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## **Final Research Report**

2017-VA-CX-0030

### **Project Title**

Healthy Adolescent Relationship Trajectories Study

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## **SUMMARY OF THE PROJECT**

### **MAJOR GOALS, OBJECTIVES AND RESEARCH QUESTIONS**

The purpose of this project was to establish a better understanding of how the relational context of positive feelings and behaviors intermingle with teen dating violence (TDV) events within romantic relationships. TDV is a prevalent criminal justice problem that also has well-documented adverse health impact.<sup>1</sup> The field urgently needs more effective and durable interventions that are relevant to the lives of diverse adolescents; developing these interventions requires understanding the precursors of TDV as well as the reasons why youth remain in unhealthy relationships and return to them repeatedly over time.<sup>2</sup> Although TDV typically occurs within a relationship, we lack understanding of *how* violent episodes unfold within this greater romantic context, which generally includes not only violence but also positive feelings and behaviors.<sup>3</sup> Youth are highly invested in their main romantic partners and, like adults, have hopes for continued commitment over time. But, risk of violence actually *increases* in longer duration and more attached adolescent relationships. Further investigating relationship context may be particularly salient for urban adolescents of color, given that most studies focus on White youth; as such, results may not be generalizable.

In the current project, we sought to extend findings from our prior NIJ study and examine the largely unstudied topic of how relationship feelings and behaviors that are traditionally viewed as positive might prevent TDV episodes or, in contrast, keep youth paralyzed inside these abusive relationships. We drew upon prior developmental literature which suggests that adolescents strive to maintain positive feelings (love, communication, dyadic trust, intimate self-disclosure, commitment and enmeshment) in their relationships. This desire for positive feelings could facilitate intimacy and prevent TDV. Alternatively, some literature suggests that, in the name of love, adolescents tolerate risk and disregard partner behaviors that may weaken relationship stability.<sup>4,5</sup>

Similar to research surrounding positive feelings, extant literature documents that adult romantic partners leverage pro-relationship behaviors – such as time together, playing, or giving a gift - to reinforce

intimacy.<sup>6</sup> These pro-relationship behaviors have been less studied in adolescents, and to our knowledge, not studied at all amongst African American youth. One study with Spanish adolescents posited that “play” (i.e., being silly) could either be beneficial for romantic relationships or could be a precursor to aggression (e.g. joking leading to aggressive insults).<sup>7</sup> As such, adolescent couples that spend a lot of time having fun/playing or exchanging gifts might be less likely to engage in TDV, which would provide opportunities for prevention. Alternatively, adolescent “play” may lead to increased aggression, or a gift may be used to control a partner.

Finally, we do not understand how often after a TDV event youth try to distance themselves from the relationship versus how often they try to pull their partner closer to them in an effort to patch things up. The cycle of having a relationship insult (like TDV) followed by an attempt to go back to intimacy has been described as “rupture and repair.” Research on rupture and repair cycles in non-violent relationships documents that as love develops, each rupture is more easily endured and surviving the rupture enhances trust.<sup>8</sup> To best end cycles of victimization, we must establish how frequently this occurs within relationships with TDV.

Therefore, we sought to determine how emotional connectedness (operationalized as love, communication, dyadic trust, intimate self-disclosure, commitment and enmeshment) and pro-relationship activities (operationalized as time together, playing/having fun together, giving a gift) and jealousy influence TDV victimization and perpetration over time. We leveraged the infrastructure from our prior NIJ grant to recruit a new sample of 144 urban, primarily African American adolescent females in dating relationships and collected baseline and daily diary data for four months. We used intensive data collection in the form of daily diaries via smart phones based on our findings that important daily variations in relationship perceptions (which predicted TDV) within adolescent dating relationships are masked when using more traditional study designs asking subjects to recall past events (e.g. past month or year). We achieved the following three objectives:

**Objective 1. Emotional connectedness** (components: love, communication, dyadic trust, intimate self-disclosure, commitment and enmeshment) **and TDV.**

A. Determine the same day and previous day associations between adolescent females' reports of emotional connectedness, jealousy and TDV victimization and perpetration.

