



The author(s) shown below used Federal funding provided by the U.S. Department of Justice to prepare the following resource:

Document Title: Partner Violence Prevention For Middle-School Boys: A Dyadic Web-Based Intervention Study (Project STRONG)

Author(s): Christie J. Rizzo, Ph.D., Christopher Houck, Ph.D.

Document Number: 252517

Date Received: January 2019

Award Number: 2014-MU-CX-4002

This resource has not been published by the U.S. Department of Justice. This resource is being made publically available through the Office of Justice Programs' National Criminal Justice Reference Service.

Opinions or points of view expressed are those of the author(s) and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

**SUMMARY REPORT:
PARTNER VIOLENCE PREVENTION FOR MIDDLE-SCHOOL BOYS: A DYADIC
WEB-BASED INTERVENTION STUDY (Project STRONG)
GRANT NO: 2014-MU-CX-4002**

SUBMITTED BY:

**Christie J. Rizzo, Ph.D.¹, Principal Investigator
and
Christopher Houck, Ph.D.², Co- Investigator**

**¹ Bouve College of Health Sciences
Department of Applied Psychology
Northeastern University
437 International Village
360 Huntington Avenue
Boston, MA 02115
617-373-2486 Phone, 617-373-8892 Fax
c.rizzo@northeastern.edu**

**² Bradley/Hasbro Children's Research Center
Rhode Island Hospital
1 Hoppin St.
Suite 204
Providence, RI 02903
401-444-8539 Phone, 401-444-4645 Fax
chouck@lifespan.org**

This project was supported by Grant No. 2014-MU-CX-4002 awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. Points of view in this document are those of the authors and do not necessarily represent the official position or policies of the U.S. Department of Justice.

PURPOSE

The purpose of this project was to develop and refine a web-based intervention that reduces the risk of dating violence among middle-school aged males. The final intervention (STRONG), used by parents and adolescents together, is based on the empirical literature linking emotion regulation deficits to violent behavior as well as studies showing that parental involvement is crucial to offset dating violence risk. STRONG is also based on content delivered in efficacious, face-to-face interventions for relationship risk reduction among teens (K23MH086328; R01NR011906). In Phase I, STRONG was developed through consultation with an Expert Panel and iterative focus group meetings with a community advisory panel comprised of middle school boys and their parents. In Phase 2, STRONG was tested in a small randomized trial to assess feasibility and acceptability (Aim 1) and detect preliminary between-group effect sizes (Aim 2) to support a future large randomized efficacy trial of the program.

PROJECT PARTICIPANTS

Seventh and eighth grade boys were recruited, with a parent/caregiver (91% mothers), from six urban middle schools in the Providence, RI area. In Phase 1 we recruited 8 parent-son dyads to take part in a community advisory panel that provided feedback on the web-based intervention as we developed it. In Phase 2 we recruited parents and sons to enroll in the randomized trial ($n=119$ dyads). The RCT sample was diverse in terms of race/ethnicity (adolescents were 49% Caucasian; 24% Hispanic) and economic conditions (26% with annual household incomes < \$30,000). Thirty-seven percent of families were single parent households.

PROJECT DESIGN & METHODS

Families were recruited for the study over a 2 ½ year period, beginning June 2015 through November 2017. To be eligible to participate, the adolescent had to identify as a male

and be enrolled in the 7th or 8th grades. Also, both the parent/guardian and adolescent were required to speak English because the budget did not support adapting the program and data collection instruments to other cultures and languages. All procedures were approved by the Rhode Island Hospital IRB and the appropriate NIJ offices related to the protection of human subjects.

Recruitment for Phase 2 involved three primary approaches. First, the intervention and research study were described to students by study staff in presentations during visits to classrooms and student assemblies. All male students in the 7th and 8th grades were provided information about the study along with a **consent to contact form** for their parent/guardian if they wished to participate. Second, the Principals of participating schools emailed 7th and 8th grade parents to introduce the study and provide a link to an online version of the consent to contact form. Lastly, study staff were invited by school administrators to school Open Houses and Student Award nights to speak to parents directly about the study and provide consent to contact forms. Once permission to contact families was received, study staff arranged a meeting with families to describe the project and obtain informed consent. Adolescent assent was obtained separately from parents, to ensure that adolescents did not feel coerced to participate.

