Investigating Self-Efficacy as a Mediator of Peer Violence and Dating Violence Perpetration Among High-Risk Adolescents

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INVESTIGATING SELF-EFFICACY AS A MEDIATOR OF PEER VIOLENCE AND DATING VIOLENCE PERPETRATION AMONG HIGH-RISK ADOLESCENTS

By

Sandhya Joshi

December 17, 2018

ABSTRACT

Background: Dating violence is a significant public health problem. This study explored the potential mediation of self-efficacy of nonviolent conflict negotiation in the association between peer violence and dating violence among youth in a high-risk community.

Methods: This study used cross-sectional data from the Youth Violence Survey: Linkages among Different Forms of Violence study funded by CDC. Data were collected in 2004 and analyzed in 2016. The sample comprised 4,131 public school students in the seventh, ninth, eleventh, and twelfth year in an urban school district with high crime and poverty rates who completed a self-report questionnaire following parental consent and student assent. The analytic sample was restricted to participants who dated in the past year (n= 2,888). A mediation analysis was conducted using both the Causal Steps method and the Sobel Test to determine if self-efficacy in nonviolent conflict negotiation partially mediated the association between peer violence perpetration and dating violence perpetration.

Results: Results supported the study hypothesis that self-efficacy partially mediated the relationship between peer violence perpetration and dating violence perpetration. Even after controlling for dating violence victimization, peer violence victimization, and peer violence perpetration, self-efficacy contributed significantly to the model explaining dating violence perpetration and lowered the dating violence perpetration variation for which peer violence perpetration accounted (total effect: $\beta = .930$ and $p<.001$, direct effect: $\beta = .841$ and $p<.001$). Self-efficacy decreased the odds by .674 of participants who
had perpetrated peer violence from perpetrating dating violence (p<.001). The significance of the mediation effect was confirmed by the Sobel Test (z= 3.917, 95% CI).

**Conclusion:** Self-efficacy in nonviolent conflict negotiation could be an effective intervening factor for dating violence perpetration, contributing to stopping the cycle of violence among youth in high-risk communities.
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by

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B.A., OGLETHORPE UNIVERSITY

A Thesis Submitted to the Graduate Faculty of Georgia State University in Partial Fulfillment of the Requirements for the Degree

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Sandhya Joshi
# Table of Contents

Approval Page ........................................................................................................................................ iv

Acknowledgements ................................................................................................................................ v

Chapter I: Introduction ............................................................................................................................. 1

Chapter II: Literature Review ................................................................................................................... 3

  Relationship between Peer Violence Perpetration and Dating Violence Perpetration ......................... 3

  The Role of Self-Efficacy .......................................................................................................................... 9

Conclusion .............................................................................................................................................. 13

References .............................................................................................................................................. 14

Chapter III: Manuscript Draft .................................................................................................................. 19

Abstract .................................................................................................................................................. 19

Introduction ............................................................................................................................................. 20

Methods .................................................................................................................................................. 21

  Measures ................................................................................................................................................. 22

  Statistical Analysis .................................................................................................................................. 25

Results ..................................................................................................................................................... 26

  Preliminary Findings ............................................................................................................................... 26

  Hypothesis Testing Results ...................................................................................................................... 28

Discussion ............................................................................................................................................... 30

  Implications, Contribution, & Future Research ...................................................................................... 32

References .............................................................................................................................................. 36
List of Tables

Table 1: Sample Demographics (N=2888) ........................................................................................................... 33

Table 2: Results of Logistic Regression of Peer Violence Perpetration Predicting Likelihood of Dating Violence Perpetration, controlling for Peer Violence Victimization, Dating Violence Victimization, Grade, Sex, and Race/Ethnicity (n= 1636) ........................................................................ 33

Table 3: Results of Linear Regression of Peer Violence Perpetration Predicting Self Efficacy, controlling for Peer Violence Victimization, Dating Violence Victimization, Grade, Sex, and Race/Ethnicity (n= 1629) .......................................................................................................................... 34

Table 4: Results of Logistic Regression of Self Efficacy Predicting Dating Violence Perpetration, controlling for Peer Violence Perpetration, Peer Violence Victimization, Dating Violence Victimization, Grade, Sex, and Race/Ethnicity (n= 1486) .................................................................................................................. 35
List of Figures

Figure 1: Direct and Indirect Pathways Predicting Dating Violence Perpetration ........................................ 35
Chapter I: Introduction

Interpersonal violence (e.g., peer violence, dating violence) among adolescents has been on a general decline for the last several years, yet it remains a major public health concern. Findings from the 2017 national Youth Risk Behavior Survey, indicate that within the past year, more than 23% of U.S. high school students engaged in at least one physical fight and 19% of high school students were bullied at school at least once (Kann et al., 2018). The survey also found that among the students that dated within the past year, nearly 7% experienced sexual violence within a dating relationship and 8% experienced physical violence within a dating relationship (Kann et al., 2018).

Interpersonal violence can have serious consequences. Both adolescent perpetrators and victims of dating violence are more likely than adolescents not involved in dating violence to experience symptoms of depression, psychological complaints (i.e., feeling low, bad temper, nervousness, and difficulty sleeping), and alcohol use (Haynie et al., 2013). Adolescent perpetrators of physical and relational aggression have been found to be at increased risk for continued perpetration and increased risk for substance use two years after initial perpetration (Herrenkohl, Catalano, Hemphill, & Toumbourou, 2009). Adolescents who have sexually harassed others have been found to be at increased risk for being in a mutually violent relationship two years later (Chiodo et al., 2012). Perpetration of peer violence increases adolescents’ likelihood of using tobacco, alcohol, and marijuana and decreases college aspirations (Foshee et al., 2016). Similarly, dating violence perpetration among adolescents is associated with increased marijuana use, family conflict, and decreased college aspirations (Foshee et al., 2016). The prevalence of adolescent interpersonal violence perpetration and the negative health outcomes demonstrate the need to effectively address the issue. To effectively address adolescent interpersonal violence, it is important to understand the risk factors.
According to social cognitive theory, adolescent interpersonal violence emerges from the dynamic interplay of the (1) adolescent with his/her learned experiences and outcome expectancies of violent behavior, (2) the social context, and (3) the adolescent’s behavior (Card, 2011; Swearer, Wang, Berry, & Myers, 2014). The relationships between these factors are influenced by the modeling of violent behavior by family, community members, and peers; self-efficacy for violent behavior; and violence-related positive and negative reinforcements (Card, 2011; Swearer et al., 2014). In a community with a high prevalence of violence, adolescents may have more examples of violent behavior modeled for them than non-violent behaviors and are likely to experience more social reinforcements that encourage violent behavior.

Though there are various forms of violent behavior, they tend to be associated with each other in that individuals who have engaged in one form of violence are increasingly likely to engage in another: for example, individuals who engage in peer violence are more likely to engage in dating violence (CDC, 2016). Given adolescents develop peer relationships prior to dating relationships, there is a natural opportunity to prevent adolescents from continuing into their dating relationships the violent behavior they engaged in with their peers. With the hope of mitigating the continuation of violence, this thesis aims to explore the role of self-efficacy in nonviolent conflict negotiation as a potential mediator between adolescent peer violence perpetration and dating violence perpetration for self-efficacy is the link in translating capabilities to behavior (Bandura, 1989) and, if self-efficacy for violent behavior contributes to engaging in violent behavior, perhaps self-efficacy in nonviolent conflict negotiation can mitigate that relationship. The specific null and alternative hypotheses tested were as follows:

**Null Hypothesis:** There is no mediating effect of self-efficacy of nonviolent conflict negotiation on peer violence perpetration and dating violence perpetration.