B. Compare the frequency and patterns of emotional connectedness and jealousy across relationships that initiate, continue and/or escalate TDV victimization and perpetration.

**Objective 2. Pro-relationship behaviors** (components: fun with partner, playing and giving/receiving presents) **and TDV.**

A. Determine the same day and previous day associations between adolescent females' reports of pro-relationship behaviors and TDV victimization and perpetration.

B. Compare the frequency and patterns of pro-relationship behaviors across relationships that initiate, continue and/or escalate TDV victimization and perpetration.

**Objective 3. Rupture and Repair and TDV.**

A. Determine cycles of rupture (defined as TDV incidents) and repair within adolescent relationships, examining the reciprocal effects of emotional connectedness, pro-relationship behaviors, jealousy, and TDV within and between individual relationships over time.

## **RESEARCH DESIGN, METHODS, ANALYTICAL, AND DATA ANALYSIS TECHNIQUES**

### **Sample & Setting**

**Recruitment:** Our recruitment strategy using a research van at community venues was based on our documented success in the selected settings in prior work, as well as expanded to include the Johns Hopkins Pediatric Emergency Department (JH Peds ED) and social media recruitment, to supplement recruitment at community venues. Females congregating at community venues, attending the JH Peds ED, and who saw study social media posts and reached out to the study team, were recruited for the

current study. Recruitment occurred from August 2018 through July 2021. Community venue recruitment took place at approximately 18 Baltimore community locations that had been previously identified to yield a high number of potentially age-eligible adolescents. Study recruiters were based out of a research van, which is a retrofitted recreational vehicle that has two private interview rooms and a small waiting area.

**Eligibility:** Eligible participants were English-speaking 16-19 year old adolescent females who report being in a dating relationship in which they experienced TDV in the past month and lived in Baltimore city or nearby zipcodes.<sup>9,10</sup> To ensure that we captured the full breadth of experiences, including those of marginalized youth, we recruited young women in dating relationships irrespective of partner gender. Participants were excluded if they were pregnant or had a chronic, debilitating condition that limits function or cognition. All potential participants were given relevant resources including national dating violence hotline numbers. Prior to the COVID-19 pandemic, eligible, interested youth completed written, informed consent. After March 2020, oral informed consent was obtained and documented on REDCap in order to allow for remote study procedures. Participants were also offered an optional letter that explained the study to a parent or caregiver.

### **Data collection**

**Participant Contact Information:** Immediately after enrolling the participant, the RA obtained retention information. This included current addresses and phone numbers, social media information, and the names and numbers of at least two others who can safely contact them. This information was used to locate the participant as needed. Participants also received contact information for research staff.

**Baseline Assessment and Measures:** Following consent, participants completed baseline measures (**Table 1**) using ACASI technology on a study computer or REDCap, after March 2020, to allow for remote procedures. The assessment lasted 30-45 minutes. Data was stored in a de-identified, protected database.

<b>Table 1: Baseline ACASI Measures</b>	
<b>Demographics</b>	Age, race/ethnicity, grade in school/highest completed education, mother’s and father’s education, mother’s and father’s occupational status <sup>11,12</sup> , family structure and living situation.
<b>Partner Characteristics</b>	First name/initials of current dating partner. Partner’s gender, race/ethnicity, age, and educational level, substances their partner had ever used and if their partner used any of those substances with they spend time with their partner. Sex with partner was measured with 1 item.
<b>Family Conflict</b>	Validated questions assessed family conflict in participants’ families of origin. <sup>13</sup>
<b>Emotional Connectedness</b>	Six items assessing trust, commitment, and closeness with current partner. <sup>14</sup>
<b>Substance Use</b>	Participant lifetime and past 30 day substance use. <sup>15</sup> Ever used substances because their partner was using the substance.
<b>Perceived Partner Availability</b>	The 4-item perceived neighborhood partner availability scale was used to assess participant perceptions. <sup>16</sup>
<b>Mental Health</b>	Mental health was assessed using the 18-item Brief Symptom Index, which measures depression, anxiety and somatization. <sup>17,18</sup>
<b>Delinquency</b>	To assess delinquency, we used six questions from the National Longitudinal Study of Youth that ask about: running away from home, carrying a weapon, purposely destroying property, stealing, attacking someone to hurt or fight, and getting arrested. <sup>19</sup>
<b>Acceptance of TDV</b>	Acceptance of TDV was assessed using the 11-item Acceptance of Couple Violence (ACV) scale. <sup>9,10</sup>
<b>TDV</b>	Past experience with TDV was measured using the validated Safe Dates and revised conflict tactics scales for physical and emotional victimization and perpetration. <sup>9,10,20</sup> Digital dating violence was assessed using measures adapted from Reed et al. <sup>21</sup>