Our final sample included 59 dyads randomized to the STRONG intervention condition and 60 dyads randomized to the control condition. Participants were randomized to either the intervention or a wait-list control condition by stratified randomization with a block size of 4, to avoid serious imbalance in the number of participants assigned to either condition.

Randomization was also stratified based on the gender of the participating parent and occurred after baseline assessment.

Measures

Demographics and Descriptive Information. Adolescents and parents completed items including age, grade-level, sexual orientation, SES, race, and ethnicity. Parents also completed the Conflict Tactics Scale – Short Form (CTS-S; Straus & Douglas, 2004) which assesses parental history of domestic violence, measuring the frequency of both verbal and physical aggression with a romantic partner.

Primary Outcome.

Dating Violence Behaviors. The Conflict in Adolescent Dating Relationships Inventory (CADRI; Wolfe et al., 2001), completed by dating teens, assesses verbal, emotional, physical, and sexual dating abuse perpetration and victimization with a current or recent dating partner. The CADRI has demonstrated reliability in previous research, 2-week test retest reliability, $r=.68$, $p<.01$, as well as acceptable partner agreement ($r=.64$, $p<.01$; Wolfe et al., 2003). In our current study we observed strong internal consistency ($\alpha=.83$). At each timepoint, participants reported on the past 6 months.

Secondary Outcomes

Attitudes Supporting Dating Violence. The Attitudes about Relationship Violence Questionnaire (ARVQ; MacGowan, 1997), completed by parents and teens, assesses knowledge, attitudes, and methods of dealing with DV. The current sample showed good internal consistency for both teens (teen $\alpha = .70$) and parents ($\alpha = .84$). The Aggression Questionnaire (AQ; Buss & Warren, 2000) rates five types of aggression (e.g., physical, verbal). The internal consistency for the current sample was excellent ($\alpha=.90$, total score).

Intervention Mechanisms (Mediators)

Emotion Regulation. The Adolescent Self-Regulatory Inventory (ASRI; Moilanen, 2007) measures perceptions of adolescents' abilities to regulate over the short-term and long-term,

separately; both adolescents and parents completed it about the adolescent. The internal consistency for our sample was good for both adolescents ($\alpha = .66$) and parents ($\alpha = .88$). The Emotion Regulation Behaviors Scale (ERBS; Houck, Hadley, Barker, Brown, Hancock, & Almy, 2016) assesses the frequency of engaging in specific emotion regulation behaviors (e.g., “getting away from whatever was causing the feeling”) when experiencing strong feelings over the previous week. Participants rated engaging in each behavior on a scale from 1 (all the time) to 5 (never). Items were reverse coded so that higher scores indicate more use of emotion regulation behaviors. Internal consistency of the current sample was excellent ($\alpha = .81$). The Behavioral Indicator of Resiliency to Distress (BIRD; Shields & Cicchetti, 1998) is a 5-minute computerized distress tolerance task for adolescents. This measure generates a score of total time that adolescents persist on a frustrating task, which has been linked to distress tolerance (Shields & Cicchetti, 1998). Longer quit times indicate a longer duration of tolerance for negative emotion.

Parent-Child Communication. A modification of the Miller Sexual Communication Scale (Miller et al., 1998), completed by both parents and sons, was used to assess how often dyads have discussed seven topics related to healthy relationships (e.g., managing problems, managing feelings, digital abuse). The Parent-Adolescent Communication Scale (Olson, 1985) completed by both parent and teens, was used to assess problem communication and open communication in families. Our sample showed good internal consistency for each subscale (α range = .66 -.92)

Procedures and Intervention Components.

Families randomized to STRONG completed 6 modules comprised of 4-6 activities (games, videos, etc.) targeting three primary constructs: relationship health, ER, and communication (See Table 1 for a detailed list of activities). The game uses a space theme on a planet in which dating violence is rampant. As such, young people are required to complete a series of challenges with a coach to earn a “relationship license.” The 6 modules are completed over four sessions. Session 1 includes the baseline assessment procedures along with Module 1 (about 15 minutes). Module 1 is completed by parents (while adolescents finish the assessment) and focuses on program engagement by educating parents about dating violence and ER, using engagement techniques to increase the perceived value of the program, and enhancing their efficacy for engaging their adolescent sons in the activity. During Session 2, dyads complete Modules 2 and 3 (each about 30 minutes), which encourage dyadic communication through games, introduce the concept of emotions influencing behavior, and teach ways to recognize emotional arousal. Session 3 is comprised of Modules 4 and 5 (each about 30 minutes), which



introduce ER strategies adapted from Project TRAC, a group-based ER intervention designed for middle schoolers that has been shown to reduce sexual risk (Houck, Hadley, Barker, Brown, Hancock, & Almy, 2016; Houck, Barker, Hadley, Brown, Lansing,