**Alternative Hypothesis:** Self-efficacy in nonviolent conflict negotiation partially mediates the relationship between peer violence perpetration and dating violence perpetration.
Chapter II: Literature Review

A search of the literature published from 2000 to 2017 found evidence of a significant relationship between peer violence perpetration and dating violence perpetration among adolescents (Basile, Hamburger, Swahn, & Choi, 2013; Ellis & Wolfe, 2014; Foshee et al., 2011, 2014; Ozer, Tschann, Pasch, & Flores, 2004; Swahn, Simon, Arias, & Bossarte, 2008; Vagi et al., 2013). This relationship seems to be consistent in both high risk (Basile et al., 2013; Swahn, Simon, Arias, et al., 2008) and low risk communities (Ozer et al., 2004). Peer violence perpetration appears to be an antecedent for dating violence perpetration: a systematic review of longitudinal studies of dating violence among 10 to 24-year-olds found peer violence perpetration increased risk for perpetrating dating violence (Vagi et al., 2013). A number of studies show that this relationship is impacted by sex, grade/age, and self-efficacy.

Relationship between Peer Violence Perpetration and Dating Violence Perpetration

In a study of adolescents in a high-risk community, a statistically significant relationship was found between peer and dating violence perpetration (Swahn, Simon, Hertz, et al., 2008). Moreover, significant differences between male and female participants were also observed and these differences increased with grade level. The same study also found that participants who perpetrated violence in dating relationships were nearly five times more likely to perpetrate violence in peer relationships (AOR= 4.90; 95% CI= 4.03–5.96). Female participants tended to commit dating violence with a significantly higher frequency than male participants (p<.05), but male participants tended to commit more severe levels of dating violence than females (p<.01). Male participants engaged in physical violence with their peers at significantly higher frequency (p<.05) and overall engaged in more severe levels of peer violence than their female counterparts (p<.01). Though perpetration of sexual violence was low in prevalence, there
was a significant difference between the sexes in perpetration within a dating relationship (1.8% of females and 4.7% of males). Males were significantly more likely to perpetrate sexual violence in a dating relationship than females (p<.001). The study’s findings suggest there is a relationship between peer and dating violence, a relationship which may be moderated by participants’ sex (Swahn, Simon, Hertz, et al., 2008).

Subsequent published research examined the relationship between adolescent risk and protective factors and peer and dating violence in a different sample (Foshee et al., 2011). Predictors included sex, risk factors (e.g., peer, school, and neighborhood models of deviant behavior), and protective factors (e.g., grade point average, parental monitoring peer and neighborhood social control). Data collection consisted of a baseline (Fall 2003) and follow-up (Spring 2004) self-administered questionnaire at school of eighth, ninth, and tenth grade students (n=2,907) in nonmetropolitan counties in North Carolina. At each data collection point, the survey assessed dating violence perpetration and peer violence perpetration. Dating violence perpetration was assessed using the short Safe Dates Physical Violence Perpetration Scale (Foshee, Linder, MacDougall, & Bangdiwala, 2001; Foshee, 1996), which asks about the frequency of dating violence behaviors, “During the past 3 months, how many times did you do each of the following things to someone you were dating or on a date with? Don’t count it if you did in in self-defense or in play?”. The response options included: (1) slapped or scratched them, (2) physically twisted their arm or bent back their fingers, (3) pushed, grabbed, shoved, or kicked them, (4) hit them with your fist or with something else hard, (5) beat them up, and (6) assaulted them with a knife or gun. The survey assessed perpetration of peer violence with the same response options but revised the object of the question, “During the past 3 months, about how many times have you done each of the following things to someone about the same age as you that you were not dating?”. The study grouped the risk and protective factors into five categories based on the social ecological model: individual, family, peer, school, and neighborhood. The researchers assessed each category of variables’ relationship with level
of peer and dating violence perpetration. More than the other categories, the individual level risk and protective factors (i.e., anger, anxiety, depression, alcohol use, marijuana use, grade point average, and social bonding) best determined the type of violence the participants perpetrated ($R^2 = .23$). That is, 23% of the variance was explained by the individual factors tested regardless of whether a participant perpetrated peer violence only, dating violence only, both peer and dating violence, or neither forms of violence. They also found sex differences in the forms of violence perpetrated. There was a highly significant sex difference in those who only perpetrated dating violence and those who perpetrated both dating and peer violence ($p < .001$). Of the sample, 5.73% of females only perpetrated dating violence compared to 2.06% of males. Among those who have perpetrated both peer and dating violence, 16.73% were females and 7.72% were males. There was also a highly significant sex difference in the amount and severity of violence conducted ($p < .001$). Males who perpetrated both types of violence tended to engage in more moderate and severe dating ($t_{\text{moderate}} = 6.89$, $t_{\text{severe}} = 8.20$) and peer violence ($t_{\text{moderate}} = 4.87$, $t_{\text{severe}} = 7.83$) than females. Males and females who perpetrated both types of violence used significantly more of both peer and dating violence than those who only perpetrated peer violence ($t = -22.36$) and those who only perpetrated dating violence ($t = -8.30$). The study’s findings suggest focusing on the individual-level factors for modifiable determinants of peer or dating violence for intervention development rather than other levels of the social ecology. Furthermore, research into the determinants for peer and dating violence should take into account participants’ sex.

The influence of sex was further explored by researchers in an examination of the relationship between physical peer violence and physical dating relationship (Ozer et al., 2004). They recruited a subsample of participants ($n = 247$) from a large, longitudinal study. To be included, the participants needed to be between the ages of 12 and 15 years old and belong to European or Mexican-American families where the parents were not divorced. The study consisted of a pre/post-test measuring peer violence at both baseline and follow-up and dating violence only at follow-up. A nine-item scale was
developed to measure peer violence experienced in the past 12 months through measures such as the number of times the participant stabbed or hurt another teenager. Physical dating violence was measured using the physical aggression subscale of the Conflict Tactics Scale-II (Straus, Hamby, Boney-McCoy, & Sugarman, 1996). An example item on the scale is the number of times the respondent beat up their partner. The study found that physical peer violence was significantly correlated with physical dating violence at follow-up for males (r=.36, p<.01) but not females. This concurs with the implications from other literature that peer violence predicts dating violence and the existence of differences by sex.

