

2017

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Christie J. Rizzo

Meredith C. Joppa

David Barker

Caron Zlotnick

Justine Warren

See next page for additional authors

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Rizzo, C. J., Joppa, M. C., Barker, D., Zlotnick, C., Warren, J., Cadely, H. S.-E., & Brown, L. K. (2017). Individual and Relationship Characteristics of Adolescent Girls With Histories of Physical Dating Violence. *Journal of Interpersonal Violence*. <https://doi.org/10.1177/088626051769685>
Available at: <http://dx.doi.org/10.1177/0886260517696859>

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Authors

Christie J. Rizzo, Meredith C. Joppa, David Barker, Caron Zlotnick, Justine Warren, Hans Saint-Eloi Cadely, and Larry K. Brown

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Violence

Christie J. Rizzo, Ph.D. ^a, Meredith C. Joppa, Ph.D. ^d, David Barker, Ph.D. ^b, Caron Zlotnick,
Ph.D. ^c, Justine Warren, B.A. ^b, Hans Saint-Eloi Cadely, Ph.D. ^e and Larry K. Brown, M.D. ^b

^a Department of Applied Psychology, Bouvé College of Health Sciences, Northeastern
University, Boston, MA

^b Bradley/Hasbro Children's Research Center/Rhode Island Hospital and the Warren Alpert
Medical School of Brown University, Providence, RI

^c Butler Hospital and the Warren Alpert Medical School of Brown University, Providence, RI

^d Department of Psychology, Rowan University, Glassboro, NJ

^e Department of Human Development and Family Studies, University of Rhode Island, Kingston,
RI

Correspondence: Christie J. Rizzo, PhD, Department of Applied Psychology, Northeastern
University, 306 Huntington Ave., Boston, MA 02115. Email: c.rizzo@neu.edu

Word Count: 5,017; 25 pages, 2 tables, 1 figure

No financial disclosures were reported by the authors of this paper.

Individual and Relationship Characteristics of Adolescent Girls with Histories of Physical Dating Violence

Adolescents may experience dating violence (DV) through forms of psychological (disparaging and/or controlling behaviors), physical (physically attacking one's partner), and/or sexual abuse (forced sexual contact towards one's romantic partner) (Wolfe et al., 2001). Over the past 15 years, mounting research has documented the high rates of DV and its associated negative outcomes. For instance, Silverman, Raj, Mucci, and Hathaway (2001) showed that approximately 20% of adolescent girls in their sample experienced physical and/or sexual abuse by their dating partner. Additionally, the Centers for Disease Control and Prevention (CDC) indicated that 9% of adolescents were victimized by physical DV within the 12 months before data collection (CDC, 2014). To date, many community and school-based studies have focused on identifying the correlates and predictors of DV to inform the development of primary prevention programs. Although studies have consistently reported both similar and higher rates of non-sexual DV for females compared to males, girls are more likely to fall victim to physical injury and experience psychological consequences from DV exposure (Archer, 2000, 2002). Hence the present study focuses on the characteristics of adolescent girls who were exposed to physical DV either as victims, perpetrators, or both. Existing population-based studies, where a subset of participants has experienced DV in the past year or over their lifetime, have largely focused on individual factors (i.e., DV attitudes, depression, and delinquency) and to a lesser extent relational factors (i.e., relationship length, break-up, sexual activity, condom self-efficacy, and sexual knowledge) that may relate to DV involvement. However no studies to date have used temporal assessment strategies, such as calendar methods, to examine how types of DV experiences relate to both individual and relational factors in the affected group. Additionally, it

is investigated whether the characteristics reported by adolescent girls with a history of DV differ based on the type of violence experienced (e.g., psychological vs. physical/sexual violence). Understanding these associations and may provide implications for prevention and intervention programs in order to more effectively reach adolescent girls actively involved in abusive relationships.

Individual Characteristics

The relationship between DV and acceptance of DV among adolescents and young adults is well-documented. Specifically, perpetrators and victims of DV are likely to justify the use of violence depending on the circumstance such as if one is challenged to a fight and/or humiliated by one's romantic partner (Brendgen, Vitaro, Tremblay, & Wanner, 2002; Foo & Margolin, 1995; Litcher & McCloskey, 2004; Miller, Gorman-Smith, Sullivan, Orpinas, & Simon, 2009; Orpinas, Hsieh, Song, Holland, & Nahapetyan, 2013; Williams, Connolly, Pepler, Craig, & Laporte, 2008). From a social-cognitive perspective (Bandura, 1978, 2001), aggression is a behavior learned from the benefits and consequences gained after its enactment. Within the context of romantic relationships, adolescents with a history of DV may continue their involvement in an aggressive relationship if acting out with such behaviors previously led to optimal outcomes for the perpetrator (e.g., the victim giving in to the perpetrator's demands). The victim may also learn that engagement in DV is an acceptable means of dealing with conflicts. Under this logic, adolescent girls in the present study are expected to endorse positive attitudes about the use of violence in romantic relationships. However since attitudes can change based on experience, it is examined whether the presence and type of DV is related to concurrent levels of DV acceptance.