Almy, & Hancock, 2016). These strategies correspond to four of the “families” of ER processes in Gross’ process model (Gross, 2014). The modules link ER with communication and provide opportunities to practice both during dyadic activities about sexual health. For Session 4,

families complete Module 6, which provides additional practice using ER strategies during a difficult communication task along with an activity identifying the role of ER when communicating with romantic partners. The program concludes with praise for completion and encouragement to continue using the skills learned. Following



completion of each session, debrief surveys were completed by both the adolescent and his parent/guardian to assess acceptability and usability. Families were compensated \$5 for completing the session debrief surveys, \$30 for completing the assessments at baseline, \$35 for completing assessments at 3-months, and \$40 for completing assessments at 9-months.

Control Condition

A wait-list control group was used as a comparison condition in the trial. Participants in the control condition completed assessment measures at the same time points (baseline, 3-month follow-up, and 9-month follow-up) as those in the intervention condition. After completion of the 9-month follow-up, all families were offered the intervention condition, delivered in the same manner as in the intervention condition.

RESULTS

Data Analysis

For our Aim 1 analysis of acceptability and feasibility, attendance and retention rates were calculated, and session debrief survey ratings were summarized. For our Aim 2 analysis of study impact, Weighted Generalized Estimating Equations (WGEE; Dahmen & Ziegler, 2004;

Salazar A, Ojeda B, Dueñas M, Fernández F, Failde, 2016; Deaman & White, 2011) were used to address the nested structure of the data with assessments nested within each participant, and missing data due to participant drop-out across the study. WGEE has been recommended by the National Research Council as one of the preferred strategies for dealing with missing data in longitudinal clinical trials (Council, 2010). The WGEE was fit using a negative-binomial distribution with a log link function for the dichotomous violence behaviors and fit using a normal distribution and identity link function for continuous ratings of attitudes and intervention mechanisms. Baseline was included as a covariate in all models which evaluated the efficacy of the intervention versus control condition at 3- and 9-month follow-ups. A completer analysis was deemed appropriate as the small sample size of this pilot study could be impacted substantially from the presence of families randomized to STRONG who were not exposed to the intervention. Analyses included intervention families who received an adequate dose of intervention, defined as a minimum of 4 out of 6 intervention modules ($n=114/119$). Lastly, it was hypothesized that having dating experience prior to receiving the intervention might impact how adolescents understood and internalized the intervention material. Consequently, we ran exploratory analyses that included ever being in a dating relationship prior to baseline as a moderating variable.

AIM 1 – Acceptability and Feasibility of STRONG

Attendance and Retention

Completed over four visits, 90% of families completed all 6 modules, indicating that Project STRONG is sufficiently engaging for the target population. Further, retention to follow-up was excellent; 92% (109/119) completed the 3-month and 88% (105/119) completed the 9-month follow-ups.

Acceptability to Youth and Parents

Families reported considerable enthusiasm about the program. Specifically, we administered debriefing surveys to each family member to evaluate the “helpfulness” of intervention modules. Across the individual ratings for each module, for parents, 87% of ratings were 4 or greater (on a 5-point scale), and 99% were 3 or greater. For teens, 65% were 4 or greater, and 96% were 3 or greater. Further, families provided comments regarding their experiences in the program and the extent to which they found the skills useful. Responses indicated that families generally had a positive experience in the program and felt they learned skills that helped them in their day-to-day lives:

- *“It introduces/exposes sensitive topics to children/teens and their families, and it might help spark a conversation that would not happen otherwise.” – Mom*
- *“You have an extra aid that teaches more than health class does” – 12 year old*
- *“prepares you for life, makes you aware of what's going on” – 13 year old*
- *“It really helps with communicating issues and allows for a person to open up more with problems” – 14 year old*

AIM 2 – Preliminary Efficacy of STRONG

We compared youth in the STRONG intervention group with those in the waitlist control group with respect to age, grade, and baseline scores on all measures using t-tests for continuous variables and chi-square tests for categorical variables. There were no significant differences at pretest between students in the two study conditions on any of these variables. Baseline demographic variables were also not significantly related to any outcome variables at pretest. The percent of missing data was small (follow-up assessments were completed by 92% of participants at 3-months and 88% at 9-months), mean imputation was utilized in cases where scale-level missingness was at or below 60%. Table 1 summarizes parent and adolescent

demographics and baseline characteristics by condition. Unadjusted descriptive statistics by treatment condition and between condition effect sizes are displayed in Table 2. Results for those who had previous dating experience at baseline are reported in Table 3. We used odds ratios (OR) as the effect size for dichotomous outcomes and standardized difference scores (*d*) for continuous outcomes.

