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The Efficacy of an Intimate Partner Violence Prevention Program with High-Risk Adolescent Girls: A Preliminary Test

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Abstract This study examined the efficacy of a brief (four session) intimate partner violence (IPV) prevention program (*Building a Lasting Love*, Langhinrichsen-Rohling et al. 2005) that was designed to reduce the relationship violence of predominantly African American inner-city adolescent girls (n=72) who were receiving teen pregnancy services. These high-risk girls were randomly assigned to the prevention program (n=39) or waitlist control (n=33) conditions. Implementation fidelity was documented. As predicted, girls who successfully completed the program (n=24) reported significant reductions in their perpetration of psychological abuse toward their baby's father as compared to the control (n=23) participants. They also reported experiencing significantly less severe IPV victimization over the course of the program. Preliminary analyses indicated that avoidant attachment to one's partner may be associated with less program-related change. These findings support the contention that brief IPV prevention programs can be targeted to selected groups of high-risk adolescents.

Keywords Intimate partner violence · Adolescents · Efficacy · Prevention program

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Dating violence, a subset of intimate partner violence (IPV), is a public health problem that is associated with physical injury, emotional consequences (Ackard and Neumark-Sztainer 2002), and reduced educational attainment (Banyard and Cross 2008). It is also linked to a variety of harmful health behaviors including problem drinking, drugs, risky sexual behavior, teenage pregnancy, and smoking (Centers for Disease Control [CDC] 2006; Raiford et al. 2007; Silverman et al. 2001). IPV has broadly been defined as abuse that occurs between two people in a close relationship (i.e., current spouses, former spouses, dating partners, coparents). The behaviors that constitute IPV include emotional or psychological abuse, physical abuse, and sexual abuse (CDC 2006).

In 2008, the CDC articulated their 5-year vision for preventing IPV. The centerpiece of the CDC strategy involves promoting respectful, nonviolent relationships between romantic partners. Six characteristics of respectful nonviolent relationships were identified: (a) belief in nonviolent conflict resolution; (b) effective communication skills; (c) ability to negotiate and adjust to stress; (d) belief in partner's right to autonomy; (e) shared decision-making; and (f) trust. In addition, the CDC suggested that IPV prevention strategies will be most effective when they focus on young people in dating relationships, as this is when violent and nonviolent relationships strategies are learned and solidified (CDC 2006).

Consistent with the CDC (2008) strategy described above, longitudinal studies of dating relationships have demonstrated that physical violence perpetration is predicted by dyadic processes, including the use of psychological aggression, controlling strategies, and having a jealous dating partner (O'Leary and Slep 2003). Communication difficulties have also been consistently associated with IPV perpetration (Schumacher et al. 2001). These

difficulties may also increase the probability of IPV over time (Smith et al. 2003).

In fact, individuals' initial dating relationships likely provide a bridge between the attachment patterns established in childhood between individuals and their caregivers and the attachment styles that get expressed in future adult intimate relationships (Fraley and Shaver 2000). According to theory (Bowlby 1973), attachment styles or "working models" of relationships can be secure or insecure. Insecure adult attachment falls along two orthogonal dimensions: anxious and avoidant (e.g., Gormley 2005; Hazan and Shaver 1994). Individuals who are high on anxious attachment are thought to hold negative models of self-in-relationships; they feel an excessive need to be close to their partners because they fear their partner will abandon them. In contrast, individuals who are high in avoidant attachment hold negative views of other-in-relationships. These individuals are more likely to keep their distance in relationships, because they perceive emotional dependence as threatening to their autonomy (Mikulincer et al. 2010).

There are two important reasons to consider the attachment styles of at-risk participants in an IPV prevention program. First, insecure attachment dimensions have been associated with the perpetration of IPV (Bookwala and Zdaniuk 1998; Gormley 2005). However, IPV might occur differently depending on attachment style. For example, individuals high on avoidant attachment may use violence to maintain their psychological distance in the relationship, whereas individuals high on anxious attachment may perpetrate violence in response to their jealousy, emotional dysregulation, or fear of abandonment (Bookwala and Zdaniuk 1998). Second, having an insecure attachment style may interfere with participation in group interventions. Shechtman and Dvir (2006) reported that participants with avoidant attachment engaged in less self-disclosure, were more negative in their interactions with others, and were judged to be more resistant in the group. However, the degree to which an avoidant attachment style is related to poorer outcomes in a group-style IPV prevention program is not known. This will be important to determine, particularly in a population (adolescent girls living in poverty and experiencing a teen pregnancy) that is expected to have high rates of insecure attachment.