Another aspect to consider is the role of depression among adolescents with a history of DV. Past studies suggest that levels of depressive symptoms are generally higher among adolescents who perpetrated and/or were victimized by dating aggression (Ackard & Neumark-Sztainer, 2002; Champion, Collins, Reyes, & Rivera, 2009; Chase, Treboux, & O'Leary, 2002; Exner-Cortens, Eckenrode, & Rothman, 2013; Rich, Gidycz, Warkentin, Loh, & Weiland, 2005). Social-cognitive models of depression generally suggest that negative interpersonal experiences and individuals' interpretations of these experiences can lead to depressive symptoms (Cicchetti & Schneider-Rosen, 1984; Rudolph & Hammen, 1999; Sroufe & Rutter, 1984). Although perceptions of experiences are not assessed in the present study, it can be argued that experiencing DV can be traumatic for adolescents and can understandably lead to negative interpretations about themselves and/or their relationships. Such interpretations can also contribute to feelings of depression. Reports of depression may also continue over time after initial exposure to DV. Sussex & Corcoran (2005) indicated that teen mothers in violent dating relationships reported higher levels of depression that were sustained even after relationship violence has ceased. Moreover, depression can also serve as a precipitant to DV exposure. For instance, a 5-year longitudinal study in high schools found that girls with more days in depressive episodes were more likely to suffer later psychological and physical abuse victimization by boyfriends over the follow-up period (Rao, Hammen, & Daley, 1999). Although the contribution of prior DV experiences were not accounted for, the authors note that depression was likely both a contributor and an outcome of the relationship problems. In a prospective study of adolescent females, depressive symptomatology yielded an 86% greater likelihood of physical abuse victimization by an intimate partner 5 years later (Lehrer, Buka, Gortmaker, & Shrier, 2006). These findings remained significant when childhood physical and sexual abuse as

well as prior dating violence experiences were controlled. Elevated depression among adolescent girls has also been found to predict violence perpetration toward their dating partners (Capaldi & Crosby, 1997; McCloskey & Lichter, 2003). Thus, adolescent girls' depression appears to be an important individual-level risk factor for DV perpetration, as well as both a risk and consequence of DV victimization. Since depression is episodic in nature, the presence and type of DV may relate to concurrent levels of depressive symptoms.

It is also possible for adolescents with a history of DV to have a history of deviant behaviors. Deviant behaviors (i.e., delinquent acts involving aggression) can best be described as behaviors that can cause psychological and/or physical harm to adolescents' well-being (Vézina et al., 2011). According to problem-behavior theory (PBT), deviant behaviors may covary across domains and therefore should be regarded as a constellation of risk behaviors as opposed to being investigated as specific conduct problems perpetrated in a particular context (Jessor, 1991). From this perspective, it may be argued that DV perpetration, when not enacted as self-defense, is a type of aggressive delinquency that ought to be examined along with other forms of deviant behaviors. In support of this logic, past studies suggest that adolescents who perpetrate and/or are victimized by physical DV are likely to engage in various forms of delinquent behaviors involving aggression ranging from carrying a weapon to perpetrating physical violence toward a peer (Brendgen et al., 2002; Chiodo et al., 2012; Ozer, Tschann, Pasch, & Flores, 2004; Simons, Lin, & Gordon, 1998; Vézina et al., 2011; Williams et al., 2008). Additionally, Williams and colleagues (2008) indicated that adolescents who possess attitudes that are accepting of aggression may follow a "delinquency trajectory" whereby aggressive behaviors in romantic relationships are on-going and co-occur with aggressive behaviors in other contexts. Therefore, delinquent acts involving aggression are expected to serve as a characteristic for adolescent girls

previously involved in an aggressive relationship. It is also examined whether the type of DV experienced is related to active delinquent behaviors.

Relational Characteristics

Findings from the CDC (2008) reveal that female victims of intimate partner violence have a 3-fold increased risk for HIV or sexually transmitted infections (STIs). Previous studies of intimate partner violence among adults have found a significant association between violence victimization and exposure to sexual risk behavior (Eby, 1995; Wingood & DiClemente, 2000). Emerging research has also revealed a significant relation between dating violence and sexual risk behaviors in adolescence (see Teitelman, Dichter, Cederbaum, & Campbell, 2007 for a review). Among adolescent girls, DV contributes to several HIV sexual risk behaviors including condom non-use, having multiple partners, and alcohol use prior to sexual encounters (Wingood, DiClemente, McCree, Harrington & Davies, 2001; Roberts, Auinger, & Klein, 2005; Silverman et al., 2001). A number of investigators have found physical dating violence to be associated with the failure to use a condom during the most recent sex (Wingood, DiClemente, McCree, Harrington & Davies, 2001), as well as inconsistent condom use (Roberts, Auinger, & Klein, 2005). In one investigation, verbal abuse was found associated with decreased condom use (Silverman et al., 2001). Silverman and colleagues also found physical DV victimization to be associated with an increased risk for pregnancy and younger age of first intercourse. The link between DV exposure and sexual risk behavior has important health implications for adolescents, particularly females; 1 in 4 sexually active adolescent females have a sexually transmitted disease, such as chlamydia or human papillomavirus (HPV) (Forhan, Gottlieb, Sternberg, Datta, McQuillan, et al., 2009). The disproportionately high rates of sexually transmitted infections (STIs) among adolescent girls are important because the presence of STIs

is known to facilitate HIV transmission. Despite the public health significance of these associations, relatively little is known about the sexual knowledge and attitudes of DV-exposed girls. Studies of other high-risk groups of adolescents have found relatively low levels of HIV knowledge coupled with low self-efficacy to negotiate condom use with their dating partner (Brown et al., 2014; Wingood et al., 2001). Thus, a goal of the current study is to characterize rates of sexual activity, unprotected sex, HIV knowledge and self-efficacy for condom use among this selected sample of DV exposed girls and to determine if sex-related attitudes, knowledge and behavior relate to DV experiences.