The predictive relationship between peer violence and dating violence was further confirmed in a study investigating the relationship between bullying, dating violence, and relationship characteristics through a combination of a survey and direct observation (Ellis & Wolfe, 2014). They measured four aspects of bullying, the explanatory variable: physical, verbal, social, and cyberbullying. The study included two outcomes of interest: self-reported dating violence perpetration (i.e., physical, relational, and sexual violence) and observed relationship characteristics (i.e., positive affect, relationship, support, conflict, and withdrawal). Canadian students in grades 9 through 11 (n=585) from two urban public high schools that indicated they had previously or currently dating comprised the sample. Male-female couples that had been dating for at least three months from this sample participated in observation. The observation sessions consisted of a discussion of 10 common issues in dating relationships. Participants ranked the issues in order of importance for their relationship and discussed how the conflicts were handled when they occurred within their relationship. Behavioral interactions were coded using the validated System for Coding Interactions in Dyads (Malik & Lindahl, 2004). Findings suggest that self-reported bullying significantly predicted dating violence perpetration (p<.001). The relationship between bullying and dating violence perpetration was moderated by sex and age. Bullying perpetration significantly predicted the following unhealthy relationship behaviors (p<.05): decreased positive affect, decreased relationship support, and increased withdrawal. The study’s methods had increased rigor with
the incorporation of observation along with self-report. However, with the use of cross-sectional data, it is not possible to prove the temporal relationship between bullying and dating violence. Furthermore, the study looked at individual characteristics within the relationship and not the characteristics of the relationship as a whole. It is also difficult to understand the study’s definition of bullying. For example, it is unclear whether they gave respondents examples of each form of bullying measured. However, the study demonstrates bullying perpetrators tend to have unhealthy relationship behaviors which limit their ability to resolve conflict properly. It also supports the association between bullying and dating violence perpetration and suggests sex and age into account in future research.

Simultaneously, another group of researchers explored bullying as a potential predictor of adolescent dating violence (Foshee et al., 2014). In this study, researchers used longitudinal data to assess whether direct and indirect bullying perpetration in sixth grade predicted physical dating violence perpetration in eighth grade. Bullying items were measures pulled from the Nonphysical Aggression and Physical Aggression subscales of the Problem Behavior Frequency Index (Farrell, Kung, White, & Valois, 2000). Direct bullying was measured with two items measuring the frequency in the past three months in which the participant picked on someone and hit or slapped a peer. Indirect bullying was measured using two items measuring the frequency in the past three months in which the participant excluded another student from their group of friends and spread a false rumor about someone. Physical dating violence perpetration was measured using a single created measure which measured the frequency in which the participants used physical force (e.g., hitting, pushing, shoving, kicking, or assault with a weapon) against someone they were dating or on a date with and was not in self-defense or play. This was then transformed into a dichotomous variable where participants either had never perpetrated physical dating violence or had perpetrated physical dating violence one or more times. The analytic sample was restricted to adolescents who at baseline had never perpetrated physical dating violence (n=1,154). The study found both direct (r=.16, p<.001) and indirect bullying (r=.08, p=.01) were significantly
associated with physical dating violence. However, logistic regression results adjusted for sex, race, parent education, single-parent households, and family conflict, found only direct bullying significantly predicted the onset of physical dating violence (AOR= 1.36, p=.003). There were also significant differences in physical dating violence by sex and race: males were less likely than females to start perpetrating physical dating violence (AOR= .34, p<.001), and black adolescents (AOR= 3.19, p<.001) and students of other races (AOR= 3.11, p<.001) were more likely than white adolescents to start perpetrate physical dating violence. By restricting the analytic sample to adolescents who had never perpetrated physical dating violence at baseline, the study was able to control for the temporality of the relationship between bullying and physical dating violence. The study’s findings that direct bullying predicted physical dating violence, but indirect bullying did not, suggests that different forms of peer violence perpetration may have different relationships to dating violence perpetration, a difference that may not be captured using global perpetration measures.

Another study explored bullying’s relationship with different forms of dating violence perpetration among middle school students from high risk communities (Niolon et al., 2015). Using baseline data from the Dating Matters survey, the study assessed perpetration of dating violence among 1,653 students who had dated. Dating violence perpetration was measured by the Conflict in Adolescent Dating Relationships Inventory which measures dating violence forms like threatening behaviors, physical, sexual, relational, and emotional/verbal abuse (Wolfe et al., 2001). The modifiable risk factor of interest assessed was bullying perpetration (e.g., “In the last 30 days at school, how often did this happen? ... I spread rumors about other students”). Controlling for grade, race/ethnicity, site, exposure to family violence, and exposure to community violence, the study found that females who perpetrated bullying were 10 times more likely to perpetrate emotional/verbal abuse within a dating relationship, 4.6 times more likely to perpetrate sexual abuse, and 2.4 times more likely to perpetrate physical abuse.
The Role of Self-Efficacy

As evident, recent literature demonstrates a statistically significant relationship between various forms of peer violence perpetration and dating violence perpetration. Investigation into determinants of this relationship points toward self-efficacy as a potential protective factor. For self-efficacy has played a significant role in avoiding violence and decreasing violent behavior (Pu et al., 2013; Riner & Saywell, 2002). Furthermore, increased self-efficacy seems to decrease the likelihood of behaving aggressively (Bettencourt & Farrell, 2013; Farrell, Henry, Schoeny, Bettencourt, & Tolan, 2010; McMahon et al., 2013). However, one study did fail to find a predictive relationship between self-efficacy and dating violence perpetration (Wolfe, Wekerle, Scott, Straatman, & Grasley, 2004).

One study focused its investigation on the act of avoiding violence and its relationship with self-efficacy (Riner & Saywell, 2002). The study measured self-efficacy via participants’ confidence in their ability to avoid perpetrating physical violence. The behavior of avoiding violence was measured using self-reported active avoidance of involvement in potentially violent situation. Based on a survey of 318 suburban middle school students in sixth through eighth grade, the study found self-efficacy was significantly and positively associated with participants avoiding violence ($r = .11, p<.05$). Low self-efficacy also significantly predicted female and African-American participants’ engagement in violent behavior ($r_{female} = -.17, p<.05; r_{African-American} = -.32, p<.05$). So, overall, the participants who were very confident in their ability to avoid being physically violent were more likely to avoid violent situations than participants who were less confident in their ability to avoid perpetrating physical violence.

Another study continued the exploration into self-efficacy in avoiding violent behavior but explored its relationship with perpetrating violence instead of avoiding violent behavior (Pu et al., 2013). The study data source consisted of a 171-item written survey to 630 Native American students from grades sixth through 12 in rural Midwestern United States. The survey was read aloud to the sixth-grade
students. The independent variable of interest, self-efficacy, was assessed using three items: (1) “How sure are you that you can keep yourself from getting into fights?”, (2) “How sure are you that you can stay away from situations where you could get into a fight?”, (3) and “How sure are you that you can calm down if you get upset about something?”. The dependent variable, violence perpetration, was assessed using the following items: (1) “In the past three months, did you tell someone you were going to beat them up?”; (2) “In the past three months, were you in a physical fight?”; (3) and “In the past three months, were you in a physical fight in which you were badly hurt?”. The study found that self-efficacy was significantly and negatively associated with violence ($p<.01$). The relationship was particularly strong for females ($p_{\text{females}}<.01$ and $p_{\text{males}}<.84$). School grade level was positively associated with self-efficacy ($p<.05$).