This population may also have a high prevalence of IPV as cultural differences in the prevalence of IPV have been documented. For example, dating violence occurs more frequently in the Southern United States (Marquart et al. 2007). In general, African American (AA) adolescents, particularly AA females, constitute elevated-risk groups (CDC 2006). Among AA female adolescents, a reduced understanding of what constitutes a healthy intimate relationship has also been associated with experiencing IPV (Raiford et al. 2007).

Adolescent mothers constitute another group who are at risk for experiencing IPV, with the highest rates of IPV occurring 3-months postpartum in a prospective study of 570 adolescent girls who were delivering a baby (Harrykissoon et al. 2002). Furthermore, pregnancy among low-income inner-city women increases the odds of experiencing recurrent and severe IPV (Sonis and Langer 2008). Additionally, poverty has been shown to have an influence on the occurrence of IPV (Cunradi et al. 2002); perhaps because poverty often provides a culture of hopelessness, invisibility, and disenfranchisement from power (Brown 2002).

As a whole, these findings suggest that directing IPV prevention efforts toward a group with multiple risk factors (i.e., AA girls from the Southern part of the United States, who are living in poverty and experiencing a teen pregnancy and are therefore at high-risk for experiencing IPV) might be especially fruitful. Likewise, Karney et al. (2007) concluded that there is a need to strengthen adolescent precursors of healthy marriages in low-income and high-risk populations.

In keeping with these considerations and consistent with the plan articulated by the CDC in 2008, these authors created a brief four-session IPV prevention program, Building A Lasting Love (BALL; Langhinrichsen-Rohling et al. 2005) that was targeted toward AA females who were receiving teen pregnancy services. The targeted risk factors in the BALL prevention program were theoretically and empirically derived and included poor communication skills (aggressive strategies, escalation tendencies, and negative reciprocity and demand-withdrawal patterns (Langhinrichsen-Rohling 2010; Schumacher et al. 2001); emotional regulation difficulties (anger management, attachment style, jealousy, distrust, and feeling neglected; Finkel et al. 2009; Fruzzetti and Levensky 2000; Hughes et al. 2007), and lack of skills to cope in a high-stress environment (i.e., poverty; Cunradi et al. 2002). One session was devoted to each of these three main risk factors; the remaining session (which was delivered first) was centered on delineating what IPV consists of, creating a safety plan, and knowing the signs of healthy versus unhealthy romantic relationships.

Overall, in keeping with the need to implement a program that "fits" the target population (Gottfredson et al. 2006) and in light of the transient nature of adolescent relationships coupled with the pending birth of the participants' babies, the BALL program was designed to be brief (four sessions). It is theoretically consistent with a social learning model of IPV and culturally suitable for AA girls from disadvantaged neighborhoods who were experi-

encing a teen pregnancy. To be maximally effective in the shortest amount of time, BALL sessions integrated essential elements from a number of existing curricula. For example, both the Domestic Violence Project (O'Leary et al. 1995) and Premarital Interpersonal Choices (PIC; Van Epp 1999) have components that help individuals identify an abusive relationship or poor partner. Likewise, communication strategies are important elements of Spouse Abuse (Neidig and Friedman 1984), Communication and Conflict Management Skills in Intimate Relationships (e.g., Brown and Brown 2002); PREP (Markman et al. 1989); and Preserving a Lasting Love (Markman et al. 1994). Caring for my Family (Cox and Shirer 2009) and Family Preservation (Mantooth et al. 1987) both include a focus on managing money, stress, and time which is a key component of BALL session four. Finally, the Skills Training Manual for Treating Borderline Personality Disorder (Linehan 1993) includes strategies for emotional regulation as does BALL session two. Thus, the BALL program draws generally from existing evidence-based interventions designed to enhance couple functioning and improve communication and conflict management skills, as well as from domestic violence interventions designed to emphasize emotional regulation and personal safety, enhance coping and develop effective anger management strategies. By keeping the focus on these essential elements, it was expected that these high-risk girls could make initial movements toward a healthier and violence-free relationship with their baby's father, even while having time-limited access to pregnancy-related services.

The following hypotheses were generated. First, it was expected that women randomly assigned to the intervention would report reductions in their perpetration and victimization from both psychological abuse and physical violence at the completion of the program as compared to women randomly assigned to the waitlist control condition. Second, an exploratory element of the current study was the examination of attachment status as a correlate of response to treatment. Consistent with Shechtman and Dvir's (2006) findings, greater avoidant attachment to the baby's father was expected to be associated with less positive change in psychological abuse perpetration and victimization across treatment.