Like sexual behavior, relationship structure is another important characteristic of dating partnerships that may be different for DV-exposed girls and linked with acute DV experiences. Given the typical short length of adolescent romantic relationships (Carver, Joyner, & Udry, 2003; Connolly & McIsaac, 2009), it is critical to understand the influence of change in dating partner on adolescent DV. If the relationship is violent, a longer partnership may lead to a continuation of DV, and may even increase the likelihood of more severe violence due to an increased opportunity for such behaviors to take place. Also, the amplified intensity and intimacy that emerges in a long-term partnership could lead to more violence. In accordance with systems theory, violence can become a normative pattern among couples who remain together after the first occurrence of such behaviors (Giles-Sims, 1983). However, a relationship break-up may disrupt such a pattern which in turn can lead to change in the behaviors enacted within the relationship (Whitchurch & Constantine, 1993). Stability in physical DV (perpetration and victimization) has been shown among adolescent (Fritz & Slep, 2009; Giordano, Soto, Manning, & Longmore, 2010; O'Leary & Slep, 2003) and young adult couples (Capaldi, Shortt, & Crosby, 2003) who remain with the same romantic partner over time. Capaldi and colleagues also

showed an increase in perpetrating physical aggression among young men who stayed with the same romantic partner across a two-year interval. Therefore, relationship stability is expected to serve as an important relational characteristic among adolescent girls previously exposed to DV. Since more time with a dating partner creates increased opportunities for coercive relationships to become physically violent, it is also expected that physical violence will be associated with more days in that relationship.

One factor that has greatly reduced researchers' ability to examine the actual length of violent dating relationships has been the reliance on survey methods that aggregate the frequency of violence experienced over a particular timeframe (often past year or lifetime). For example, the most widely used instrument for the estimation of the prevalence and incidence of dating violence is the *Conflict in Adolescent Dating Relationships Inventory* (CADRI; Wolfe et al., 2003). The CADRI measures victimization and perpetration behaviors in conflict situations during the past year. Adolescents must aggregate their experiences both over time and across partners to generate an estimate of frequency. As a result, the timing of abuse experiences cannot be discerned, nor can the presence of abuse in one versus multiple relationships. Details regarding the timing of violent experiences (on what days and when) could provide valuable information about factors that might be related to the occurrence of dating violence (Fals-Stewart, Birchler, & Kelley, 2003). Thus in the current study participants were to complete the CADRI for each of up to three dating partners in the past 90 days. Then an adapted Timeline Followback (TLFB) interview was administered to document the exact timing of each individual dating relationships, including break-ups and concurrency. This approach will allow us to combine partner-specific DV information from the CADRI with partner-specific temporal data from the TLFB to establish which relationships were actively violent.

In summary, the present study builds on the current literature by examining the individual (acceptance of DV, depression, and delinquency) and relational (length, break-ups, sexual activity, condom self-efficacy, and sexual knowledge) characteristics of adolescent girls with a history of physical DV perpetration and/or victimization. We aim to fill a gap in the existing literature by utilizing partner-specific, temporal data to explore links between these factors and acute DV experiences. The noted above characteristics will be examined for perpetration and victimization combined as mutual violence is common among adolescents (Ackard & Neumark-Sztainer, 2002; Cano, Avery-Leaf, Cascardi, & O'Leary, 1998; Connolly, Friedlander, Pepler, Craig, & Laporte, 2010; Exner-Cortens et al., 2013; O'Leary & Slep, 2003). Furthermore, there is reason to believe that the experience of verbal abuse and controlling behaviors (i.e. psychological abuse) when unaccompanied by physical or sexual violence may be qualitatively different than concurrent psychological, physical, and sexual abuse (Jouriles, Garrido, Rosenfield, & McDonald, 2009; Silverman et al., 2001). Indeed, these forms of DV are associated with their own set of negative psychosocial outcomes (Holt & Espelage, 2005; Lawrence, Yoon, Langer, & Ro, 2009; Silverman et al.). We therefore plan to examine relationships with psychological and physical/sexual abuse separately. Lastly, analyses will be compared across race and SES given that minority adolescents and adolescents from lower SES backgrounds have been found more likely to be involved in an aggressive relationship (Aldarondo & Sugarman, 1996; Caetano, Field, Ramisetty-Mikler, & McGrath, 2005; Holt & Espelage, 2005; O'Keefe, 1998).

METHOD

Participants & Procedures

Data were collected as part of a randomized controlled trial designed to evaluate the efficacy

of an intervention to reduce dating violence and sexual risk behaviors among adolescents with histories of physical dating violence perpetration and/or victimization (Project Date SMART). Although the participants were followed over time, only the baseline data were used for the current study.

Female high-school students ($n = 655$) were approached during their health and physical education classes. Teens were given a presentation regarding the study and were provided with parental consent forms that gave permission to complete a screening questionnaire at school. Confidential drop boxes were placed in the high schools for students to return completed consent forms. Students were compensated \$5 for returning the consent forms, regardless of their parent's decision regarding participation. Participants who returned parental consent forms indicating permission to be screened were assessed for lifetime physical abuse perpetration and victimization utilizing items from the *Conflict in Adolescent Relationships Inventory* (CADRI) (Wolfe et al., 2001) in order to determine eligibility. Youth who screened positive for a history of physical DV perpetration or victimization were contacted by phone and offered the opportunity to enroll in the study. Parental consent for participation in the full study, separate from the screening consent, was obtained once the teen expressed interest in participating. Once informed consent was obtained, participants' completed a survey, administered using audio computer-assisted structured interviews (ACASI) on laptop computers. The teen assessment also included a timeline follow-back interview with a trained research assistant to track DV and sexual behavior. Teens received \$20 for completing the assessment.

