want to do. Psychological abuse was assessed via four items which included threatened to kill them, said that I would die, or kill myself, if we broke up, spread nasty rumors about them, and made them feel afraid. These four items had good internal consistency ($\alpha = 0.88$). Cyber abuse was assessed via a single question about breaking into their email or cell phone.

Covariate: Readiness to Change

Ten items from the University of Rhode Island Change Assessment (URICA) were used to assess stage of change (Pantalon et al. 2002). A scale score was calculated by adding all 10 items and subtracting the two items that represent precontemplation, consistent with the recommended scoring for the original (Levesque et al. 2000). Research suggests that shortened versions of the URICA, as used in the present study, correlate highly with the full instrument (Amodei and Lamb 2004; Carey et al. 1999). The alpha for the scale in this sample was 0.75 at baseline, 0.78 at time 1, and 0.81 at time 2.

Statistical Approach

Our study was powered to detect an absolute difference of 15 percentage points between groups with 95% confidence and 80% power (60% vs. 45%) which required a sample of 171 participants. Baseline characteristics were investigated using *t* tests for continuous distributed variables and chi-square and Fisher's exact tests for categorical variables (Table 1). To examine the effects of the intervention, we used generalized estimating equations (GEEs) log-binomial regression for longitudinal data with an unstructured correlation matrix to model the relative risk of DA perpetration at follow-up. Given our eligibility criteria, all participants reported any abuse and physical abuse perpetration at baseline, and analyses for these outcomes examined differences between the intervention and control groups at 3 and 6 months. We first fit a main effect model with indicators for study group and time that estimates a common intervention RR, pooling data from 3 and 6 months. We then fit a multiplicative interaction model, with an interaction term between study group and time, to estimate differential intervention effects at 3 and 6 months. For sexual, psychological, and cyber abuse, analyses controlled for baseline behavior by including data from baseline, 3, and 6 months in the analysis. The intervention RR for these models represents differential change from baseline to post-intervention in the intervention vs. control group. With these outcomes, we also first fit a model to estimate a common intervention RR pooling data from 3 and 6 months. We then fit an interaction model to estimate differential intervention effects at 3 and 6 months. We ran both unadjusted and adjusted models. Adjusted analyses included contemplation stage of readiness to change as a covariate because prior studies of the effect of brief MI interventions have found that baseline stage of readiness to change is associated with outcome (Colby et al. 1998) and because in this sample the stage of readiness to change was associated with randomization group and outcomes of interest.

Results

Preliminary Analyses

Data were collected from 220 individuals at baseline. Four people were removed from the intervention group for administrative reasons (see Fig. 1). Of the 216, 44 (20%) did not contribute any follow-up data at 3 months or 6 months and were not included in the analyses. However, $n = 141$ contributed 3-month data, $n = 157$ contributed 6-month data, and $n = 126$ completed both follow-ups. For analytic purposes, the baseline sample included individuals who contributed follow-up data at either one or both of the follow-up points. Thus, the analytic sample included $n = 172$ at baseline, $n = 141$ at 3 months, and $n = 157$ at 6 months (Fig. 1). We did not observe differential patterns in loss to follow-up between the two study groups (Supplementary Table 2). The $n = 44$ participants not followed were more likely to have reported dating abuse victimization at baseline (82% vs. 65% of those followed) and more likely to have been recruited in the emergency department (86% vs. 60%). For the analytic sample, all demographics were balanced between groups at baseline except those in the intervention group were more likely to report being in the "contemplation" stage of readiness to change (Table 1).

GEE Analyses

Overall Effects No intervention effect was observed for any, physical, sexual, or psychological abuse in the gender-unstratified main effects model that pools data from 3 and 6 months (Table 3). There was an overall effect on cyber abuse (RR 0.49, 95% CI 0.27, 0.87). There were also overall effects for males for any abuse (RR 0.20, 95% CI 0.07, 0.55), physical abuse (0.30, 95% CI 0.10, 0.89), and cyber abuse (RR 0.04, 95% CI 0.01, 0.27) (Table 3).