**Daily Diaries:** Upon enrollment, staff trained participants on how to respond to the daily diaries.

Participants were given a PIN, which would be used as a passcode to enter the daily surveys. Procedures and security features for the daily diaries included the following: 1) participants were texted daily a link to a website with an innocuous name; 2) participants were asked to enter their PIN prior to seeing any questions, and then were only able to see one question at a time; 3) the website timed out after three minutes of inactivity such that the participant must enter her password to continue; 4) after each question was answered, neither the question itself nor the response could be accessed and no responses were stored on the participant’s phone; and 5) data was not exposed to the internet and was encrypted when being transmitted to the server. Upon completion of each daily diary, a message appeared providing the national TDV hotline, encouraging participants to talk to a safe adult, and reminding them that their responses were not read in real time. Participants answered each daily diary question about their main partner, with the first question asking whether they were still with the same partner and that person’s

initials (if the partnership had changed, the participant was provided the option to answer about her new partner). Diary questions asked about behaviors and perceptions on that specific day only. Participants

Table 2. Summary of Daily Diary Questions
Daily Assessments of Each Partner
<i>Standing of relationship</i> : one item
<i>TDV</i> : 6 questions, assessing victimization and perpetration of emotional and physical TDV & threats <sup>9,10</sup>
<i>Emotional connectedness</i> : emotional safety (1-item), dyadic trust (1-item), commitment (1-item), emotional security (1-item), communication quality (2-items), self-disclosure (1-item) <sup>22-27</sup>
<i>Pro-relationship behaviors</i> : 1 item assessing fun together. 1 item assessing if partner made her feel appreciated. 1 item assessing if partner did something to show love. 1 item assessing sexual intimacy. 2 items assessing receiving and provision gifts, each with a subpart on temporality with TDV, if TDV occurred that day. <sup>7,28,29</sup>
<i>Jealousy</i> : 2 items assessing participant jealousy and perceptions of partner's feeling of jealousy. <sup>30,31</sup>

were informed of the importance of completing a daily diary entry. If a participant had not responded to texts for  $\geq 3$  days, staff contacted her.

Additionally, we calculated the participants' diary completion rate each week and contacted participants if their rate fell below 30%. We let them know that if they did not re-engage (diary completion greater than 30% in the subsequent two weeks), they would be dropped from the study.

**Remuneration:** Participants received a \$25 incentive for the baseline survey, which we believe to be commensurate with the time and effort

required. They received \$60 per month for the daily diaries to account for the costs incurred due to texting. All participants had cell phones, though potential participants were made aware we offered to provide a cell phone with minutes in lieu of the \$60.

### Data analysis

**Data Cleaning:** Data was reviewed for completeness. The majority of fields were restricted to a list of choices, reducing the possibility of impossible values. In order to meet our objectives, it was necessary to track partners over the course of the daily diaries. The project director and data analyst monitored partner initials and assigned each partner a unique partner ID (PID). In some cases, participants would enter different initials for the same partner, such as JJ or JT, but would indicate that they did not have a new partner. The project director and data analyst assigned these PIDs based on whether the participant indicated they had a new partner. Missing data was also common, this could result from a participant not



responding to the diary or a specific question on a given day or the participant not having a partner at that time.