Primary Outcomes

Dating Violence Behaviors.

Dating violence behaviors measured using the Conflict in Adolescent Dating Relationships Inventory (CADRI; Wolfe et al., 2001), showed improvement by 9-months. At 9-months adolescents randomized to the STRONG condition reported fewer DV perpetration events (OR=0.61 [95% confidence interval=0.2; 1.81]) and fewer DV victimization events (0.86 [0.27; 2.79]). Among those who were dating at baseline, the benefit was more marked for both perpetration (0.39 [0.12; 1.27]) and victimization (0.55 [0.17; 1.78]; see Table 3). In other words, among baseline daters, adolescents in the control condition were 2.56 times more likely to report perpetration and 1.82 times more likely to report victimization than those randomized to the STRONG intervention.

Although differences were not statistically significant, the pattern of findings is consistent with hypotheses, particularly among those who began the intervention with dating experience. Results at 3-months were more inconsistent, likely reflecting the limited timeframe from intervention exposure to observe improvement (see Table 2).

Further, although change in aggressive behavior as measured by the Aggression Questionnaire (Buss & Warren, 2000) was not notable in the full sample, those who had begun dating at baseline reported lower total aggression scores at 9-months (-.29 [-0.88-0.29]), again

suggesting that the intervention may have been particularly beneficial for those for whom its content was most salient (see Table 3).

Attitudes Supporting Dating Violence.

On the Attitudes Toward Relationship Violence Questionnaire (ARVQ; MacGowan, 1997), parents' total scores suggest that STRONG had small but positive effects on parents' attitudes toward DV at both 3- (0.19 [-0.04; 0.41]) and 9-months (0.20 [-0.05; 0.45]) whereas teen responses were not notable at either follow-up, with the 9-month scores showing modest, but non-significant improvements for the control group only. Thus, pilot outcomes indicate that STRONG had a positive impact on parents' overall attitudes toward DV however findings with teens were more inconsistent.

Intervention Mechanisms

Emotion Regulation.

Compared to control participants, STRONG adolescents reported positive shifts on a number of emotion regulation measures. At 9-months, STRONG participants reported greater perceived short-term self-regulation abilities on the Adolescent Self-Regulatory Inventory (ASRI; Moilanen, 2007) (0.36 [0.01; 0.71]) and greater utilization of emotion regulation strategies on the Emotion Regulation Behaviors Scale (0.32 [-0.06; 0.7]). On the computer-based Behavioral Indicator of Resiliency to Distress (BIRD; Shields & Cicchetti, 1998) measure, STRONG adolescents also demonstrated a greater delay in quit time at 9-months (0.23 [-0.15; 0.61]). In contrast, STRONG parents did not report changes in their adolescent's short-term self-regulation at either follow-up. This may reflect the internal nature of these processes which may make them difficult to observe

Among those with baseline dating experience, effects are even more pronounced for improvements in teen short-term self-regulation (0.52 [-0.06; 1.09]). Given the important theoretical role of immediate, short-term emotion regulation in DV, it is encouraging that teens identified personal shifts in emotion regulation, which is key for DV prevention.

Parent-Adolescent Communication.

Both parents and teens randomized to STRONG reported discussing significantly more relationship-related topics at 3-months (parents: 0.66 [0.34; 0.97]; teens: 0.62 [0.26; 0.98]) relative to control families. Although this effect was not maintained at 9-months. On the Parent-Adolescent Communication Scale (PACS; Olson, 1985), STRONG parents reported fewer problems in communication at 9-months (0.25 [-0.04; 0.55]) relative to control group parents. No meaningful between-group shifts were observed in the PACS open communication subscale at either follow-up.

For families with adolescents who had begun dating at baseline, between-group differences in the number of relationship topics discussed by families are maintained at 9-months (teen report: 0.52 [-0.06; 1.09]). This suggests that families of daters were more likely to maintain gains in parent-child communication, potentially due to the ongoing perceived relevance of relationship topics for these adolescents.