Other researchers took the investigation a step forward, assessing whether increased levels of self-efficacy were associated with decreased levels of aggression over time (McMahon et al., 2013). These researchers conducted a two-year longitudinal survey of 266 African-American students in three elementary schools in an at-risk urban area. The participants belonged to grades five through eight, ages ranging from 11-14. The study used the Bosworth and Espelage (1995) five-item scale to measure self-efficacy. The study measured aggression in three different ways: self-report, peer-report, and teacher report. Self-report self-efficacy asked about frequency of specific items in the past seven days whereas the peer and teacher-report measures assessed general frequency. Though data triangulation increases the study’s rigor, it is difficult to compare the three different measures of aggression because they used different items with different population groups. A cross-sectional analysis found that self-efficacy significantly predicted participants’ aggression as reported by self, peers, and teachers. During periods when participants had high self-efficacy, they had lower reported aggression ($p<.05$). Also, participants that on average had higher self-efficacy also had lower aggression compared to participants that had low self-efficacy ($p<.05$). Longitudinally, there was a small and unexpected significant positive relationship between self-efficacy and teacher-reported aggression in the following data collection point ($b=.15$, $95\%$
CI [.01, .29]). On the other hand, self-efficacy appeared to moderate the relationship between exposure to community violence and teacher-reported aggression ($b = -.43$, 95% CI [-.7, -.16]). For participants with low self-efficacy, exposure to community violence significantly predicted aggression ($b = .44$, 95% CI [.05, .83]). For participants with high self-efficacy, exposure to community violence did not predict aggression ($b = .11$, 95% CI [-.25, .47]). The study’s findings support the idea that self-efficacy both acts as a protective factor against general aggression and mitigates the influence of exposure to community violence.

The relationship between aggression and self-efficacy was further confirmed by researchers who studied the relationship between physical and emotional aggression with self-efficacy (Bettencourt & Farrell, 2013). The study recruited 513 participants from three urban public middle schools. About 70% of the students in these schools were eligible for free or reduced lunch. Participants responded to a survey administered through a computer with audio recordings of the questions. Data was collected cross-sectionally from two cohorts from January to mid-March in 2011 and 2012. The survey assessed frequency of physical and emotional aggression perpetration within the past 30 days and self-efficacy for nonviolence. The study found that participants with higher levels of aggression had significantly lower levels of self-efficacy with medium to high effect sizes.

Cross-sectional data is great for establishing an association between variables, but it cannot determine temporality. So, in order to explore the relationship between self-efficacy for nonviolence and future exposure to key risk factors for physical aggression, one group of researchers conducted a longitudinal study (Farrell et al., 2010). Students (n= 5,881) from low-income middle schools in North Carolina, Virginia, Georgia, and Chicago participated in the study. The majority of participants belonged to ethnic minority groups. The study utilized two data sources: a survey administered via computer and teacher reports. Data collection occurred in the fall and spring of the participants’ sixth grade, spring of seventh and eighth grade. Self-efficacy for nonviolence was measured by the teen conflict survey. Physical aggression was assessed by the frequency of such behaviors within the past 30 days. The study
found self-efficacy moderated delinquent peer associations ($b = -0.08, p<0.001$) and parental support for fighting's ($b = -0.1, p<0.01$) effects on physical aggression. Moderation effects were maintained over time. For females, self-efficacy moderated school risk and physical aggression ($b = -0.31, p<0.01$). This study demonstrates self-efficacy can act as a protective factor against risk factors for physical aggression. Since physical peer violence is a type of physical aggression, this suggests that self-efficacy may also serve as a protective factor for peer violence.

Moving away from exploring physical violence, another study aimed to identify determinants of sexual violence perpetration within adolescent peer relationships and dating relationships (Basile et al., 2013). Using data from the Youth Violence Survey (the same data set as Swahn et al. (2008)), a cross-sectional survey of at-risk adolescents, this study found that self-efficacy for avoiding fights was significantly correlated with sexual violence perpetration in both peer and dating relationships.

As a part of a larger study exploring factors that predict dating violence perpetration, another group of researchers found associations between relationship self-efficacy and dating violence perpetration but failed to find a predictive relationship (Wolfe et al., 2004). The study followed high school students from a total of 10 urban, semirural, and rural communities over the course of a year. The analytic sample consisted of 1,074 students who completed questionnaires at both baseline and follow-up. Participants who were lost at follow-up had reported significantly more childhood maltreatment ($p<0.01$), physical abuse ($p<0.01$), and more threatening behavior in dating relationships at baseline ($p<0.01$). The study measured relationship self-efficacy using a modified version of the Relationship Self-Efficacy Scale (Lopez & Lent, 1991). Ten items were selected which to assess participants’ confidence in their ability to cope with challenging relationship issues. An example item is “How confident are you that you can control your temper when you are angry or frustrated with your boy/girlfriend?” Dating violence perpetration was assessed using the Conflict in Adolescent Dating Relationships Inventory (Wolfe et al., 2001). It measured physical abuse (e.g., slapping or pulling hair), emotional abuse (e.g., doing something
to make him/her jealous), and threatening behaviors (e.g., deliberately trying to frighten him/her). The study found that decreased self-efficacy was related to dating violence perpetration for females at baseline only (p<.001) and males at follow-up only (p<.01). However, self-efficacy did not predict dating violence perpetration over the year-span of the study. This may be due in part to the attrition of high-risk participants.

In addition to the literature assessing self-efficacy’s relationship with peer and dating violence among adolescents, two studies explored self-efficacy as a potential mediator. One longitudinal study of middle schoolers found self-efficacy moderated interpersonal (e.g., delinquent peer associations, parental support for fighting) and contextual factors on physical aggression (Farrell et al., 2010). A second and much smaller study evaluating an interpersonal violence intervention among Hispanic adolescents failed to find a mediation between self-efficacy and physical fighting and dating violence perpetration (Enriquez, Kelly, Cheng, Hunter, & Mendez, 2012). However, this may be due to a small sample size.

**Conclusion**

In conclusion, there seems to be support in the literature for a relationship between peer violence perpetration and dating violence perpetration. Although the majority of these studies were cross-sectional, there were a couple of short-term longitudinal studies that also supported the relationship. The literature search identified a number of variables that appear to influence the relationship: sex, grade/age, and self-efficacy in nonviolence. Self-efficacy, a modifiable factor, may be particularly important. Findings from the literature demonstrate self-efficacy’s role whether adolescents’ commit or avoid violence, particularly peer violence and sexual violence. Though the literature is lacking regarding self-efficacy’s role in dating violence, based on literature support for self-efficacy’s role in perpetration of general violence, aggression, and peer violence, it would be an optimal topic for future research. Furthermore, given the few studies which explored self-efficacy’s role as a mediating factor even though it has been
demonstrated to be a predicting factor of violence perpetration, future research should consider exploring self-efficacy’s role in mediating peer violence and dating violence perpetration.

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Chapter III: Manuscript Draft

Abstract

Background: Dating violence is a significant public health problem. This study explored the potential partial mediation of self-efficacy of nonviolent conflict negotiation in the association between peer violence and dating violence among youth in a high-risk community.