Three Months Outcomes Differential intervention effects at 3 and 6 months, estimated through interaction models, are summarized in Table 2 and Supplementary Fig. 2, and parameter estimates from these models are reported in Supplementary Table 3. At 3 months, for all participants, no intervention effect was observed for the any, physical, or sexual DA

Table 1 Sociodemographic characteristics of the sample according to study group ($N = 172$); US study 2014–2017

Variable	Intervention ($n = 81$) n %	Control ($n = 91$) n %	χ^2, P
Gender			0.01, $p = 0.92$
Male	12 (15)	13 (14)	
Female	69 (85)	78 (86)	
Race			4.09, $p = 0.54$
Black	60 (74)	56 (62)	
Hispanic	11 (14)	18 (20)	
White	2 (2)	3 (3)	
Multiracial	7 (9)	10 (11)	
Sexual orientation			0.15,$p = 0.69$
Heterosexual	63 (78)	73 (80)	
Same-sex partners in past year	18 (22)	18 (20)	
Citizenship			1.10, $p = 0.30$
Born in the USA	59 (76)	74 (82)	
Born outside the USA	19 (24)	16 (18)	
Relationship status			1.50, $p = 0.68$
Single	28 (35)	36 (40)	
In a non-marital relationship	43 (53)	44 (48)	
Married	1 (1)	3(3)	
Other (e.g., not sure of status)	8 (10)	7 (8)	
Number of sex or dating partners past year			4.92, $p = 0.18$
1 partner	40 (49)	33 (36)	
2 partners	15 (19)	16 (18)	
≥ 3 partners	24 (29)	41 (45)	
Substance user			
Uses alcohol (not an abstainer)	44 (54)	52 (57)	0.14, $p = 0.71$
Any marijuana use	51 (63)	55 (60)	0.16, $p = 0.73$
DA victimization (psychological, physical, or sexual)			0.01, $p = 0.93$
Yes	52 (64)	59 (65)	
No	29 (36)	32 (35)	
Recruitment setting			0.00, $p = 0.99$
Emergency department	49 (61%)	55 (60%)	
Outpatient clinic	32 (40%)	36 (40%)	
	Mean (SD)	Mean (SD)	t-test, p
Age	17.7 (1.2)	17.6 (1.2)	−0.42, 0.68
Readiness to change (RTC) scale score	3.45 (0.60)	3.28 (0.77)	−1.63, $p = 0.10$
Precontemplation	5.25 (1.93)	5.52 (2.23)	0.84, $p = 0.40$
Contemplation	10.89 (2.24)	9.75 (2.54)	−3.11, $p < 0.01$
Action	11.27 (2.30)	11.13 (2.31)	−0.40, $p = 0.69$
Maintenance	5.57 (1.90)	5.82 (2.09)	0.84, $p = 0.40$

perpetration categories (Table 3). However, there was an effect on psychological DA perpetration and cyber DA perpetration (Table 3, Supplementary Fig. 2). The relative risk of psychological DA perpetration at 3 months for the intervention group, as compared with control group, given baseline perpetration, was RR 0.24 (95% CI 0.06, 0.93). The relative risk of cyber DA perpetration at 3 months was RR 0.39 (95% CI 0.19, 0.79). At 3 months, the stratified analysis revealed that the intervention was associated with a decrease in the category of any DA perpetration for males RR 0.25 (95% CI 0.06, 0.97), but not females, and that the intervention was associated with a medium-sized decrease in the category of cyber DA perpetration for females $_{adj}$RR 0.49 (95% CI 0.25, 1.00, $p =$ 0.049) (Table 3). There were too few males to conduct analyses for males' sexual, psychological, and cyber DA perpetration. The adjusted version of these analyses is presented in Supplementary Table 3 and are virtually identical.

Six Months Outcomes At 6 months, there were no intervention effects observed in the unstratified analysis or on females in gender-stratified analysis (Table 3). However, there was a difference in the percentage of males who perpetrated any type of DA by study group. At 6 months, the RR for any DA perpetration for males in the intervention group as compared with the control group was RR 0.13 (95% CI 0.02, 1.01) (Table 3). The adjusted analysis yielded an $_{adj}$RR of 0.14 (95% CI 0.02, 0.97) (Supplementary Table 3).