IMPLICATIONS

This was the first randomized controlled trial to our knowledge of a dyadic, online dating violence prevention program for parents and middle school boys. Taken together, our findings suggest that an interactive, online intervention targeting emotion regulation and parent-child communication skills for the reduction of dating violence (1) is feasible to implement with urban families and (2) shows promise in reducing dating violence behaviors among early adolescent

boys over 9 months. This initial pilot study also provided some support for our theory of change whereby STRONG is linked to improvement in measures of emotion regulation and parent-child communication.

Intervention Feasibility and Acceptability

Attendance data for our pilot trial suggest that families are willing to complete online modules addressing healthy relationship skills in a gaming format. Given rapid advances in video game technology, STRONG is not designed to compete with the modern graphics and entertainment value of these products, but rather provides a structured format for parents and early adolescent boys to engage in important discussions about romantic relationships, such as how to identify and manage feelings, how to discuss common relationship challenges, and how to identify relationship values. Thus, STRONG uses an online gaming format to scaffold these important discussions that are often difficult for parents to initiate. Indeed, research indicates that parents talk to their sons less frequently about relationship risks, as compared to discussions with daughters (Wilson & Koo, 2010). In the future, STRONG could serve as an adjunct to relationship health education targeted to youth in schools or could serve as a stand-alone prevention tool to educate youth who do not receive dating violence prevention programming in their schools.

Preliminary Outcomes

Analysis of the effects of STRONG on youth dating violence suggests that it was effective in reducing dating violence perpetration by 9 months. Findings were even stronger for adolescents who had begun dating at baseline, suggesting that the STRONG modules may be even more impactful when the content is immediately relevant to the adolescents' experiences.

We did not observe meaningful between-group effect sizes with measures of general aggression in the full sample. However STRONG did impact aggressive behaviors among daters at 9-months. Moreover, although no attitude shifts were observed among STRONG adolescents, attitudes among STRONG parents improved modestly. In addition, STRONG's impact on some measures of emotion regulation and parent-child communication suggest that STRONG had the intended impact on intervention mechanisms. By 9 months, multiple adolescent measures of emotion regulation improved among STRONG participants. These included self-report indicators of self-regulation and the use of emotion regulation skills, as well as a computer-based measure of distress tolerance.

There is some indication that although reports of open communication did not shift for STRONG families, parents noted positive changes in problems communications. Further, both parents and adolescents reported immediate increases in the number of relationship-related topics discussed (e.g., relationship problems, sex, emotions) at 3-months. For STRONG families with dating teens, for whom the STRONG modules were immediately relevant, adolescents reported ongoing parent-child discussions about relationship topics at 9-months that were more frequent than those reported by control families. Overall, theory and empirical findings indicate that these improvements in targeted mechanisms should reduce youth engagement in violent dating relationships over time (e.g., Lundeberg, Stith, Ward, & Penn, 2004; Kaminski, Valle, Filene, Boyle, 2008). Thus, we anticipate that a longer follow-up period could reveal ongoing prevention effects.

This study has several limitations. The small size of our sample did not permit rigorous tests of moderation or mediation, and limited power to detect group differences that are small to medium in size. Moreover, the follow-up period may not have been sufficiently long to capture

the full benefit of the intervention. In addition, our recruitment methods likely biased our sample toward more highly motivated students and/or those with more engaged parents, who provided consent to contact forms in a timely manner. Although this bias presumably affected intervention and control groups similarly, we cannot conclude that study findings generalize to those students who did not volunteer for the research. Further, given the complexities involved with measuring emotion regulation and parent-child communication, the youth and parent-report measures administered may not have adequately reflected all facets of change in these domains. Future research should include larger samples with longer follow-up and incorporate alternative assessment methods, including observational measures of parent-child communication and physiological measures of emotion regulation.

Despite these limitations, our findings suggest that an online intervention for parents and middle school boys to complete together may be feasible and acceptable to families in urban public schools. Our focus on enhancing the emotion regulation capacities of early adolescent boys is consistent with recent reviews calling for interventions to focus more on socio-emotional skill development (e.g., Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). Similarly, our inclusion of parents in this prevention program is consistent with the development of parent- and family-based programs for the reduction of adolescent risk behaviors (e.g., Foshee, Reyes, Ennett, Cance, Bauman, & Bowling, 2012). Finally, our development of a gender-based program, that was conceived from the ground-up with the input of early adolescent boys and their families, is consistent with the need for targeted interventions to address the unique gender-based trajectories to adolescent dating violence (e.g., Foshee, Linder, MacDougall, & Bangdiwala, 2001). Enhancing regulatory capacities and parent-child communication among

early adolescent boys has the potential to facilitate development of core competencies that will promote a range of positive emotional, behavioral, and academic outcomes.