Methods: This study used cross-sectional data from the Youth Violence Survey: Linkages among Different Forms of Violence study funded by CDC. Data were collected in 2004 and analyzed in 2016. The sample comprised 4,131 public school students in the seventh, ninth, eleventh, and twelfth year in an urban school district with high crime and poverty rates who completed a self-report questionnaire following active parental consent and student assent. The analytic sample was restricted to participants who dated in the past year (n=2,888). A mediation analysis was conducted using both the Causal Steps method and the Sobel Test to determine if self-efficacy in nonviolent conflict negotiation mediated the relationship between peer violence perpetration and dating violence perpetration.

Results: Results supported the study hypothesis that self-efficacy partially mediated the relationship between peer violence perpetration and dating violence perpetration. Even after controlling for dating violence victimization, peer violence victimization, and peer violence perpetration, self-efficacy contributed significantly to the model explaining dating violence perpetration and lowered the dating violence perpetration variation for which peer violence perpetration accounted (total effect: $\beta=.930$ and $p<.001$, direct effect: $\beta=.841$ and $p<.001$). Self-efficacy decreased the odds by $.674$ of participants who had perpetrated peer violence from perpetrating dating violence ($p<.001$). The significance of the mediation effect was confirmed by the Sobel Test ($z=3.917$, 95% CI).
Conclusion: Self-efficacy in nonviolent conflict negotiation could be an effective intervening factor for dating violence perpetration, contributing to stopping the cycle of violence among youth in high-risk communities.

Introduction

Interpersonal violence (e.g., peer violence, dating violence) among youth is a great public health concern. Findings from the 2017 national Youth Risk Behavior Survey, indicate that within the past year, more than 23% of high school students were in at least one physical fight and 19% of high school students were bullied at school at least once (Kann et al., 2018). The survey also found that among the students that dated within the past year, nearly 7% experienced sexual violence within a dating relationship and 8% experienced physical violence within a dating relationship (Kann et al., 2018). Interpersonal violence can have serious consequences. Public health practitioners have gathered data on prevalence of interpersonal violence and corresponding determinants in order to inform intervention development.

Leading this endeavor is the Centers for Disease Control and Prevention (CDC). As a part of its surveillance activities on violence, CDC conducted the Youth Violence Survey in 2004 and found that respondents to the Youth Violence Survey who perpetrated violence in dating relationships were nearly five times more likely to perpetrate violence in peer relationships (Swahn, Simon, Hertz, et al., 2008). This is in alignment with other studies which have found peer violence perpetration to be a risk factor for dating violence perpetration (Ellis & Wolfe, 2014; Niolon et al., 2015; Ozer et al., 2004; Vagi et al., 2013).

At the time of the survey, CDC also collected data on participants’ self-efficacy in nonviolent conflict resolution. According to social cognitive theory, self-efficacy is the link in translating capabilities to behavior (Bandura, 1989). From this perspective, it is not enough for adolescents to know ways to resolve conflict without violence. It is important for adolescents to be confident in their ability to address conflict nonviolently. Self-efficacy is a natural fit for violence prevention initiatives for it is modifiable and
has demonstrated playing a significant role in avoiding violence and decreasing violent behavior among adolescents (Bettencourt & Farrell, 2013; Farrell, Henry, Schoeny, Bettencourt, & Tolan, 2010; McMahon et al., 2013; Pu et al., 2013; Riner & Saywell, 2002).

The objective of this study was to further examine CDC’s findings and the potential role of self-efficacy in mediating the relationship found between peer violence perpetration and dating violence perpetration among Youth Violence Survey respondents. If mediation is found, then self-efficacy would be a prime variable to target to stop the continuation of violence from peer relationships to dating relationships among adolescents. The specific null and alternative hypotheses that were tested in this study were as follows:

**Null Hypothesis:** There is no mediating effect of self-efficacy of nonviolent conflict negotiation on peer violence perpetration and dating violence perpetration.

**Alternative Hypothesis:** Self-efficacy in nonviolent conflict negotiation partially mediates the relationship between peer violence perpetration and dating violence perpetration.

**Methods**

This study used a subset of de-identified data from the *Youth Violence Survey: Linkages among Different Forms of Violence (Linkages)*. *Linkages* is a survey conducted by the Centers for Disease Control and Prevention in an urban school district which had high crime and poverty rates and was located in a city with a population of less than 250,000 people. The participating school district was selected because it met four indicators of risk: poverty, unemployment, single-parent households, and serious crimes. First, the school district chosen was in the top 25 most impoverished school districts in the nation. Second, the school district was one of the top 35 school districts in unemployment rate. Third, it was one of 15 districts with the greatest number of single-parent families. Fourth, the district was one of 10 districts in the nation with the highest rates of serious crime. The district was also racially and ethnically diverse. A total of 16
public middle and high schools comprised the district and all participated in the study. The study required active parental consent and student assent. In April and May of 2004, participants completed a 174-item questionnaire in classrooms. The questionnaire was self-administered on scannable paper and available only in English. A total of 4,131 students in the seventh, ninth, eleventh, and twelfth grade completed the survey, yielding a participation rate of 81%. For the purposes of this study, the sample was restricted to participants who had dated within the past 12 months (n=2,888).

Measures

Socio-demographic covariates. The study measured participants’ sex, grade, and race/ethnicity. Sex was a dichotomous measure: participants chose whether they were of the female or male sex. Participants’ grade level was collected at the time of the survey -options included 7, 9, 11, and 12. Preliminary data analysis found the greatest differences between participants in 7 grade and participants in the other grades. So, grade was recoded into a dichotomous variable comparing 7 grade participants to participants in high school. Unless otherwise stated, grade level data is reported using this dichotomous variable. Race/ethnicity was measured using two items. The first was a dichotomous question asking participants if they were Hispanic or Latino. The second was a categorical variable which asked participants how they describe themselves and to choose all that apply from the following options: African-American or black, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, White. These were recoded into a single race/ethnicity variable with the following options: Hispanic, non-Hispanic African-American/black, non-Hispanic white, non-Hispanic mixed race, and non-Hispanic other race.

Peer violence. Peer violence perpetration (PVP) and peer violence victimization (PVV) measured the participant’s perpetration or victimization of violence in peer relationships within the past 12 months. The measure was based on the scale used in the Safe Dates Program Evaluation (Foshee et al., 1996). A
total of 15 items were included to capture PVP and 15 items assessed PVV. For both perpetration and victimization items participants reported the frequency of exposure to the same behaviors as a perpetrator or as a victim. Participants were instructed to respond to the items on behaviors that were with a person of the same sex and age and not in play or self-defense. The response options ranged from never to 10 or more times in the past 12 months. Below is a listing of the 15 items on perpetration. The victimization items were changed so that participants were responding to behaviors done towards them. The perpetration behaviors included: damaged something that belonged to them; said things to hurt their feelings on purpose; threatened to hit or throw something at them; insulted them in front of others; scratched them; put down their looks; hit or slapped them; slammed them or held them against a wall; kicked them; pushed, grabbed or shoved them; forced them to have sex or to do something sexual that they did not want to do; threw something at them that could hurt; punched or hit them with something that could hurt; threatened or injured them with a knife or gun; and hurt them badly enough to need bandages or care from a doctor or nurse. For the purposes of this study, results for both the perpetration and victimization items were recoded into a dichotomous variables so that participants either never perpetrated any of these behaviors in the past 12 months toward a peer (non-perpetrator) or perpetrated at least one behavior at least one time (perpetrator). Similar recoding was conducted for victimization: participants either never experienced a peer doing any of these things to them in the past 12 months (non-victim) or having experienced a peer doing at least one behavior at least one time (victim).