Discussion

To our knowledge, this is the first study to demonstrate any positive effect of a one-session BI to reduce DA perpetration. While the effects were modest and, for the whole sample, limited to psychological and one specific form of cyber DA

Table 2 Prevalence of DA perpetration at baseline and 6 months, by randomization group and gender ($N = 172$); US study 2014–2017

	Intervention			Control		
	Baseline *n* (%) *n* = 81	3 months *n* (%) *n* = 68	6 months *n* (%) *n* = 75	Baseline *n* (%) *n* = 91	3 months *n* (%) *n* = 73	6 months *n* (%) *n* = 82
All participants						
Any abuse	81 (100)	26 (38)	27 (36)	91 (100)	36 (49)	33 (40)
Physical	81 (100)	25 (37)	24 (32)	91 (100)	31 (42)	30 (37)
Sexual	4 (5)	1 (1)	5 (7)	3 (3)	2 (3)	3 (4)
Psychological	22 (27)	2 (3)	5 (7)	20 (22)	8 (11)	5 (6)
Cyber	42 (52)	8 (12)	12 (16)	37 (40)	17 (23)	18 (22)
Female	*n* = 69	*n* = 58	*n* = 64	*n* = 78	*n* = 63	*n* = 71
Any abuse	69 (100)	24 (41)	26 (41)	78 (100)	28 (44)	26 (37)
Physical	69 (100)	23 (40)	23 (36)	78 (100)	26 (41)	25 (35)
Sexual	4 (6)	1 (2)	4 (6)	2 (3)	1 (2)	2 (3)
Psychological	20 (29)	2 (3)	4 (6)	16 (21)	3 (5)	4 (6)
Cyber	36 (52)	8 (14)	11 (17)	36 (46)	15 (24)	14 (20)
Male	*n* = 12	*n* = 10	*n* = 11	*n* = 13	*n* = 10	*n* = 11
Any abuse	12 (100)	2 (20)	1 (9)	13 (100)	8 (80)	7 (64)
Physical	12 (100)	2 (20)	1 (9)	13 (100)	5 (50)	5 (45)
Sexual	0 (0)	0 (0)	1 (9)	1 (8)	1 (10)	1 (9)
Psychological	2 (17)	0 (0)	1 (9)	4 (31)	5 (50)	1 (9)
Cyber	6 (50)	0 (0)	1 (9)	1 (8)	2 (20)	4 (36)

abuse perpetration (i.e., breaking into a partner's cell phone or email), intervention effects were observed for the outcomes any and physical DA perpetration for males specifically. The findings represent a step forward for the field. With further testing, and perhaps bolstering of the elements that produced change, the intervention may prove to be one useful tool in the array of evidence-based programs and interventions for adolescent health care settings. This one-session, brief intervention that can be delivered by non-clinicians is less resource-intensive than a multi-session group therapy or individual cognitive behavior therapy. The intervention only takes 30–45 min to deliver, and non-clinicians can be trained in approximately 20 h to become interventionists, so the relatively low labor cost and resource investment is an advantage.

On the topic of BIs for substance use, the World Health Organization has stated that "…brief interventions are not intended as a stand-alone treatment for people who are dependent or at 'high risk'" (Humeniuk 2010). BIs tend to generate small effects that persist for only a few months (Platt et al. 2016; Saitz 2014), so the small and short-term effects of the Real Talk intervention are not surprising. However, BIs have been successful at improving participants' readiness to accept help for their behavioral problems and decrease a number of risky behaviors in the short term, including HIV-related risk behavior, alcohol and drug use–related risk behavior, and gambling (Babor and Higgins-Biddle 2001; Bray et al. 2017; Celio and Lisman 2014). The Real Talk intervention appears to have influenced selected DA outcomes and could motivate high-risk adolescents to engage in other counseling programs. For a discussion of reasons that youth in this sample said they felt motivated to change their DA perpetration behavior, please see Blackburn et al. (2019).

Consistent with the vast majority of BI RCTs, we observed a decrease in the target risk behavior in both the intervention and control groups (Carter et al. 2016; Crane and Eckhardt 2013; Cunningham et al. 2012, 2013; Eckhardt et al. 2006; Rhodes et al. 2015). There are several plausible explanations for this. The control group could have been influenced by the materials that they received at enrollment. However, it seems unlikely that the pamphlet and palm-card were powerful enough to effect change. Another possibility is that filling out the data collection surveys was in itself a form of intervention, but prior tests of this type of survey reactivity in partner violence research have found that it was not the cause of behavior decreases in non-intervention groups (Rhodes et al. 2015). It is possible that the participants in both groups were unreliable reporters of their own behavior and under-reported their perpetration behavior at follow-up, though they had been honest at baseline. Finally, it is possible that DA perpetration is a relatively low base rate behavior from which people naturally desists without any intervention, particularly if they change partners. This possibility, though, is at odds with literature that finds that DA perpetrators tend to continue to use aggression in their relationships (Knight et al. 2016).