Table 1. Summary of parent and adolescent demographics and baseline characteristics by condition

Variable	Full sample (n=114)	Experimental (n=54)	Control (n=60)
Parent			
Age (mean/SD)	42.5 (6.8)	42.5 (6.3)	42.5 (7.2)
Gender (%female)	102 (90%)	48 (89%)	54 (90%)
Race (% white)	81 (72%)	38 (72%)	43 (72%)
Ethnicity (% Hispanic)	21 (19%)	12 (22%)	10 (17%)
Family income (% below \$30,000 annually)	29 (26%)	14 (26%)	15 (25%)
Partner at home (% yes)	72 (63%)	33 (61%)	39 (65%)
Parent Lifetime Physical Assault Involvement (CTS)	13 (14%) (n=95)	5 (11%) (n=47)	8 (17%) (n=48)
Parent Lifetime Sexual Coercion Involvement (CTS)	13 (14%) (n=95)	5 (11%) (n=47)	8 (17%) (n=48)
Adolescent			
Age (mean/SD)	13.0 (0.7)	13.0 (0.7)	13.05 (0.7)
Race (% white)	56 (49%)	26 (48%)	30 (50%)
Ethnicity (% Hispanic)	27 (24%)	15 (28%)	12 (20%)
Free or Reduced Price Lunch	55 (48%)	22 (41%)	33 (55%)
Ever Dated	55 (48%)	28 (52%)	27 (45%)
Physical/Sexual Perpetration (CADRI - % yes)	2 (4%) (n=47)	2 (8%) (n=26)	0(0%) (n=21)
Physical/Sexual Victimization (CADRI - % yes)	4 (9%) (n=47)	3 (12%) (n=26)	1 (5%) (n=21)
Emotional/Verbal Perpetration (CADRI - % yes)	28 (60%) (n=47)	14 (54%) (n=26)	14 (67%) (n=21)
Emotional/Verbal Victimization (CADRI - % yes)	27 (57%) (n=47)	13 (50%) (n=26)	14 (67%) (n=21)

Table 2. Pre- and Post-Intervention Group Differences and Effect Sizes for Primary and Secondary Intervention Targets

		Baseline Mean (SD)/%(N)	3-month Mean (SD)/ %(N)	9-month Mean (SD)/ %(N)	3-month Between Group odds ratio/ES(<i>d</i>)	9-month Between Group odds ratio /ES (<i>d</i>)
Primary Outcomes						
Dating Violence Behavior						
Any DV Perpetration (CADRI)						
	CONTROL	26% (14)	21% (10)	27% (11)	OR=1.21	OR=0.61
	STRONG	27% (14)	22% (11)	20% (9)		
Any DV Victimization (CADRI)						
	CONTROL	26% (14)	21% (10)	24% (10)	OR=1.79	OR=0.86
	STRONG	25% (13)	29% (14)	24% (11)		
Behavior						
General Aggression [±] (AQ-Mean)						
	CONTROL	2.02 (0.52)	2.09 (0.61)	2.03 (0.55)	-	-
	STRONG	2.01 (0.52)	2.02 (0.61)	1.99 (0.6)	-.07	.01
Attitudes						
Adolescent Attitudes Supporting Aggression (ARVQ – Total)						
	CONTROL	3.01 (0.28)	3.03 (0.33)	3.10 (0.34)	-	-
	STRONG	2.98 (0.30)	3.00 (0.34)	3.02 (0.34)	.01	-.17
Parent Attitudes Supporting Aggression (ARVQ – Total)						
	CONTROL	3.43 (0.33)	3.45 (0.31)	3.44 (0.32)	-	-
	STRONG	3.47 (0.29)	3.53 (0.3)	3.51 (0.31)	.19	.20
Secondary Outcomes						
Adolescent Affect Regulation						
Short-Term Self- Regulation (ASRI-short)						
	CONTROL	3.6 (0.65)	3.55 (0.76)	3.44 (0.8)	-	-
	STRONG	3.63 (0.67)	3.63 (0.71)	3.71 (0.75)	.09	.36*
Long-Term Self- Regulation (ASRI-long)						
	CONTROL	3.22 (0.57)	3.24 (0.55)	3.23 (0.51)	-	-
	STRONG	3.23 (0.5)	3.21 (0.52)	3.33 (0.58)	-.11	.11