**Data analyses:** Analyses were conducted using SAS 9.4.<sup>22</sup> Descriptive statistics of demographic variables and relationship history were generated (Table 3). Descriptions of daily diary measures were assessed. Correlations among measures of violence and correlations among emotional connectedness measures and pro-relationship behaviors were examined graphically. Insights gained from the exploratory data analysis were used to fit appropriate statistical models to the data. Associations between same day emotional connectedness, pro-relationship behaviors, and TDV were estimated using generalized estimating equations (GEE) with participants as clusters.<sup>23</sup> We modeled the temporal relationship (previous day, next day) between each of the relational context variables with TDV. As the temporal associations may differ for victimization, perpetration and mutual aggression, we modeled these outcomes separately for each objective. We evaluated for the impact of missing data by examining differences in daily frequencies of behaviors and levels of emotional connectedness between participants who reported less than the median number of days of follow-up.

## **EXPECTED APPLICABILITY OF THE RESEARCH**

The objectives pursued in the current project are essential to advancing knowledge in the field of TDV and improving intervention development which has been stymied by failing to recognize that violence occurs concomitantly with positive relationship qualities. The information we are currently providing to parents, teachers and other adults who want to assist adolescents who are experiencing abuse is guess-work at best. Nobody has studied day-by-day what adolescents who are experiencing abuse are thinking or feeling. We need evidence if we want to have any chance of making a significant and sustained impact. Our team has applied our unique experience following adolescent dating relationships with the innovative data collection method of daily electronic diaries, allowing us to overcome limitations of previous research. Once we have both the positive relationship qualities that appear to prevent TDV

and those that occur in response to TDV episodes, these findings can be directly translated to targeted intervention development.

**PARTICIPANTS AND COLLABORATING ORGANIZATIONS:** Not applicable.

### **CHANGES IN APPROACH FROM ORIGINAL DESIGN AND REASONS FOR CHANGE**

Throughout the study, we made several changes to our approach to adapt to current conditions, such as the COVID-19 pandemic, and improve study recruitment. These changes include the following:

- 1) The addition of the Johns Hopkins Pediatric Emergency Department as a recruitment site in order to reach a greater number of adolescents with our recruitment. This was approved by the JHU IRB on 6/21/18 and NIH Human Subjects on 7/2/18.
- 2) We revised our protocol for contacting participants regarding their diary completion. Initially, we contacted participants if they missed three or more days of diaries in a row. In order to improve diary completion rates, we revised this protocol to also calculate diary completion rates for each participant every two weeks and contact participants if their rate fell below 30%. In the event that a participant's diaries fell below 30%, we let them know that because their completion rate had reached 30% or below, we assumed they were not interested in continued participation. If they did not re-engage in the subsequent two weeks, they were automatically dropped from the study. This was approved by JHU IRB on 1/16/19 and by NIH on 1/22/19.
- 3) Social media recruitment was added and approved by JHU IRB on 12/19/19 and by NIH on 2/28/20. This strategy was added to bolster slow recruitment at the end of 2019.
- 4) Neighboring zip codes to Baltimore City were added to eligibility approved by JHU IRB on 2/10/20 and NIH on 2/28/20. This was added to expand eligibility and improve recruitment.
- 5) Due to the COVID-19 pandemic, in person recruitment procedures were halted on 3/12/20. To comply with JHU requirements suspending in person human subjects research, an IRB Change in Research moving all recruitment and enrollment procedures online was approved by JHU initially on 4/23/20. NIH requested changes to the documents and these changes were approved by JHU on

6/10/20 and NIH on 6/22/20. These remote procedures included continuing social media recruitment and implementing oral consent and moving the baseline survey from ACASI to REDCap.

- 6) When JHU COVID-19-related in-person human subjects' research restrictions changed to allow our study to recruit in the JH Pediatric Emergency Department, we obtained approval to resume in person recruitment in this setting. This revised protocol was approved by JHU IRB on 10/12/2020, sent to the NIH HSPO for approval on 10/21/2020 and was approved on 3/3/2021. Upon resumption of JH PEDS ED recruitment, to maximize safety protocols, oral consent and REDCap baseline survey collection were continued. These procedures were conducted along with social media recruitment until the completion of recruitment.
- 7) Recruitment was halted on 7/31/21 with 144 participants in order to allow for data analysis time.