Table 3 Unadjusted Effect of Real Talk on DA perpetration at 3 and 6 month (N = 172); U.S. study 2014–2017

	Real Talk overall effect[a]			Real Talk effect[b] at 3 months			Real Talk effect[b] at 6 months		
	RR	(95% CI)	*p* value	RR	(95% CI)	*p* value	RR	(95% CI)	*p* value
All participants									
Any abuse[c]	0.86	(0.63, 1.18)	0.349	0.82	(0.57, 1.18)	0.296	0.91	(0.62, 1.35)	0.640
Physical[c]	0.90	(0.64, 1.27)	0.559	0.92	(0.62, 1.36)	0.672	0.89	(0.58, 1.35)	0.572
Sexual[d]	0.97	(0.14, 6.63)	0.979	0.43	(0.04, 4.20)	0.466	1.26	(0.17, 9.34)	0.819
Psychological[d]	0.49	(0.16, 1.45)	0.197	0.24	(0.06, 0.93)	0.038**	0.99	(0.28, 3.42)	0.982
Cyber[d]	0.49	(0.27, 0.87)	0.016**	0.39	(0.19, 0.79)	0.008***	0.61	(0.31, 1.19)	0.145
Female									
Any abuse[c]	1.05	(0.75, 1.47)	0.767	0.98	(0.66, 1.45)	0.928	1.15	(0.76, 1.74)	0.521
Physical[c]	1.03	(0.72, 1.47)	0.882	1.00	(0.67, 1.52)	0.980	1.06	(0.68, 1.65)	0.804
Sexual[d]	0.91	(0.09, 9.71)	0.940	0.57	(0.05, 6.84)	0.648	1.02	(0.10, 10.40)	0.990
Psychological[d]	0.77	(0.21, 2.88)	0.697	0.53	(0.12, 2.26)	0.389	0.95	(0.23, 3.81)	0.937
Cyber[d]	0.62	(0.34, 1.15)	0.129	0.49	(0.25, 1.00)	0.049**	0.82	(0.40, 1.66)	0.576
Male									
Any abuse[c]	0.20	(0.07, 0.55)	0.002***	0.25	(0.06, 0.97)	0.045**	0.13	(0.02, 1.01)	0.051*
Physical[c]	0.30	(0.10, 0.89)	0.029**	0.41	(0.10, 1.69)	0.218	0.19	(0.03, 1.42)	0.106
Sexual[d,e]	–	–	–	–	–	–	–	–	–
Psychological[d,e]	0.21	(0.03, 1.52)	0.122	–	–	–	–	–	–
Cyber[d,e]	0.04	(0.01, 0.27)	0.001***	–	–	–	–	–	–

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Results are from longitudinal generalized estimating equations (GEEs) log-binomial regression that modeled the risk of DA perpetration. Separate analyses were conducted for each type of DA perpetration. RR is the intervention RR, describing change in risk of perpetration in the Real Talk group relative to the control group. RR less than 1.0 indicates that the risk of perpetration decreased in the Real Talk group relative to the control group

[a] Overall effects are based on main effect models pooling results from 3 and 6 months

[b] Effects at 3 and 6 months are from interaction models including multiplicative interaction terms between intervention and time that yield different intervention effects at different times

[c] For any DA perpetration and physical DA perpetration models did not include baseline perpetration because 100% of respondents reported these behaviors at baseline. Real Talk effects for these models are based on simple differences between intervention groups

[d] For sexual, psychological, and cyber DA models include baseline perpetration and Real Talk effects reflect differential change from baseline, based on the interaction between intervention and time

[e] Cell sizes too small to conduct GEE analysis

The Real Talk intervention appeared to influence psychological abuse more than physical or sexual abuse. It has been demonstrated that psychological DA victimization precedes the acceptance of other forms of DA and poor mental health in longitudinal studies of adolescents (Temple et al. 2016). Not only does psychological DA have its own deleterious effects on adolescents, it can be a precursor to more severe forms of physical and sexual violence (Schumacher and Leonard 2005). In general, psychological abuse and breaking into a dating partner's cell phone or email are more common forms of DA than physical and sexual abuse, and there is a subset of adolescents who engage only in these forms of abusive behaviors (Reidy et al. 2016). It may be that the psychological forms of DA that we assessed are less entrenched and more amenable to change through this intervention. It may also be that the content of the intervention was more useful to participants in terms of changing their non-physical-contact behaviors. Youth may have felt that they had more control over whether or not they engaged in psychological DA perpetration as compared with physical DA, because physically combative situations with partners may have escalated more quickly and involved more mutuality (Taylor and Mumford 2016).