Emotion Regulation Skills (ERBS)						
CONTROL	2.04 (0.82)	2.01 (0.83)	1.86 (0.7)	-	-	
STRONG	2.18 (0.82)	2.18 (0.92)	2.21 (0.91)	.15	.32 ^ψ	
Distress Tolerance (BIRD)						
CONTROL	256.68 (78.7)	240.98 (80.06)	227.17 (84.39)			
STRONG	251.19 (78.05)	230.66 (84.04)	243.14 (78.35)	-.11	.23	
Adolescent Communication						
Open Communication (PAC)						
CONTROL	38.65 (8.08)	36.65 (9.82)	35.13 (9.96)	-	-	
STRONG	37.65 (10.05)	36.87 (10.18)	35.16 (11.23)	.11	.06	
Problem Communication (PAC)						
CONTROL	34.39 (6.52)	34.11 (7.40)	33.60 (8.03)			
STRONG	32.46 (7.23)	31.98 (6.98)	33.12 (7.69)	-.15	.06	
# Relationship Topics Discussed (Miller)						
CONTROL	3.24 (1.79)	1.88 (2.18)	1.80 (2.00)	-	-	
STRONG	3.05 (2.14)	2.96 (2.43)	1.96 (2.05)	.62**	.13	
Parent Communication						
Open Communication (PAC)						
CONTROL	40.17 (6.98)	40.18 (7.41)	40.55 (6.71)	-	-	
STRONG	39.33 (5.89)	40.73 (6.06)	40.16 (6.8)	.15	.01	
Problem Communication (PAC)						
CONTROL	37.35 (5.63)	37.52 (5.58)	38.06 (6.13)	-	-	
STRONG	38.65 (5.68)	39.25 (5.29)	40.2 (5.05)	.17	.25 ^ψ	
# Relationship Topics Discussed (Miller)						
CONTROL	4.32 (1.83)	3.36 (2.05)	3.70 (2.06)	-	-	
STRONG	4.20 (1.79)	4.56 (1.65)	3.57 (1.89)	.66**	-.10	

Note. Analyses control for Baseline. ** $p \leq .01$, * $p \leq .05$, ^ψ $p \leq .10$. [±] lower scores indicate less aggression.

Table 3. Prevention effects by dating status on primary and secondary behavioral outcomes at 9-months

		Non-Daters (<i>N</i> = 59)			Daters (<i>N</i> =55)		
		Baseline	9-months	Between Group	Baseline	9-months	Between Group
		Mean (SD)/	Mean (SD)/	Effect Size	Mean (SD)/	Mean (SD)/	Effect Size
		%(N)	%(N)	[CI]	%(N)	%(N)	[CI]
Dating Violence Perpetration (CADRI)							
	CONTROL	0% (0)	7% (2)	0.58	52% (14)	55% (12)	OR=0.39 ^ψ
	STRONG	0% (0)	4% (1)	[0.05; 6.94]	50% (14)	32% (8)	[0.12; 1.27]
Dating Violence Victimization (CADRI)							
	CONTROL	0% (0)	7% (2)	1.21	67% (14)	57% (8)	OR=0.55
	STRONG	0% (0)	8% (2)	[0.16; 9.39]	50% (13)	43% (9)	[0.17; 1.78]
General Aggression [±] (AQ-Mean)							
	CONTROL	1.88 (0.51)	1.8 (0.43)	0.24	2.19 (0.48)	2.33 (0.54)	-0.29
	STRONG	1.91 (0.49)	1.93 (0.53)	[-0.1; 0.58]	2.11 (0.54)	2.06 (0.66)	[-0.88; 0.29]

Note. [±] lower scores indicate less aggression. Effect sizes are standardized difference scores for continuous measures and odds ratios (OR) for dichotomous outcomes. ^ψ *p* ≤ .10.