Dating violence. Dating violence perpetration (DVP) and dating violence victimization (DVV) measured the participant’s perpetration or victimization of violence within a dating relationship within the past 12 months. The measure was based on the scale used in the Safe Dates Program Evaluation (Foshee et al., 1996). A total of 15 items were included to capture DVP and 15 items assessed DVV. For both perpetration and victimization items, participants reported the frequency of exposure to the same behaviors as a perpetrator or as a victim. Participants were instructed to respond to the items on
behaviors that were with a date and not in play or self-defense. The response options ranged from never to 10 or more times in the past 12 months. Below is a listing of the 15 items on perpetration. The victim items were changed so that participants were responding to behaviors done toward them. The perpetration behaviors included: damaged something that belonged to them; said things to hurt their feelings on purpose; threatened to hit or throw something at them; insulted them in front of others; scratched them; put down their looks; hit or slapped them; slammed them or held them against a wall; kicked them; pushed, grabbed or shoved them; forced them to have sex or to do something sexual that they did not want to do; threw something at them that could hurt; punched or hit them with something that could hurt; threatened or injured them with a knife or gun; and hurt them badly enough to need bandages or care from a doctor or nurse. For the purposes of this study, results for both the perpetration and victimization items were recoded into dichotomous variables so that participants either never perpetrated any of these behaviors in the past 12 months toward a date (non-perpetrator) or perpetrated at least one behavior at least one time (perpetrator). Similar recoding was conducted for victimization: participants either never experienced a date doing any of these things to them in the past 12 months (non-victim) or having experienced a date doing at least one behavior at least one time (victim).

Self-efficacy in nonviolent conflict negotiation (SE). The study measured SE through the Self-Efficacy for Alternatives to Aggression Scale (Simon et al., 2008). The scale measures the participant’s confidence in their ability to resolve conflict in non-violent methods. The scale was previously used in the Multisite Violence Prevention Project (Simon et al., 2008). Participants reported their confidence level in a five point, Likert scale ranging from not at all confident to very confident about being able to do the following behaviors when they disagree with a peer: stay out of fights by choosing other solutions, talk out a disagreement, calm down when they are mad, ignore someone who is making fun of them, avoid a fight by walking away, apologize to the other student, seek help from an adult. Participants’ self-efficacy
score was determined by calculating the mean score of all behaviors, the higher the score the more confidence the participant had in resolving conflict in the mentioned non-violent ways.

Statistical Analysis

Analysis was conducted using IBM SPSS Statistics Software. Mediation was explored using the Baron and Kenny Causal Steps approach (Baron & Kenny, 1986) and confirmed with the Sobel Test. Mediation analyses controlled for PVV, DVV, grade, sex, and race/ethnicity. The causal steps approach for partial mediation consisted of four steps: (1) determine if the independent variable predicts the dependent variable (total effect or $c$-path), (2) determine if the independent variable predicts the potential mediator ($a$-path), (3) determine if the potential mediator predicts the dependent variable ($b$-path), and (4) determine if the direct effect is less than the total effect and greater than zero. So, in the case of this study, the first step was to conduct a logistic regression with PVP as the independent variable and DVP as the dependent variable. Next, a linear regression with PVP as the independent variable and SE as the dependent variable was conducted. Another logistic regression was then conducted with self-efficacy as the independent variable and DVP as the dependent variable, controlling for PVP and respective covariates. Finally, the total effect of PVP on DVP was compared to the direct effect of PVP on DVP, accounting for mediation through SE. If the direct effect is less than the total effect and greater than zero, then the null hypothesis will be rejected.

To confirm the mediation effect explored using causal steps, a Sobel Test was also conducted (Preacher & Hayes, 2004). The Sobel Test statistic was calculated by dividing $ab$ by the standard errors of $a$ and $b$. The equation for the standard errors of $a$ and $b$ is as follows: $s_{ab} = \sqrt{b^2s_a^2 + a^2s_b^2 + s_a^2s_b^2}$. The Sobel Test statistic was compared to $\pm 1.96$, the two-tailed critical value of an alpha of .05. If the test statistic is within the rejection region, then the null hypothesis will be rejected.
Results

Preliminary Findings

A total of 4,131 public students in the seventh, ninth, eleventh, and twelfth year of school participated in the original study. For the purposes of this study, the sample was restricted to participants who had dated in the past 12 months (n=2,888). Analyses comparing individuals who dated within the past 12 months and those that did not found no significant differences by sex ($p=.802$) but did find a relationship between grade and dating status ($p<.001$). The participants in older grades were more likely to have dated in the past 12 months compared to participants in lower grades. There were also differences SE scores between those that dated and those that did not date in the previous year: participants who dated had a significantly lower SE score ($M=3.21, SD=1.078$) compared to those that had not dated ($M=3.53, SD=1.061$), $t(3360)=-6.77, p<.001$. For information on the demographic makeup of the analytic sample, see Table 1. Further analyses explored differences within the analytic sample by sex, grade, and race/ethnicity of DVP, DVV, PVP, PVV, and SE. Note, analyses explored frequency of perpetration and not severity.

Dating Violence Perpetration

Among participants that dated, the majority had not perpetrated violence in a dating relationship within the past year (54.4%). Among those that did perpetrate violence in dating relationships, there were some statistically significant differences by sex, grade, and race/ethnicity. Analyses found that a significantly greater proportion of females (58.6%) committed violence at least once within a dating relationship in the past year than males (41.4%), $\chi^2 (1, n=2447) = 41.531, p<.001$. Significantly more high school participants (35.6%) committed dating violence in the past year than seventh grade participants (10%), $\chi^2 (1, n=2447) =30.551, p<.001$. And among participants that perpetrated dating violence, there
was a significantly greater proportion of Hispanics students (45.9%) and lesser proportion of non-Hispanic white students (20.1%) than expected, $\chi^2 (4, n=2406) = 25.468, p<.001$.

**Dating Violence Victimization**

A little over half of the participants that dated experienced DVV within the past year (51.7%). Significantly more high school participants (39.7%) than seventh grade participants (12%) experienced DVV, $\chi^2 (2, n= 2341) = 18.502, p<.001$. Experiences with DVV varied by race/ethnicity with a particularly greater proportion of Hispanic students (23.3%) and lesser proportion of non-Hispanic white students (11%) experiencing DVV than expected, $\chi^2(4, n=2301) = 11.755, p=.019$.

**Peer Violence Perpetration**

Amongst participants that dated, 43.3% perpetrated violence within a peer relationship at least once in the past year with no statistical differences by sex ($\chi^2(1, n=2411) = 2.467, p=.116$) or race/ethnicity ($\chi^2(1, n= 2373) = 2.340, p=.674$). There was a significant difference in PVP by grade with more high school participants (33.6%) perpetrating violence in peer relationships than seventh grade participants (9.8%), $\chi^2(1, n= 2408) = 18.685, p<.001$.