The self-report surveys administered did not gather adequate information to establish whether or not any participant was at imminent risk of life-threatening dating violence; however all families were aware that if any teen spontaneously shared information during the assessment

interviews or group sessions which indicated that the teen was at imminent risk of life-threatening dating violence (e.g., threat made on their life), that information would be immediately shared with the teen's parent or guardian. This procedure was explained in full to families prior to obtaining their consent to participate. Furthermore, this study was approved by the affiliated Hospital Institutional Review Boards.

The participants include female high-school students (ages 14-17) enrolled in five public high schools in the urban areas surrounding Providence, Rhode Island. The average age of participants at baseline was 15.75 years ($SD = .94$). During the three-year recruitment period, 358 girls were screened for a history of physical DV perpetration or victimization. Of those, 144 were found eligible to participate in the study based on their history of physical DV and 109 ultimately participated. Self-reported ethnicity and race among the sample was 50% Hispanic; 35% African American, 22% White, 8% American Indian, and 3% Asian; participants were able to endorse multiple options for race and ethnicity. Regarding family structure, 96% reported having a mother figure at home and 62% reported having a father figure at home. Participants reported on their eligibility for free or reduced-price school lunch, which was examined as a measure of socioeconomic status; 81% reported that they currently qualified for free or reduced-price lunch.

Measures

The screening survey gathered data on lifetime experiences. All other measures assessed solely the past 90 days.

Individual Characteristics

Acceptance of Couple Violence Questionnaire (ACV; Foshee, Fothergill, & Stuart, 1992).

This questionnaire was developed to assess beliefs and attitudes about couple violence among

adolescents and has been validated in longitudinal studies of adolescent dating violence behavior (Foshee, Fothergill, & Stuart, 1992). Participants rated how much they agree with a series of statements about DV on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*), with higher scores indicating greater acceptance of couple violence. A mean ACV score for acceptance of general dating violence was computed for each participant by averaging across the 11 items. Internal consistency for this measure was excellent (Cronbach's $\alpha = .90$).

The Beck Depression Inventory – II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a 27-item self-report instrument intended to assess the existence and severity of symptoms of depression during the most severe lifetime episode, according to the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV) (APA, 2000). The BDI-II has shown excellent internal consistency ($\alpha = .93$ for the college students) and validity. In the present study, scores on each BDI item were summed to create a total score.

Shortened Peer Delinquency Scale (SPDS; Moffitt & Silva, 1988). The SPDS is a self-report questionnaire that includes 16 items covering a range of deviant acts (e.g. running away, stealing). Participants were asked to rate the frequency of their engagement in each deviant act in the past 3 months on a scale of 0 (“never”), 1 (“once or twice”) or two (“three or more times”). Internal consistency is good ($\alpha = .86$) Moffitt & Silva, 1988). In the present study, we computed a count for number of aggressive delinquent behaviors endorsed by each participant from the following five items: getting in a physical fight, beating someone up, bringing a knife or razor to school, bringing a gun to school, and bringing a bat or stick to school to use as a weapon.

Relationship Characteristics

For all surveys gathering information on romantic partners, the term partner was defined broadly as “a boyfriend/girlfriend, sexual partner, or someone you are going out with. You could be committed to this person (dating only them) or you could be in an open relationship where you are dating other people.”

Conflict in Adolescent Dating Relationships Inventory. The CADRI (Wolfe et al., 2001) is a 35-item measure completed by teens in reference to actual conflict or disagreement with a current or recent dating partner. It assesses abuse perpetration and victimization. Each question is asked twice, first in relation to perpetration, then in relation to victimization. The CADRI has strong internal consistency (total $\alpha = .83$) and 2-week test retest reliability, $r = .68$, $p < .01$ (Wolfe et al., 2001), as well as acceptable partner agreement ($r = .64$, $p < .01$) on the basis of 35 couples (Wolfe et al., 2003). At screening, the CADRI was utilized to assess lifetime physical DV perpetration and victimization. For the full study, participants were asked to complete the CADRI for each of up to three separate partners (identified by their initials) over the past 3 months. Partner initials were then matched with initials from the TLFB-DV.

Timeline FollowBack-Dating Violence (TLFB-DV). The TLFB-DV is a semi-structured calendar-based interview method for assessing recent relationship violence. The interview was adapted for this project based on the TLFB-Spousal Violence version developed by Fals-Stewart and colleagues (2003). The TLFB-DV was administered by a trained research staff member. Participants were asked to retrospectively describe their recent DV and sex history over the past 90 days. Fals-Stewart et al. (2003) reported excellent test-retest reliability (intraclass correlations 0.91–1.0) and evidence for both concurrent and discriminant validity.

For the current study, the TLFB was used to measure the number of days each participant was engaged in a romantic relationship during the 90 days prior to the baseline assessment. Each

partner was identified by initials so that the exact number of days with that partner could be summed. In addition, specific dates for *break-ups* with a specific partner, *initiation* of a relationship with a new partner, *concurrent* relationships with multiple partners and *re-initiation* of a relationship with a previous partner were gathered. Using these dates, we derived the length of each participant's relationship with each partner and the duration and number of break-ups in each relationship during the 90-day TLFB window.

The Adolescent Risk Behavior Assessment (ARBA; Donenberg, Emerson, Bryant, Wilson, & Weber-Shifrin, 2001). The ARBA is a reliable and valid computer-assisted survey assessing self-reported behaviors associated with HIV infection. The measure was adapted to assess dating and sexual behaviors for up to three separate partners in the past three months (using partner initials to link this data with our other partner-specific measures, the CADRI and TLFB). **Sexual risk questions** ask about type of sexual behavior (i.e., anal, oral, vaginal), frequency of sex, age of sexual debut, number of partners and condom use. A romantic relationship **break-up question** developed for this study ask about the presence of a break-up with each partner.