References

- Council, N.R. (2010). The Prevention and Treatment of Missing Data in Clinical Trials. Panel on Handling Missing Data in Clinical Trials. Committee on National Statistics, Division of Behavioral and Social Sciences and Education, Washington, DC: The National Academies Press.
- Dahmen, G. and Ziegler, A. (2004). Generalized estimating equations in controlled clinical trials: Hypotheses testing. *Biometrical Journal*, 46(2), 214-232.
- Durlak, J.A., Weissberg, R.P., Dymnicki, A.B., Taylor, R.D., & Schellinger, K.B. (2011). The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions. *Child Development*, 82(1), 405-432.
- Foshee, V.A., Linder, F., MacDougall, J.E., & Bangdiwala, S. (2001). Gender differences in the longitudinal predictors of adolescent dating violence. *Preventative Medicine*, 32, 128-141.
- Foshee, V.A., Reyes, H.L.M., Ennett, S.T., Cance, J.D., Bauman, K.E., Bowling, J.M. (2012). Assessing the Effects of Families for Safe Dates, a Family-Based Teen Dating Abuse Prevention Program. *Journal of Adolescent Health*, 51(4), 349-356
- Gross, J.J. (2014). Emotion regulation: Conceptual and empirical foundations. , in Handbood of emotion regulation, second edition, J.J. Gross, Editor, Guilford Press: New York City.
- Houck, C., Hadley, W., Barker, D., Brown, L.K., Hancock, E. & Almy, B. (2016). An emotion regulation intervention to reduce risk behaviors among at-risk early adolescents. *Prevention Science*, 17(1), 71-82.

- Houck, C., Barker, D., Hadley, W., Brown, L.K., Lansing, A., Almy, B. & Hancock, E. (2016). The one-year impact of an emotion regulation intervention on early adolescent health risk behaviors. *Health Psychology, 35*(9), 1036-1045.
- Kaminski, J.W., Valle, L.A., Filene, J.H., Boyle, C.L. (2008). A Meta-analytic Review of Components Associated with Parent Training Program Effectiveness. *Journal of Abnormal Child Psychology, 36*(4), 567-589.
- Lundeberg, K., Stith, S. M., Ward, D. B., & Penn, C. E. (2004). A comparison of nonviolent, psychologically violent, and physically violent male college daters. *Journal of Interpersonal Violence, 19*(10), 1191-1200
- Macgowan, M. (1997). An evaluation of a dating violence prevention program for middle school students. *Violence & Victims, 12*, 223-235.
- Miller, K., et al. (1998). Family communication about sex: What are parents saying and are their adolescents listening? *Family Planning Perspectives, 30*, 218-222.
- Moilanen, K.L. (2007). The Adolescent Self-Regulatory Inventory: The Development and Validation of a Questionnaire of Short-Term and Long-Term Self-Regulation. *Journal of Youth and Adolescence 36*(6), 835-848.
- Olson, D.H. (1985). Family inventories: Inventories used in a national survey of families across the life cycle. Family Social Science, University of Minnesota. St. Paul, MN.
- Salazar A, Ojeda B, Dueñas M, Fernández F, & Failde I. (2016). Simple generalized estimating equations (GEEs) and weighted generalized estimating equations (WGEEs) in

- longitudinal studies with dropouts: guidelines and implementation in R. *Statistics in Medicine*, 35(19), 3424–3448.
- Seaman, S.R. & I.R. White (2011). Review of inverse probability weighting for dealing with missing data. *Statistical Methods in Medical Research*, 22(3), 278-295.
- Shields, A., & Cicchetti, D. (19998). Reactive aggression among maltreated children: The contributions of attention and emotion dysregulation. *Journal of Clinical Child Psychology*, 27, 381-395
- Straus, M.A. & Douglas, E.M. (2004). A short form of the Revised Conflict Tactics Scales, and typologies for severity and mutuality. *Violence and Victims*, 19(5), 507-520.
- Wilson, E.K. & H.P. Koo (2010). Mothers, fathers, sons, and daughters: gender differences in factors associated with parent-child communication about sexual topics. *Reproductive Health*, 7, 31
- Wolfe, D., Scott, K., Reitzel-Jaffe, D., Wekerle, C., Grasley, C., & Straatman, A.L. (2001) Development and validation of the conflict in adolescent dating relationships inventory. *Psychological Assessment*, 13(2), 277-293.
- Wolfe, D., Wekerle, C., Scott, K., Straatmen, A., Grasley, C., & Reitzel-Jaffe, D. (2003). Dating violence prevention with at-risk youth: A controlled outcome evaluation. *Journal of Consulting & Clinical Psychology*, 71(2), 279-291