Method

Procedure

At-risk adolescent female participants (n=72) were recruited from a teen center from which they were receiving Health Department assistance for their teen pregnancy. This agency is the primary source of assistance for impoverished underage mothers in the area. Referrals to the BALL IPV prevention program came from agency case workers and teachers of the GED class. Informed consent was obtained from all non-emancipated participants' parents or their legal guardian prior to obtaining informed assent from the teen mother; the participants who had already given birth were considered emancipated and provided their own informed consent.

Once consent and assent were obtained, all participants were administered the pre-intervention survey packet in a group setting. The measures contained in the survey were read aloud to facilitate comprehension and to alleviate the concerns of participants who were poor readers. Transportation was provided to the assessment session and childcare was provided throughout the program. After the completion of the pre-intervention assessment, participants were randomly assigned to participate immediately in the BALL prevention program (n=39, treatment) or to be placed on a waitlist for the next group (n=33, control).

Girls assigned to the prevention program began the program 1 to 2 weeks after the preprogram assessment. Because of the uneven utilization of the Teen Center by pregnant adolescents, group size varied. The mean number of participants starting each group was four; sessions ranged in size from one session of one group consisting of one participant to one session of one group consisting of six participants. The BALL curriculum consists of four sessions, each lasting an hour and a half, administered once per week, so the entire intervention could be administered in 1 month's time (with approximately 6 weeks from preassessment to postassessment). Sessions were designed to stand independently from one another. Session One focuses on the signs of healthy versus unhealthy romantic relationships; they also make a safety plan and choose a personal relationship skill goal to focus on during the intervention (e.g., listen better, manage anger more effectively). Session Two discusses coping with disrespect and handling disappointment and anger in productive and nonviolent ways; the focus is on emotional regulation. Session Three promotes healthy couple communication, assertiveness, problem-solving techniques, and conflict management strategies. Session Four concludes with stress, coping, and time-management skills that were specifically tailored so that pregnant female adolescents could utilize these skills as they became mothers. Each session consisted of material to be taught didactically, facilitated group discussions, and planned content-related activities. No official out-of-session homework was assigned; however, participants were given suggestions on ways to focus on their self-identified program-related goal between sessions.

The program curriculum was specified through a leader's manual and session workbooks. Participants chose whether

or not to take their workbooks home and whether or not to share the material they learned in the group with their partners. In the current study, all sessions of the prevention program were administered by the same licensed clinical psychologist who was involved in the development of the BALL curriculum. A separate team administered the assessment materials. One to 2 weeks after the completion of the treatment group, all participants (treatment and waitlist control) were administered the post-intervention assessment package. The waitlist control participants were then invited to participate in the next group of the prevention program.

Ethical procedures were followed in the collection of these data. The study was reviewed and approved by the university institutional review board and by the community agency where participants were recruited. Participants provided informed consent and/or assent and participated without coercion. All identifiable data (and other information) was kept confidential.

Retention Strategies

Attendance incentives included: facilitating transportation to each session, weekly check-in/reminder calls from project staff, in-session snacks and drinks, optional color printed take-home copies of session materials, on-site childcare, and small incentives for an on-site store that was stocked with essential childcare items including diapers. Thus, this study may be best conceptualized as an efficacy study taking place within a community agency.

Participants

A total of 72 females were recruited from the urban teen pregnancy center across a 2-year period, 39 were randomly assigned to the prevention program and 33 were randomly assigned to the waitlist control condition. The majority of participants identified themselves as African American (93.1%); the remaining identified themselves as Caucasian (4.2%) or other (2.8%). The mean age of participants was 17.15 years (SD=1.68 years); the mean age of their baby's father was 20.00 years (SD=3.07 years). As anticipated, the majority of participants reported that they lived in poverty with their families (68.6% indicated total household incomes of $10,000 or less; the remaining 31.4% reported total household incomes between $10,000 and $50,000). While all but one girl reported regular interactions with the father of their baby, only 50% indicated that they were still in some type of romantic relationship with their baby's father at the pre-assessment; this dropped to 40.3% by the time of the post-assessment. As expected on the basis of random assignment and shown in Table 1, there were no significant demographic differences between those assigned to the treatment or control conditions (t's <1 for participants' age, baby's father's age and reported relationship satisfaction, X^2[2]=3.06, p=.22 for race, and X^2 [1]=.54, p=.46 for total household income).