HIV Knowledge (Brown, DiClemente, & Beausoleil, 1992). This scale was developed to assess adolescents' knowledge about HIV and AIDS using 23 true/false items. A total HIV knowledge score was computed for each participant by summing the number of correct items. Higher scores indicate greater HIV knowledge. Internal consistency for the HIV knowledge scale in this sample was acceptable (Cronbach's $\alpha = .71$).

Partner-Related Condom Self-Efficacy. This 13-item measure was derived from a longer scale of condom self-efficacy attitudes and has been used in previous HIV prevention projects to assess self-confidence in condom use (e.g. could you use a condom if your partner did not want to) (L. K. Brown, Lourie, Zlotnick, & Cohn, 2000; Lescano, Brown, Miller, & Puster, 2007).

Participants rated how sure they were that they could use a condom in each situation on a scale from 1 (*very sure*) to 4 (*couldn't do it*). A mean condom self-efficacy score was computed for each participant by averaging across the 13 items. Internal consistency for this scale in the present sample was excellent (Cronbach's $\alpha = .93$).

Analysis Plan

For the current study, the partner-specific data from the CADRI were used to categorize participant romantic relationships based on the type of violence: *non-violent* (no perpetration or victimization items were endorsed), *psychologically violent* (emotional violence and controlling behaviors were reported but not physical or sexual violence), and *physically/sexually violent* (relationships involved physical and/or sexual violence). Bivariate relations between individual and relational characteristics with acute DV were analyzed first, then differences in individual and relational characteristics by DV level were examined using ANOVA and chi-square analyses. We then utilized generalized linear models (GLM) in SPSS 22.0 to examine the collective relationship between these variables to acute DV level in our selected sample of DV exposed girls.

RESULTS

Individual Characteristics

Acceptance of DV. Interestingly, accepting attitudes regarding DV were low. Participants tended to “strongly disagree” or “disagree” with most examples of DV on the *Acceptance of Couple Violence* scale ($M = 1.46, SD = .50$). Acceptance of DV did not differ by DV type (see Table 3).

Depression. A sizable percentage of participants (29%) had BDI-II depressive symptom scores in the moderate to severe range (≥ 20). Depression did not differ by DV type.

Delinquency. Rates of delinquent behaviors involving aggression were as follows: 17% had a physical fight with a peer and 12% have carried a weapon. Delinquency did not differ by DV type.

Relational Characteristics

Dating Violence. At study entry, 67% ($n=73$) of participants enrolled in the study due to their lifetime history of DV were involved in a romantic relationship in the past three months. Those participants reported on 87 romantic relationships during the study period. The majority of relationships were classified as physically violent (53%), with 36% classified as psychologically violent and 12% having no reported emotional, controlling, physical or sexual DV in the past 90 days (see Table 2). Each romantic relationship reported by participants during the past 90 days is depicted in Figure 1, clustered by DV type. For each form of DV, perpetration and victimization experiences were correlated (Pearson $r_s = .20 - .67$, all $p_s < .10$), suggesting mutual aggression.

Sexual Knowledge, Attitudes and Behavior. One study goal was to characterize rates of sexual activity, unprotected sex, HIV knowledge and self-efficacy for condom use within our sample of DV exposed girls. During the past three months, 44% of the participants reported having had vaginal sex in their lifetime, and of those, 35% reported not using a condom at last sex. The average participant rated her self-efficacy for condom use in sexual situations as between “very sure” and “sure” ($M = 1.87$, $SD = .85$). HIV knowledge was low, with participants getting only half of the questions correct, on average ($M = 12.03$, $SD = 3.53$). Sexual activity, unprotected sex, and self-efficacy for condom use did not differ by the type of DV. However, HIV knowledge did differ by DV type: participants in relationships characterized by psychological violence had the lowest rates of HIV knowledge ($M=10.00$), followed by participants in physically and/or sexually violent relationships ($M=13.57$), while participants in

nonviolent relationships had the highest levels of HIV knowledge ($M=14.05$). Post hoc Tukey tests showed that participants whose relationships were psychologically violent had significantly lower HIV knowledge scores than participants whose relationships were nonviolent ($p<.01$) or physically/sexually violent ($p<.01$).

Relationship Length and Concurrency. The Timeline Followback method was used to calculate relationship length in days for each participant, as well as to record break-ups and the presence of concurrent partners. Among participants reporting active dating in the past 90 days, 12% of the participants reported breaking-up with and subsequently re-partnering with their current partner at least once within the 90-day study period, ($M = 0.26$ break-ups per participant, $SD = 0.94$). Seven percent of the participants reported two or more concurrent partners during the past three months. Among these ten concurrent relationships, three were nonviolent, one psychologically violent, and five were physically/sexually violent. However, concurrent partnerships did not differ from independent relationships based on the type of DV, $\chi^2(2) = 5.87$, $p > .05$.

Generalized Linear Models

Depression and Delinquency. We examined the relationship between depressive symptoms and delinquency with DV. Given the link between relationship length and DV, we controlled for relationship length in this analysis. We also controlled for the inclusion of multiple relationships per participant with a dummy variable indicating whether or not a participant had multiple relationships included in the analysis. We employed GLM analysis using a multinomial distribution with cumulative logistic link function. The model form provided a good fit to the data, Pearson $\chi^2(63) = 71.58$, $p = 1.14$, and the omnibus test of the model coefficients was marginally significant, likelihood ratio $\chi^2(5) = 9.95$, $p < .10$. Parameter estimates indicated that

BDI depression score was positively associated with DV, $\beta = .09$, Wald $\chi^2 (1) = 4.14$, $p < .05$.