**Peer Violence Victimization**

Among the participants that dated, a little over half experienced PVV in the past year (52.1%). Significantly more females (28.9%) experienced PVV compared to males (23.2%), $\chi^2(1, n=2419) = 6.682, p=.01$. High school participants (39.8%) were significantly more likely to experience PVV than seventh grade participants (12.5%), $\chi^2(1, n= 2417) = 14.108, p<.001$. PVV experiences also varied by race/ethnicity with more non-Hispanic white participants (14.7%) and less non-Hispanic, African-American participants (9.5%) experiencing PVV than expected, $\chi^2(4, n=2380) = 41.955, p<.001$. 
Self-Efficacy in Non-Violent Conflict Negotiation

For participants that dated in the past year, SE scores ranged from 1 to 5 (M=3.24, SD= 1.078). Females (M= 3.36, SD= 1.048) had significantly greater SE scores than their male counterparts (M= 3.11, SD= 1.095); t(2479)=5.894, p<.001. Findings from an ANOVA assessing the relationship between all grades (7, 9, 11, and 12) and SE found significant differences between group means in SE scores, p<.001. Findings from the Tukey’s HSD post hoc test indicate the difference is between the 11th/12th grade students (M= 3.5, SD= .983) and the 7th/9th grade students (7th grade: M= 2.98 and SD= 1.172, 9th grade: M= 3.09, SD= .983). There are also significant differences in group means between participants of different races/ethnicities (p< .05). Findings from a post hoc Tukey HSD test indicate significant differences between non-Hispanic white participants (M=3.45, SD= 1.046) and Hispanic participants (M= 3.16, SD= 1.082, p<.001), non-Hispanic African-American participants (M= 3.15, SD= 1.085, p< .001), and non-Hispanic participants of mixed racial identity (M= 3.21, SD= 1.06, p= .034).

Hypothesis Testing Results

Causal Steps Analysis

Step 1: Determine if PVP Predicts DVP (Total Effect or c-path). The first step in in the mediation model is to assess the total effect, that is determine whether the independent variable (PVP) predicts the dependent variable (DVP). To do this a logistic regression was conducted, controlling for PVV, DVV, sex, grade, and race/ethnicity (see Table 2). Even while controlling for these explanatory variables, PVP significantly predicted DVP: a participant who perpetrated violence in peer relationships were more than twice as likely to perpetrate violence in dating relationships than participants who were not violent with peers (AOR= 2.319, p<.001). As a whole, the combination of PVP, PVV, DVV, sex, grade, and race/ethnicity explained between 42.1% (Cox and Snell R square) and 56.8% (Nagelkerke R squared) of the variance in DVP status, correctly classifying 83.1% of cases.
Step 2: Determine if PVP Predicts SE (a-path). The second step is to assess whether the independent variable (PVP) predicts the mediator (SE). To determine whether PVP predicts SE, a linear regression was conducted, controlling for PVV, DVV, sex, grade, and race/ethnicity. Results from the linear regression provided the a-path (PVP coefficient) which was -.359. A significant regression equation was found (F (6, 1622)= 23.899, p<.001), with an R^2 of .081. A participant’s predicted SE score is equal to 3.88-.359(PVP)+.088(PVV)-.209(DVV)-.341(grade)-.252(gender)+.302(race/ethnicity). A participant’s SE score decreased by .359 points if the participant had perpetrated violence within a peer relationship at least once in the past year. PVP and the respective covariates significantly predicted SE but only accounted for 8.1% of the variance in SE scores. See Table 3 for more information on the linear regression results.

Step 3: Determine if SE Predicts DVP, controlling for PVP (b-path and direct effect/ c’-path). The next step is to assess whether the mediator (SE) predicts the dependent variable (DVP) if both the mediator (SE) and independent variable (PVP) are included as predictors. To do this, a logistic regression was performed with both SE and PVP included as predictors of DVP and adjusting for PVV, DVV, sex, grade, and race/ethnicity. The results from the logistic regression provided the b path (SE coefficient) and c’ (PVP coefficient) calculations: the b path was -.394 and the direct effect was .841. Even while controlling for PVP and the other covariates, SE significantly predicted DVP (p<.001): as a participant’s SE increases, the odds of a participant having perpetrated violence in a dating relation in the past year decreased by .674. The model consisting of SE, PVP, and other covariates explained between 43.8% (Cox and Snell R square) and 59% (Nagelkerke R square) of the variance in DVP status. By adding self-efficacy, the logistic model slightly increased its percentage of correctly classifying DVP cases from 83.1% to 83.6%. For more information on the results of the logistic regression, see Table 4.

Step 4: Determine if the Direct Effect is less than the Total Effect. The final step in the mediation model is compare the direct effect (c’-path) with the total effect (c-path). The direct effect was calculated in step 3 and the total effect was calculated in step 1. Since the direct effect (.841) was less than the total
effect (.930) and greater than zero, a partial mediation was found and the null hypothesis of no mediation of the effect of SE on PVP and DVP should be rejected. For a graphic representation of the direct and indirect pathways predicting DVP, see Figure 1.

Sobel Test

The Sobel Test was calculated to confirm these findings by dividing $ab$ by the standard errors of $a$ and $b$ using the following equation for the standard errors of $a$ and $b$: $s_{ab} = \sqrt{b^2 s_a^2 + a^2 s_b^2 + s_a^2 s_b^2}$. The Sobel Test statistic was 3.917 which is greater than the critical value of 1.96. Therefore, the null hypothesis of there being no mediation effect of SE on PVP and DVP should be rejected.

Discussion

Though interpersonal violence among adolescents has generally been on the decline for the last several years in the United States, it remains a serious public health concern with major consequences like substance use, depression, and involvement in bi-directionally violent relationships (Chiodo et al., 2012; Foshee et al., 2016; Haynie et al., 2013; Herrenkohl et al., 2009). This study explored the relationship between two forms of interpersonal violence, PVP and DVP, among adolescents from a high-risk community. In alignment with findings from related studies, this study found PVP predicted DVP (Ellis & Wolfe, 2014; Niolon et al., 2015; Ozer et al., 2004; Vagi et al., 2013). Participants who perpetrated violence within peer relationships were more than twice as likely to perpetrate violence in dating relationships when controlling for PVV, DVV, sex, grade, and race/ethnicity (AOR= 2.319, p<.001).

This relationship was further explored through mediation analysis, examining self-efficacy in nonviolent conflict negotiation as a potential mediator. Self-efficacy was selected because of its role in translating capabilities into behavior and ability to be learned, according to social cognitive theory. Self-efficacy has also been found to play a significant role in avoiding violence and decreasing violent behavior among adolescents (Bettencourt & Farrell, 2013; Farrell et al., 2010; McMahon et al., 2013; Pu et al., 2013;
Riner & Saywell, 2002). Findings from both the Causal Steps mediation approach and Sobel testing indicate self-efficacy in nonviolent conflict negotiation partially mediates the relationship between PVP and DVP. While controlling for PVP and other covariates, SE significantly predicted DVP and decreased the odds of DVP by .674 (p<.001).

The fact that SE significantly contributed to DVP even after controlling for other major covariates is interesting because recent literature suggests a difference in behavior and health outcomes for individuals with different violence profiles. One study found male adolescents in a high-risk community who were both bullies and victims of bullying were at a significantly increased risk of perpetrating threatening behavior, emotional/verbal abuse, sexual abuse, and physical abuse within dating relationships compared to males who were only bullies (Niolon et al., 2015). Since self-efficacy was significant even after controlling for DVV, PVP, and PVV, self-efficacy may play an important role across violence profiles in predicting DVP.