Measures

Demographics Demographic questions included the age of the participant, the age of the baby's father, her self-reported race or ethnicity, the girl's rating of her overall level of satisfaction with her baby's father (on a scale from 1 to 5, with 5 indicating that the girl is very satisfied with this relationship), and her estimate of her family's total household income, which was defined as everyone who works in the house. Three response choices were given for this last question: (a) less than $10,000; (b) between $10,000 and $50,000, and (c) greater than $50,000.

Revised Conflict Tactics Scale—Perpetration of Psychological Aggression Subscale (CTS2; Straus et al. 1996) Eight items were used to assess the girls' perpetration of psychological aggression during a disagreement with their baby's father/current romantic partner during the 6 weeks prior to completing the initial assessment. This time frame was chosen so that it would correspond to the 6 weeks between the preintervention and postintervention assessment. An example CTS2 item is: "I insulted or swore at my partner." The coefficient alpha for these eight items at pretest was .79. The same eight items were administered at posttest with the instructions to consider only disagreements that had occurred during the previous 6 weeks (since completing the preassessment). The coefficient alpha for these eight items at the post-program assessment was .82.

Revised Conflict Tactics Scale—Victimization by Psychological Aggression Subscale (CTS2; Straus et al. 1996) The eight psychological aggression items were also used to assess the girls' experiences of psychological aggression with her baby's father/current romantic partner during the 6 weeks prior to completing the initial assessment (pre). An example item is: "My partner insulted or swore at me." The coefficient alpha for these eight items at pretest was .82. The same eight items were administered at posttest with the instructions to consider only disagreements that had occurred since completing the initial survey. The coefficient alpha for these eight items at the post-program assessment was .85.

Physical Violence Perpetration Items Two items were used to assess perpetration of physical violence against a partner. These items were derived from the CTS2 (Straus et al. 1996) and were administered in the pre and post-assessment packages. Item one asked each girl to indicate if she had

Table 1 A comparison of the demographics of female adolescents randomly assigned to the control or prevention program conditions and a comparison of female adolescents who successfully completed the control or the prevention program conditions

	Condition to which randomly assigned		*t*-test	*p*
	Program *n*=39	Control *n*=33		
Measure				
Mean age—self	17.0 (1.9)	17.4 (1.4)	<1	
Mean age—partner	19.9 (32.8)	20.2 (3.4)	<1	
Race				
African American	97.4%	87.9%	3.06	.22
White	2.6%	6.1%		
Other	–	6.1%		
Family income				
<$10,000	64.3%	73.9%	<1	
$10,000 to 50,000	35.7%	26.1%		
Mean relationship satisfaction	3.7 (1.4)	3.4 (1.4)	<1	
	Condition successfully completed			
	Program *n*=24	Control *n*=23		
Mean age—self	16.9 (2.0)	17.4 (1.2)	<1	
Mean age—partner	19.1 (2.3)	20.3 (3.4)	−1.21	
Race				
African American	100%	87.0%	3.34	.19
White	–	8.7%		
Other	–	–		
Family income				
<$10,000	62.5%	68.8%	<1	
$10,000 to 50,000	37.5%	31.3%		
Mean relationship satisfaction	4.0 (1.2)	3.2 (1.6)	1.76	.09

done any of the following to her baby's father or her current romantic partner (if different people) during a disagreement in the 6 weeks prior to the initial assessment (at pretest) or in the 6 weeks since the pretest (at posttest): threw something that could hurt them, twisted their arm or hair, pushed or shoved them, grabbed them or slapped them. Item two asked each girl to indicate if she had perpetrated any of the following more severe acts of violence toward her baby's father or her current romantic partner during a disagreement in the 6 weeks prior to the initial assessment (at pretest) or in the 6 weeks since completing the preprogram survey (at posttest): punched them or hit them with something that could hurt, choked them, slammed them against a wall, beat them up, burned or scalded them, kicked them, or used a knife or gun on them.

Physical Violence Victimization Items The two physical violence items were also used to assess physical victimization at the hands of the baby's father/current romantic partner. These items were derived from the CTS2 (Straus et al. 1996) and were administered in both the pre- and the post-assessment packages. The participant indicated if the baby's father/current romantic partner had done any of the mild or severe violent behaviors toward her; in the 6 weeks prior to the initial assessment (at pretest) or in the 6 weeks since completing the pretest (at posttest).

Experiences in Close Relationships (ECR; Brennan et al. 1998) The ECR is a 36-item self-report instrument that measures two 18-item dimensions of adult attachment: avoidance (e.g., I prefer not to show a partner how I feel deep down) and anxiety (e.g., I worry about being abandoned). Participants indicated their agreement with each statement on a 7-point scale from strongly disagree to strongly agree. Internal consistency in the current sample was good (i.e., Cronbach's alpha of .90 for the anxiety subscale and .82 for the avoidance subscale).