The odds ratio for BDI score was 1.10, 95% CI [1.00, 1.20]. Delinquency was not positively associated with DV, $\beta = .68$, Wald $\chi^2 (1) = 1.25$, $p > .05$; OR = 1.98 [.60, 6.58].

Sexual Knowledge, Attitudes and Behavior. To examine links between sex-related knowledge, attitudes and behaviors with DV we conducted GLM analyses, again controlling for multiple relationships and relationship length, using a Poisson distribution with log link function for dichotomous variables (condom use at last sex and lifetime history of sexual activity) and a normal distribution with identity link for continuous variables (condom use self-efficacy and HIV knowledge). DV was not significantly associated with condom use at last sex, lifetime history of sexual activity, or condom use self-efficacy for relationships that began in the 90-day study window, all $ps > .05$. DV was significantly associated with HIV knowledge, $\beta = .40$, Wald $\chi^2 (2) = 24.16$, $p < .05$.

Relationship Length and Concurrency. We could not accurately measure the length of relationships when they were initiated before the start of the 90-day assessment period; thus there were 35 relationships that could be observed within the assessment timeframe (i.e., relationships were initiated during the 90-day assessment window) (see Figure 1).

-----Insert Figure 1 about here-----

We used generalized linear models (GLM) in SPSS 22.0 to compare differences in relationship length based on DV type ($N = 35$). We used a GLM for continuous outcomes with a normal distribution and identity link, controlling for the inclusion of multiple relationships per participant with a dummy variable indicating whether or not a participant had multiple relationships included in the analysis. Among relationships which began during the 90-day study period, more physical/sexual violence was associated with longer relationship length, Wald $\chi^2 (2)$

= 1142.63, $p < .001$.

-----Insert table 2 about here-----

Race, Ethnicity, and SES

Descriptive statistics are presented in Table 2. Results on the primary variables of interest were compared for 1) participants who identified their race as white and students who did not; 2) participants who identified their race as black and students who did not; 3) participants who identified their ethnicity as Hispanic versus those who did not, and 4) students who did and did not qualify for free or reduced-price school lunch as a measure of socioeconomic status. Participants' relationships did not differ in terms of length or DV type based on their race, ethnicity, or socioeconomic status. There were no individual differences between white and non-white participants or between students who did and did not qualify for reduced lunch. Black students were more likely than non-black students to have dated in the past 90 days, Pearson $\chi^2(1) = 4.57, p < .05$. Hispanic participants reported more HIV knowledge than non-Hispanic students, $t(106) = -2.19, p < .05$, and were more likely to have dated in the 3 months prior to the study, Pearson $\chi^2(1) = 8.07, p < .01$.

DISCUSSION

These data indicate that a selected group of adolescent girls who report a lifetime history of abusive dating relationships present a broad range of serious behavioral health concerns including clinically meaningful levels of depressive symptoms, serious delinquent behaviors involving aggression, and continued involvement in violent dating relationships. Furthermore, the majority of our sample who reported dating relationships at the time of assessment were involved in violent relationships. This was despite the fact that the majority of our sample rated their acceptance of DV as relatively low. These findings highlight the disconnect between

attitudes and behaviors that is often observed in behavioral research. Even more important is the recognition that interventions targeting attitudes alone are unlikely to be adequate for promoting behavior change in this population.

Although 44% of participants reported being sexually active and just over one third did not use a condom at last sex, these rates are comparable to national averages, which estimate that 46% of high school students are currently sexually active and 40% did not use a condom at last sex (Martinez, Copen, & Abma, 2011). Similarly, participant reports of sexual activity and unprotected sex did not differ based on the type of DV experienced and multivariate models adjusting for relationship length were not significant. These findings are surprising given the research showing that female victims of physical dating violence are 2.8 times more likely to fear the perceived consequences of negotiating condom use than non-abused girls (Wingood et al., 2001). One possible explanation for our findings is that all participants had prior experience with physical DV and thus the dynamics of their non-violent relationships may mirror those of violent ones. Furthermore, given our sample size incidents of sexual coercion that would involve unprotected sex were infrequent.

Interestingly, participants rated themselves as having a high degree of self-efficacy regarding condom use with no differences based on DV experiences; however, they also lacked knowledge regarding HIV. The combination of high self-efficacy with a lack of understanding regarding HIV and its transmission may put DV-exposed girls at particular risk for HIV and other sexually transmitted infections. In addition, participant with recent DV experiences had even less knowledge about HIV than those in non-violent relationships. Unlike attitudes and behaviors, knowledge about HIV is most likely acquired through school-based health classes or through conversations with a physician regarding contraception or pregnancy. Individuals with

acute DV experiences may have more difficulty accessing this type of information due to the impact of their stressful relationship on recall of factual information. Given these findings, combining efforts to strengthen the knowledge, attitudes and skills involved in safe sex behavior along with the relevant risk factors for DV may become a best practice in the future.