The Real Talk intervention was designed for youth of any gender or sexual orientation. Because one of the principles of MI is to use a supportive counseling style to "meet participants where they are at," flexibility is built into the content (Center for Substance Abuse Treatment 1999). The intervention is designed to be tailored, in the moment, to each individual participant's behavioral goals and safety concerns, so specific versions of Real Talk for gender and/or sexual orientation minority youth should not be necessary. More females than males seek health care at the venues where we recruited patients, and more females expressed interest in being screened

for eligibility for a study on relationships; thus, we had more females enrolled in the study. The fact that we observed particular effects on males and on all participants, but not females, could mean that the opportunity to talk with a non-judgmental adult about DA perpetration was particularly powerful for males, who may be more likely to lack such opportunities elsewhere. It may also mean that the males were either more open to the idea of changing their behavior, or that they had more efficacy to do so. There is some evidence to suggest that females who perpetrate psychological DA are more likely than males to lack self-control; they perpetrate impulsively, which could be harder to correct, whereas males are more likely to perpetrate psychological DA for specific reasons like wanting to control their partners (Baker et al. 2018).

Notably, at baseline, almost two-thirds of the sample reported experiencing DA victimization in the preceding 3 months. Given that 66% of 12–18-year old youth in the US report experiencing DA victimization at least once, it is not entirely unexpected that the prevalence rate of victimization in this sample was as high as it was (Taylor and Mumford 2016). Because there is so much overlap between DA victimization and perpetration in adolescents, the MI style of intervention is a good choice for prevention because it is participant-centered, non-confrontational, and gentle. The client-driven nature of the Real Talk MI-style intervention may be particularly important given that so many youth both experience and use aggression in their dating relationships, and may be recovering from trauma. The relative low-cost of training non-clinician staff to deliver the Real Talk intervention in health care settings, coupled with the prevalence of DA, is a strong argument for continuing to evaluate its effects.

Limitations

DA perpetration was self-reported and not verified with dating partners or criminal records. Prior research suggests that both males and females tend to underreport partner violence perpetration, and that males are slightly more likely to underreport than females (Freeman et al. 2015). Consistent underreporting of DA at each time point would not have influenced the results of this RCT, though if underreporting became more or less likely over time that might have attenuated or exaggerated results. A second limitation was that this sample is not representative of all US youth. It is the strength of the study that the sample was predominantly Black, Hispanic, and multi-racial urban-residing youth, as the majority of existing DA research has been conducted with White youth. However, there were relatively few boys in this study because boys are less likely to seek health care in this venue (Carroll et al. 2011) and thus are less likely to be screened. Therefore, there is a need to replicate with a larger sample with a particular emphasis on the recruitment of males. Attrition analyses indicate that participants lost to follow-up were more likely to have been recruited from the outpatient setting instead of the emergency department, and to report DA victimization at baseline. Although participant retention rates were on par with similar research studies conducted in this same setting and with demographically similar populations (Bernstein et al. 2012; Walton et al. 2010), youth who were possibly at higher risk for aggression were more likely to be lost to follow-up, and the direction of the bias that this may have introduced is unknown. A final limitation is that cyber abuse was measured through a sole item. When the survey instrument was first drafted and the psychometric properties were tested in 2010, the nuances of cyber DA had not yet been fully explicated, and access to smartphones was not widespread in the study population. Increasingly, the ways in which the internet can be used to cause harm have proliferated and an increasing number of youth have access to smartphones and social media (Marganski and Melander 2018). Thus, future tests of the intervention should include multi-item measures of cyber DA, of which there are now many (Brown and Hegarty 2018). Future tests might also test multi-session vs. single sessions.

Conclusions

This RCT study of a brief, motivational interview-style, intervention in an urban, hospital-based pediatric care setting found small but positive effects for preventing psychological and cyber DA perpetration. Further research to determine if the effects can be increased, persist longer, and persist across different implementation settings will be important for the field.

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Compliance with Ethical Standards

This research involved human participants, was reviewed by an Institutional Review Board, and informed consent/assent was obtained for all participants. Research was performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Conflict of Interest We declare no conflicts of interest.

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