Treatment Fidelity

Program implementation was facilitated in several ways. First, all intervention components were manualized to facilitate uniform delivery. Second, all the intervention groups were conducted by the same clinical psychologist who was an original developer of the BALL curriculum. Third, all sessions were taped and treatment fidelity measures were obtained by having two trained graduate student coders rate audiotapes of each session by designating whether or not a

topic or activity was adequately presented in the session. Ten groups (program participants and waitlist control participants) were conducted over an 18-month period, with six codeable elements in Session One, four codeable elements in Session Two, six codeable elements in Session Three, and six codeable elements in Session Four. Example elements include the completion of an exercise to differentiate healthy from unhealthy relationships, choosing a relationship-oriented behavioral goal, and teaching a particular strategy for handling difficult emotions.

Results

Prevention Program Fidelity Data

Two tapes of Session One were uncodeable due to mechanical difficulties, leaving a total of eight Session One tapes with six codeable elements per tape (total elements = 48). Two independent raters determined that these components were adequately delivered 96% of the time (with 100% agreement in codes). Session Two had 40 possible codeable elements across ten recorded group sessions, with 92.5% of these elements coded as delivered by two independent raters (92% agreement in codes). Session Three had 54 codeable components across nine recorded groups (one session was not recorded because of mechanical problems). These components were coded as adequately delivered 91% of the time with 92% agreement in codes across the two independent raters. Finally, Session Four had 60 codeable elements across 10 recorded group sessions. Two coders concluded that these elements were covered 97% of the time (with 98% coding agreement between the raters). These findings suggest that the prevention program components were presented with a high degree of fidelity.

Who Completed the Program?

Of the 39 girls randomly assigned to the treatment condition, five completed the pre-assessment survey but never attended any intervention sessions. Six more girls completed just one session of the intervention; however, five of these six girls did not complete a post-packet for variety of reasons (e.g., murder of a family member, premature delivery of a special needs baby). All of the 28 remaining girls (72%) completed the prevention program, as defined by attending 50% or more of the sessions. However, the data from three of these girls were dropped because of obviously invalid answers on either the pre- or the post-assessment survey (e.g., answering all 5's on instruments with some items that should be reverse scored), and one girl failed to complete the post-assessment even though she completed the treatment. All four of these dropped participants had completed all four sessions of the BALL program. Thus, the final completed treatment sample consisted of 24 girls (10 completed all four sessions, 8 completed three sessions, and 6 completed two sessions). Of those completing only two sessions, the modal pattern was to complete Session One and Session Four (four of the six girls).

Of the 33 girls randomly assigned to the waitlist control condition, 25 completed both the pre- and the post-assessment package (76%). Unfortunately, however, two of these girls attended the first treatment session although they were assigned to the control group. Data from these two girls were dropped leaving a final sample of 23 girls in the control group. Six of the girls who completed the control condition then chose to attend the intervention program (26% of sample). Of these six, 100% completed two or more sessions of the program. As shown in Table 1, there were no significant race, income, age, or relationship satisfaction differences between girls who were assigned to the prevention program versus the waitlist control conditions. There were also no statistically significant differences between girls who successfully completed the prevention program as opposed to those who completed the waitlist control condition.

A comparison of the 24 girls who completed the treatment to the 15 who were randomly assigned but did not complete the prevention program (noncompleters) revealed no significant age, race, income, or relationship satisfaction group differences. However, there was a significant tendency for girls who did not complete the program to have older men fathering their babies (21.1 years old, SD=3.16) than for girls who did complete the program (19.09 years old, SD=2.30); $F(1, 35)=5.24$, $p<.05$, $\eta^2=.13$. No significant demographic differences were found between girls who did or did not complete the control condition.

Did Participation in BALL Reduce the Girls' Perpetration of Psychological Abuse?

A two group (completed program n=24 versus completed waitlist control n=23) by two occasion of measurement (pretest versus posttest) ANOVA was conducted with the perpetrating psychological abuse mean score as the dependent variable. Results revealed, as predicted, an overall group by occasion of measurement interaction effect, $\Lambda=.92$, $F(1, 45)=3.92$, $p=.05$, partial $\eta^2=.08$. There was no overall main effect for time, $\Lambda=.99$, $F(1, 45)=.31$, $p=.58$, nor for treatment condition, F (1, 45)=.16, $p=.69$. As predicted, girls who completed the BALL program reported perpetrating significantly less psychological aggression toward their baby's father over time (8.0 at pretest versus 5.38 at posttest), whereas girls in the waitlist control

group reported increases in their psychological aggression perpetration toward their baby's father across the same time period (6.74 at pretest versus 8.22 at posttest). An intent-to-treat analysis with all participants with valid pre and post data (n=52, n=27 treatment participants and n=25 control participants) indicated that the significant group by occasion of measurement interaction effect was reduced to a trend, Λ=.94, F (1, 50)=3.27, p=.08.