Another interesting finding relates to the significant association between depression and dating violence, over and above aggressive delinquency and the length of time in a violent relationship. Depression has been one of the most frequently cited risk factors for DV among adolescent girls (Exner-Cortens et al., 2013) and predicts continued DV and other future health risks. Depressive symptoms are in many ways an ideal target for DV prevention efforts because evidence based approaches are available for symptom reduction that are well established from years of adolescent mental health research. Cognitive behavioral approaches target the thoughts, feelings and behaviors that underlie depressive symptoms. Future studies should examine whether depression treatment alone can have a positive impact on DV, as well as whether depressive symptom reduction, in conjunction with traditional DV prevention content, is an effective secondary prevention strategy for affected young women.

As predicted, rates of delinquent acts involving aggression such as carrying a weapon and engaging in fights exceeded expected rates, as only 10% of adolescent girls present with conduct disorder symptoms (Sholevar & Sholevar, 1995) and even fewer (2-3%) present with serious delinquency. These findings are consistent with research linking delinquency with non-physical forms of dating violence such as cyber dating abuse. For example, Zweig and colleagues (Zweig, Lachman, Yahner, & Dank, 2014) found significant associations between adolescent cyber dating abuse and committing a greater number of delinquent behaviors (Zweig et al., 2014). Although aggressive delinquency was not significantly associated with type of DV in our

sample, the elevated rates among those with a history of physical DV suggests that it may be beneficial to target both issues in preventive intervention programs for this population. A future study that captures additional details regarding delinquency severity could determine if increased severity of delinquency is associated with increased severity of dating violence.

Although some studies have identified differences in rates of DV and associations with individual risk factors based on race, ethnicity and socioeconomic status, we did not observe these differences in our sample. As with incidents of forced sex, we were underpowered to fully explore these factors. Future research into the contribution of sociodemographic variables is warranted.

One innovative aspect of this study was the use of a Timeline Followback calendar method to obtain relationship data from participants. This method of exploring dating violence was found to be essential for characterizing the duration of romantic partnerships in our study. The methodology allows researchers to capture the presence, frequency and duration of each dating partnerships, as well as the frequency of break-ups and re-partnering with a same or different partner. We found that when relationship length was measured, longer relationships were associated with more dating violence including physical/sexual DV. Indeed most research on the length of violent relationships suggest a positive link between relationship length and the likelihood of physical violence (Giordano et al., 2010). These findings are important for a number of reasons. First, Ackard, Neumark-Sztainer, and Hannan (2003) found that 50% of girls and boys reporting both physical and sexual dating violence reported staying in relationships out of fear of physical harm. It is possible that violent relationships are of longer duration due to this fear of break-up. It is also possible that longer relationships simply provide more opportunities for violence to develop (Giles-Sims, 1983). In our sample, the small number of participants who

initiated a break-up, got back together with that same partner soon after. This suggests that it may be difficult for this population of DV exposed girls to fully disengage from romantic relationships that are troublesome.

Limitations.

There are several important limitations to this study. The cross-sectional nature of the survey data make it difficult to draw conclusions regarding causal relationships. However details from the TLFB interview allowed us to examine some temporal features of the data. In addition, our selected sample of DV-exposed adolescent girls was relatively small. Only a subset of those participants were involved in dating relationships over the assessment period (past 90 days), which further limited the number of observed relationships and thus the power to test our hypotheses. However, a strength of the study was the ethnic/racial heterogeneity of our sample as well as the representation of economically disadvantaged youth. Future studies would benefit from an examination of both DV frequency and type to better understand the structure and impact of these behaviors.

Clinical and Policy Implications.

This study is the first to focus on the individual and relationship characteristics of adolescent girls with histories of physical DV. Given that our study participants are at elevated risk for future violence due to their DV histories, the current study serves as a crucial first-step in identifying important targets for intervention. Specifically, our data suggest that interventions for DV-exposed girls should address depressive symptoms as a primary treatment target. Given that aggressive delinquency and sexual risk behavior are related ongoing risks in this population, interventions should further address the underlying mechanisms that link these problem behaviors with DV. Lastly, our findings inform assessment practices in research of dating

violence behaviors. Future studies should capitalize on the TLFB method for gathering DV data. The rich information provided may elevate our understanding of relationship processes that confer risk or protection beyond individual factors.

ACKNOWLEDGMENTS

Research supported by: NIMH grant K23 MHXXXXXX to XXXX XXXX Hospital (P.I. XXX XXXX, Ph.D.).

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Figure 1. *Number of Days in a Romantic Relationship by DV Type (Perpetration and/or Victimization)*