## **OUTCOMES**

### **ACTIVITIES AND ACCOMPLISHMENTS**

Initial approval of human subjects' procedures was obtained from JHU IRB on January 17<sup>th</sup>, 2018 and by NIH Human Subjects on April 16<sup>th</sup>, 2018. Key study materials were developed including ACASI and eventual REDCap instruments. We worked with IT company *emocha* to build and implement the platform for the daily web-based survey system. A study van was purchased, renovated, and used in the field. Staff members were hired and trained in field, emergency department, and in remote procedures. Staff recruited in these settings multiple times per week. Throughout the grant, Dr. Matson, Dr. Bair-Merritt, Ms. Flessa, Mr. Huettner and Ms. Chung met weekly by teleconference to review recruitment procedures, daily survey completion rates and other issues as needed. Diary and ACASI data were being carefully monitored and quality-checked multiple times per week. We monitored study participation on a weekly basis and contacted participants if we had not received a survey response from them in three consecutive days. We also calculated diary completion rates for each participant every two weeks and contacted participants if their completion rate for that time period fell below 30%. When enrollment ended, 144 participants had been enrolled in the study. We have cleaned data and analyzed the data.

## RESULTS AND FINDINGS

Table 3 shows the baseline demographics of our sample of 144 adolescent females, which includes a median age of 18.0 years, 93% with self-identified race as Black/African American, and 78% indicating they were attending school. On average, participants had 1.2 lifetime dating partners (SD 0.7), with 78% having only male partners, 6% only female partners, and 13% both male and female partners in their lifetime. Upon eligibility screening, participants reported high rates of past month victimization and perpetration with their current partner. Victimization rates ranged from 17-47%, with being punched/choked/bit/kicked being least common and being called fat, ugly, or stupid the most common.

Perpetration rates ranged from 8-42%, with making their partner feel afraid being least common and

<b>Table 3. Demographics at Baseline</b>	
	<b>Median, IQR</b>
Age	18.0 (17.3, 18.9)
	<b>Mean, SD</b>
Lifetime dating partners	1.2 (0.7)
	<b>N (%)</b>
Black/African American	134 (93%)
Attending school	113 (78%)
Guardian has HS/GED or more education	79 (55%)

calling their partner fat, ugly, or stupid most common. On the daily surveys, average victimization rates were consistently higher than perpetration. Daily emotional violence (called fat, ugly, stupid)

was most common for both victimization and perpetration. Based on preliminary analyses, we have several key findings related to daily associations with violence. The largest associations between measures of emotional context and pro-relationship behaviors and TDV occurred on the same day as the violence. Previous day measures associated with TDV include emotional safety, communication, having sex and jealousy. TDV events were associated with next day communication (signaling and receiving), feeling loved as well as jealousy.

## LIMITATIONS

The current study has several important limitations. A major strength of this study is the daily data. However, detailed measures on partner characteristics assessed on the baseline survey were only collected for the current partner at enrollment. If participants had new partners during the four months of daily surveys, we do not have data on those partners' characteristics (e.g., age, race, etc.). Some measures on the daily data are also participant reports of partner feelings (e.g. participant reports their perception of

partner's jealousy). Further, our data does not provide within day temporality of violence, for example if perpetration preceded victimization.

## **ARTIFACTS**

### **LIST OF PRODUCTS**

We currently have three initial manuscripts planned. The first manuscript will cover objectives 1 and 2, on the association between emotional connectedness, pro-relationship behaviors, and TDV. The second will cover objective 3, rupture and repair, examining the reciprocal effects of emotional connectedness, pro-relationship behaviors, jealousy, and TDV over time. A third manuscript on the relationship between instrumental support and TDV is also planned.

### **DATA SETS GENERATED**

This study generated two datasets: a baseline dataset with data on the participant and their partner at baseline and a daily diary dataset, which measures TDV and emotional context. The collected data are multilevel, which consist of repeated measures within dating relationships, partners within adolescent females and characteristics between adolescent females. The baseline data will be merged with the daily data to produce a multilevel (3-level) data set.

### **DISSEMINATION ACTIVITIES**

The investigators have extensive experience effectively disseminating large primary data collection studies. The target audience for our scholarly products will include academicians/researchers as well as criminal justice practitioners and policy makers. We will publish at least three peer-reviewed publications. In addition, we anticipate presenting results widely at national conferences and through webinars. All peer-reviewed publications and presentations will address translation of research.

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