Did Participation in BALL Reduce Perpetration of Mild and Severe Physical Violence?

As shown in Table 2, chi-square analyses were conducted to compare reports of perpetrating mild physical abuse during the 6 weeks after the pre-assessment for program versus control group women. Only one woman completing the treatment condition (total n=22) reported perpetrating mild physical abuse while she was in the program; three control group women reported mild physical abuse during the same time period. This difference was not statistically significant, X^2 (44)=1.10, p=.30. However, computing an Arcsine D revealed a small to medium effect size of .33. Intent-to-treat analyses revealed the same pattern X^2 (52)= 1.45, p=.23.

This pattern was also identical to what was found for reports of perpetrating severe violence. One woman from the BALL group reported perpetrating at least one act of severe violence while in the program compared to three women from the control group (D=.33, indicating a small to medium effect size). The intent-to-treat analyses for this variable were also identical to what was reported for perpetrating mild physical violence, X^2 (52)=1.45, p=.23.

Did Participation in BALL Reduce Victimization from Psychological Abuse?

A two group (completed BALL prevention program versus completed waitlist control) by two occasion of measurement (pretest versus posttest) ANOVA was conducted with the mean psychological abuse victimization by partner score as the dependent variable. Contrary to expectation, the overall group by occasion of measurement interaction effect was not significant, Λ=.99, F(1, 45)=.61, p=.44 . There was no overall main effect for time, F<1, nor for treatment condition, F<1. However, the means were in the expected direction. Reported victimization from psychological abuse decreased across time for the treatment group (pretest was 6.50 and posttest was 5.42) and increased for the control group (pretest was 4.96 and posttest was 5.35). Conducting an intent-to-treat analysis with these data also yielded non-significant interaction effects.

Did Participation in the BALL Program Reduce Victimization from Mild and Severe Physical Violence from the Baby's Father?

Three girls (13.0%) who completed the BALL prevention program reported experiencing mild physical violence from their baby's father in the time period since the pretreatment assessment. In contrast, six girls (26.1%) who completed the waitlist control condition reported experiencing mild physical violence from their baby's father over the same time period. This difference failed to reach statistical significance, X^2 (46)=1.24, p=.23; however, the effect size was small to medium, D=.33. Intent-to-treat analyses also revealed very similar non-significant findings, X^2 (54)<1, p=.27.

However, as predicted, a chi-square analysis revealed a significant difference in the amount of severe victimization reported by women who completed BALL as compared to women completing the control condition, X^2 (45)=4.98, p=.03. The effect size for this analysis was .70 or medium-large. Only two women in BALL program reported experiencing severe violence by their baby's father across the course of treatment compared to eight women in the control group over the same time period.

Table 2 Post-program differences between program completers and control participants on reported experiences of physical aggression perpetration and victimization

Measure	Program completers	Control participants			Effect size
	Post	Post	X^2	p	D
Mild physical violence perpetration	4.5% n=22	16.3% n=22	1.10	.30	.33
Mild physical violence victimization	13.0% n=23	26.0% n=23	1.24	.23	.33
Severe physical violence perpetration	4.3% n=23	13.6% n=22	1.20	.29	.34
Severe physical violence victimization	8.7% n=23	36.4% n=22	4.98*	.03	.70

*p<.05. N's vary slightly across analyses due to missing data

Intent-to-treat analyses indicated that this finding was reduced to a trend, X^2 (53)=2.86, p=.09.

Might Attachment Style Moderate the Effectiveness of the BALL Prevention Program?

As a test of Hypothesis Two, correlations between levels of anxious or avoidant attachment and changes in levels of psychological abuse perpetrated or experienced from pre to post assessment were computed for women who participated in the BALL program. To facilitate direct comparison, these correlations were also computed for women in the waitlist control condition, even though these untreated women were not expected to have meaningful change scores. As shown in Table 3 and as predicted, significant correlations were obtained between preprogram reports of avoidant attachment and changes in psychological abuse perpetrated and experienced over time by women randomly assigned to the BALL prevention program. Specifically, higher levels of avoidant attachment to one's romantic partner was associated with less change in the amount of psychological abuse perpetrated (r=−.45, p<.05) and experienced by BALL participants (r=−.47, p<.01). Anxious attachment was not significantly related to changes in psychological abuse perpetrated or experienced. No significant correlations were obtained between attachment style and changes in psychological abuse experiences for women in the waitlist control condition.