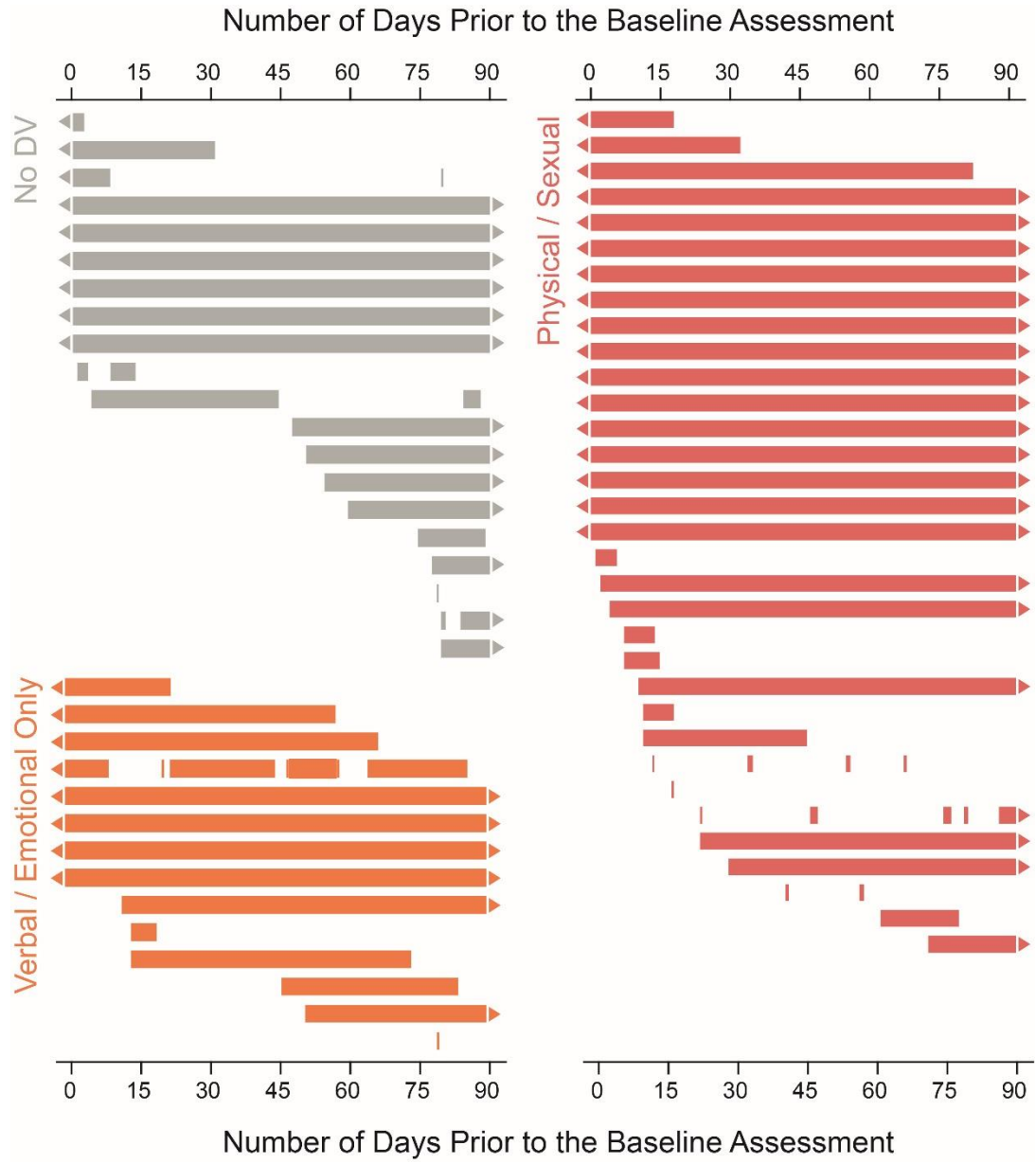


Table 1. *Unadjusted Descriptive Statistics: Baseline Sample*

	<i>N (%) / M (SD)</i>	<i>Scale Range</i>
Race		
American Indian or Alaskan Native	9 (8%)	
Asian	3 (3%)	
Black	38 (35%)	
White	24 (22%)	
Other Race	50 (46%)	
Ethnicity (% Hispanic)	54 (50%)	
Age	15.75 (.94)	15 – 18
Free or reduced-price lunch	88 (81%)	
Mother figure at home	105 (96%)	
Father figure at home	67 (62%)	
Had vaginal sex	48 (44%)	
Used condom at last sex	31 (65%)	
Acceptance of Couple Violence	1.46 (.50)	
Partner-Related Condom Self-Efficacy	1.87 (.85)	1 – 4
HIV Knowledge	12.03 (3.53)	1 – 5
Beck Depression Inventory-II	16.75 (11.33)	1 – 4
Delinquency	96 (89%)	
Ever drank alcohol	74 (68%)	
Ever used marijuana	45 (41%)	

Table 2. *Relationship Characteristics*

	N (%)
<hr/>	
Dating Violence	
None	10 (12%)
Psychological	31 (36%)
Physical/Sexual	46 (53%)
Relationship Length	
<30 Days	23 (34%)
30-59 Days	11 (16%)
60-89 Days	10 (15%)
90+ Days	24 (35%)
# of relationships with break-ups/re-partnerships	8 (12%)
# of participants with concurrent partnerships	8 (7%)
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Note. N=87 relationships among 109 participants; N=68 had valid relationship length data, and N=36 were observed to begin during the 90-day study period.

Table 3. Differences in individual and relational characteristics by type of dating violence (DV).

	No DV <i>N (%) / M (SD)</i>	Psychological DV <i>N (%) / M (SD)</i>	Physical/Sexual DV <i>N (%) / M (SD)</i>	<i>F (df) / $\chi^2 (df)$</i>	Tukey's HSD
Acceptance of Couple Violence	1.38 (.42)	1.35 (.45)	1.45 (.44)	.48	
Beck Depression Inventory-II	14.14 (10.43)	12.85 (7.69)	18.73 (11.51)	2.71	
Delinquency	.14 (.38)	.31 (.74)	.57 (.77)	1.57	
Ever drank alcohol	6 (86%)	16 (62%)	26 (70%)	1.60 (2)	
Ever used marijuana	3 (43%)	11 (42%)	20 (54%)	.95 (2)	
Ever had vaginal sex	5 (71%)	13 (52%)	18 (50%)	1.09 (2)	
Used condom at last sex	4 (80%)	11 (73%)	10 (53%)	2.19 (2)	
HIV Knowledge	14.57 (2.07)	10.00 (4.19)	13.05 (2.77)	8.65***	1>2**, 2<3**
Partner-Related Condom Self-Efficacy	1.85 (1.04)	2.08 (.94)	1.73 (.80)	1.25	

Note. *** $p < .001$. ** $p < .01$.