One additional significant correlation was obtained such that higher levels of anxious attachment were related to continued reports of severe perpetration during treatment for the whole sample of women randomly assigned to the BALL program (r (29)=.34, p=.035). However, this correlation was reduced to non-significance when considering only the women who successfully completed the BALL treatment (r (22)=.09, p=.34). No other correlations between attachment style and physical violence perpetration or victimization during treatment were significant for either women assigned to the treatment program or completing the treatment program (all r's <.22) or women in the control group (all r's <.21).

Discussion

This study utilized an experimental design to evaluate the efficacy of an IPV prevention program, Building a Lasting Love (BALL, Langhinrichsen-Rohling et al. 2005). BALL was designed to teach healthy relationship skills to high-risk adolescent girls who were experiencing a teen pregnancy. The program curriculum emphasized the importance of nonviolent relationships, helped identify signs of healthy and unhealthy relationships, taught essential communication and conflict management skills, promoted emotional regulation, and helped with coping, stress, and time management.

Findings indicate that the program had some impact on these women's IPV and their relationships. Specifically, there was a significant reduction in the psychological abuse perpetrated by the women who successfully completed the BALL program compared to women randomly assigned to the waitlist control condition. Additionally, at the end of the program, a lower percentage of girls in BALL reported being severely physically victimized by their baby's father than waitlist control group girls. The effect size for this analysis was medium-large. Non-significant but small-to-medium effects were obtained for reductions in mild physical victimization and mild and severe physical perpetration. Intent to treat findings indicated that these results were weakened by including women who did not complete at least 50% of the treatment, a result that highlights the importance of retaining high-risk women in treatment programs in order to enhance their efficacy.

Table 3 Correlations among anxious and avoidant attachment styles and changes in levels of perpetration and victimization of psychological abuse in women who completed the prevention program versus women who completed the control condition

	Change in perpetration of psychological abuse	Change in victimization from psychological abuse
Program completers		
n=24		
Levels of anxious attachment	−.31$^{p=.07}$	−.07
Levels of avoidant attachment	−.45*	−.47**
Wait-list control participants		
n=23		
Levels of anxious attachment	−.06	−.19
Levels of avoidant attachment	−.16	−.00

*p<.05; **p<.01

Another consideration addressed in this project was whether the BALL program could be delivered with adequate fidelity in this real-world setting. As hypothesized, fidelity data substantiated that the key elements were delivered consistently across ten prevention program groups. Use of a treatment manual, as well as session-specific workbooks aided this effort as did reliance on the same experienced group leader to deliver all the sessions. Future dissemination research will be needed to determine how effective the program is when it is delivered by agency staff already in place. A multi-model, multi-informant assessment strategy would also be a design improvement.

An additional factor when directing a prevention program to a relatively transient high-risk sample is the degree to which the program can retain participants. In the current study, program completion, defined as attendance to two or more of the four BALL sessions, was achieved by 28 of 39 women, or 72% of the sample. Similarly, 70% of the women randomly assigned to the waitlist control condition successfully completed the post-assessment. Whereas the retention rate for both conditions was similar and is comparable to an effectiveness study of the Strengthening Washington DC Families Project that was conducted with urban, primarily African American families (Gottfredson et al. 2006), further work should be conducted to determine the most important factors influencing program attendance and retention, particularly since the intent-to-treat analyses utilized in this study indicate that session attendance is related to better outcomes.

It is worth noting that one significant demographic difference emerged between program participants who completed the BALL program versus program noncompleters. At the initial assessment, program noncompleters indicated they were having a baby with a significantly older man than were program completers. The current study was not designed to determine how participation in the BALL program was impacted by the father of the baby. However, previous research has shown that participation in dating violence prevention programs is influenced by participants' perceptions of their susceptibility to future violence and the participation benefits they expect to receive (Cornelius et al. 2009). It is possible that the age of the baby's father is related both to perceptions of violence susceptibility and to perceived benefits from the BALL program; it may also be related to the teen mother's perceptions of her autonomy in attending a relationship-related intervention. Future research will be needed to determine this. Future research will also be needed to test an implicit assumption of the current program, which is that experiencing an adolescent pregnancy constitutes an opportune intervention point for high-risk women.

Program participants encountered a number of stressful events that hampered their program participation including: pregnancy complications, hurricane-related damage to the teen center's transportation system, eviction and loss of phone contact, crime victimization, death of relatives, and the loss or imprisonment of their baby's father. Not surprisingly, BALL program staff expended considerable energy in order to retain participants. These efforts included: utilizing a relatively brief and engaging intervention, making weekly check-in calls to confirm attendance, providing door-to-door transportation to the program, offering free child care, and offering incentives for completion of the pre- and post-assessment packages. Consequently, this study consisted of an optimized delivery of the BALL program in a real-world setting. Research by Rohrbach et al. (2007) with a trial of Project Towards No Drug Abuse (TND) demonstrated that motivated and well-trained school staff could deliver their prevention program with results similar to those of outside program specialists. Consequently, it is hoped that the natural delivery of the BALL program by trained agency staff will also be successful. Future research will be needed to determine this as well as to consider which of the presented program elements are necessary for violence reduction and prevention programs.

As with many prevention program evaluation studies, this research has limitations. The current study design did not allow a determination of the features of the prevention program that were the most effective. In addition, the small sample size and the resulting low power precluded a full analysis of potential mediators or moderators of the obtained treatment effects. Mediators that were targeted in the BALL program included helping participants reduce their use of destructive communication and psychologically aggressive escalation/blame strategies (Josephson and Proulx 2008). The women's self-reported attachment styles to romantic partners were also considered and self-reported attachment styles were found to be related to the amount of change the women in the treatment group experienced. Higher levels of avoidant attachment to a romantic partner were associated with less change in the amount of psychological abuse experienced and perpetrated by participants over the course of the program. Conversely, for women assigned to the BALL treatment group, an anxious attachment style reported at the pre-assessment was associated with continued reports of severe physical victimization from a partner at the end of treatment. However, this finding did not hold in women who completed the BALL treatment. One possible explanation for this pattern of results is that some of the women who failed to complete the BALL treatment were self-reporting both high levels of anxious attachment to the fathers of their baby and yet were also perpetrating severe physical violence toward this partner; this combination may relate to their non-retention in the program. Replication of these results will be essential. These

findings highlight the importance of assessing and addressing the dynamics and connections these women have to their romantic partner as they may affect both involvement and alliance with a group intervention as well as the likelihood of obtained benefit from the curriculum.

Finally, although this study did utilize a pre- and post-program assessment design, future research should collect additional longitudinal data to determine the degree to which any obtained program-related effects are maintained over time. Future investigations are also needed to replicate and determine the generalizability of these findings to other geographic locations, settings, and types of at-risk or high-risk youth; these future investigations would also benefit from using a multi-modal, multi-method assessment strategy and including measures that had greater numbers of items, increased reliability, validity, and stability. These and other important considerations when evaluating a dating violence prevention program were cogently articulated by Pittman et al. (2000).

Implications for Prevention Research

Nonetheless, these findings have implications for the design, development, and implementation of prevention programs with at-risk and high-risk groups, a need identified by Whitaker and colleagues (2006) in their critical review of existing IPV interventions. Effective cost-efficient programs must be directed to youth at risk (Dembo and Walters 2003) because evidence suggests that even universal programs may be most effective with high-risk youth (The Multisite Violence Prevention Project 2008). The need to direct effective prevention programs toward youth living in economically disadvantaged urban areas is especially acute (August et al. 2003) as the barriers faced by program participants and program implementers (e.g., recruitment and retention challenges, agency instability) can be formidable (Gottfredson et al. 2006). In fact, much more is known about prevention programs that are delivered under uniform conditions (i.e., efficacy trials) than real-world settings (i.e., effectiveness trials); yet, this later work is essential to guarantee that well-designed prevention programs are disseminated, implemented, and ultimately sustained within the community (Rohrbach et al. 2010).

Prevention programs targeted to high-risk populations are also important because most dating violence victims and perpetrators do not seek help (Ashley and Foshee 2005). Thus, targeted prevention programs may serve a dual purpose (i.e., providing a platform for already troubled youth to receive help while simultaneously preventing the initiation of a problem behavior in those with a number of known risk factors). This study demonstrates the potential of a brief, targeted prevention program to decrease psychological abuse perpetration and reduce IPV victimization in the relationships of high-risk girls. Given that program participants were experiencing a teenage pregnancy, it is also hoped that programs like this may also have the potential to have intergenerational effects, in that less IPV will be witnessed by the program participant's soon-to-be born children.

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