Study results should be interpreted within a few limitations. The violence measures used did not incorporate contextual factors for potentially violent situations. In a study of high-risk urban middle school students, one study found participants considered self-efficacy important in responding in a non-violent manner and the importance of self-efficacy varies depending on context (Farrell et al., 2008). For instance, self-efficacy is extremely important for situations in which there are peers present; the presence of peer spectators increased the participants’ pressure to fight. The measures also only measured frequency, not severity, and measured frequency in a dichotomous fashion. The strength of the relationships between variables may vary based on level of frequency and severity.

Using cross-sectional data, study findings cannot inform the temporality of variable associations. The direction of the mediation analysis was informed by human development theory which suggests peer
violence emerges first and then leads to dating violence because youth tend to develop friendships prior to dating relationships.

The sample population consisted of adolescents in an at-risk population. Therefore, the study findings cannot be generalized to the general population. The findings should be interpreted within the context of communities with a high crime and poverty rate. Though this is a limitation, it also provides insight. The youth that participated in this study experience many risk factors that would promote peer and dating violence. However, not all the students engaged in violence. If self-efficacy behaves as a protective mediator for this population, it may behave the same way for other populations which should be examined in future research.

Implications, Contribution, & Future Research

The study contributes to the overall dialogue about adolescent interpersonal violence, the intersection of PVP and DVP, and the potential mediating effect of SE. As a partial mediator, SE appears to mitigate the impact of PVP on DVP. This suggests an intervention that targets SE may help break the cycle of violence among adolescents who perpetrate violence within peer relationships, stopping the violent behavior before it leads to violence within dating relationships. This said intervention could take place at the school level for one study found a universal school-based violence prevention program significantly increased high-risk students’ self-efficacy (Simon et al., 2008).

The study’s findings raises many new questions for future research. Replication of the study among various populations is recommended. Future research should also explore the impact of the frequency and severity of peer violence perpetration may have as part of the mediational relationship. Additionally, future research may also want to include the level of skill in nonviolent conflict negotiation and parse out the contribution of skill versus participants’ confidence in their skills.
### Table 1.
**Sample Demographics of Study Participants (N=2888)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean Percentage (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>47.7% (1378)</td>
</tr>
<tr>
<td>Females</td>
<td>51.9% (1500)</td>
</tr>
<tr>
<td><strong>Grade</strong></td>
<td></td>
</tr>
<tr>
<td>7th</td>
<td>28.4% (821)</td>
</tr>
<tr>
<td>9th</td>
<td>28.5% (823)</td>
</tr>
<tr>
<td>11th/ 12th</td>
<td>42.6% (1231)</td>
</tr>
<tr>
<td><strong>Race/ Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>43.5% (1257)</td>
</tr>
<tr>
<td>Non-Hispanic African-American</td>
<td>21.8% (631)</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>23.1% (667)</td>
</tr>
<tr>
<td>Non-Hispanic Mixed</td>
<td>9.4% (272)</td>
</tr>
<tr>
<td>Non-Hispanic Other</td>
<td>2.9% (85)</td>
</tr>
</tbody>
</table>

*Note: Columns may not total due to missing data.*

### Table 2.
**Results of Logistic Regression of Peer Violence Perpetration Predicting Likelihood of Dating Violence Perpetration, controlling for Peer Violence Victimization, Dating Violence Victimization, Grade, Sex, and Race/Ethnicity (n= 1636)**

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>p</th>
<th>Odds Ratio</th>
<th>95% C.I. for Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Violence Perpetration</td>
<td>.930</td>
<td>.155</td>
<td>35.768</td>
<td>1</td>
<td>.000</td>
<td>2.534</td>
<td>1.868 - 3.436</td>
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<tr>
<td>Peer Violence Victimization</td>
<td>.588</td>
<td>.155</td>
<td>14.357</td>
<td>1</td>
<td>.000</td>
<td>1.801</td>
<td>1.329 - 2.442</td>
</tr>
<tr>
<td>Dating Violence Victimization</td>
<td>3.029</td>
<td>.149</td>
<td>411.614</td>
<td>1</td>
<td>.000</td>
<td>20.670</td>
<td>15.427 - 27.695</td>
</tr>
<tr>
<td>Grade (7th vs. High School)</td>
<td>-.531</td>
<td>.166</td>
<td>10.188</td>
<td>1</td>
<td>.001</td>
<td>.588</td>
<td>.424 - .815</td>
</tr>
<tr>
<td>Sex (Female Reference Group)</td>
<td>-.922</td>
<td>.145</td>
<td>40.494</td>
<td>1</td>
<td>.000</td>
<td>.398</td>
<td>.299 - .528</td>
</tr>
<tr>
<td>Race (White Reference Group)</td>
<td>-.683</td>
<td>.170</td>
<td>16.064</td>
<td>1</td>
<td>.000</td>
<td>.505</td>
<td>.362 - .705</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.989</td>
<td>.151</td>
<td>173.988</td>
<td>1</td>
<td>.000</td>
<td>.137</td>
<td></td>
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</table>
Table 3.
Results of Linear Regression of Peer Violence Perpetration Predicting Self Efficacy, controlling for Peer Violence Victimization, Dating Violence Victimization, Grade, Sex, and Race/Ethnicity (n= 1629)

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>S.E.</th>
<th>p</th>
<th>95% C.I. for Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Violence</td>
<td>-.359</td>
<td>.062</td>
<td>.000</td>
<td>-.481 to -.237</td>
</tr>
<tr>
<td>Perpetration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer Violence</td>
<td>.088</td>
<td>.061</td>
<td>.150</td>
<td>-.032 to .207</td>
</tr>
<tr>
<td>Victimization</td>
<td></td>
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<tr>
<td>Dating Violence</td>
<td>-.209</td>
<td>.056</td>
<td>.000</td>
<td>-.318 to -.099</td>
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<tr>
<td>Victimization</td>
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<tr>
<td>Grade (7th vs. High School)</td>
<td>-.341</td>
<td>.060</td>
<td>.000</td>
<td>-.459 to -.222</td>
</tr>
<tr>
<td>Sex (Female Reference Group)</td>
<td>-.252</td>
<td>.051</td>
<td>.000</td>
<td>-.353 to -.152</td>
</tr>
<tr>
<td>Race (White Reference Group)</td>
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<td>.061</td>
<td>.000</td>
<td>.182 to .421</td>
</tr>
<tr>
<td>Constant</td>
<td>3.888</td>
<td>.090</td>
<td>.000</td>
<td>3.711 to 4.065</td>
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Table 4.
Results of Logistic Regression of Self Efficacy Predicting Dating Violence Perpetration, controlling for Peer Violence Perpetration, Peer Violence Victimization, Dating Violence Victimization, Grade, Sex, and Race/Ethnicity (n= 1486)

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>p</th>
<th>Odds Ratio</th>
<th>95% C.I. for Odds Ratio</th>
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<tr>
<td>Peer Violence Perpetration</td>
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<td>.167</td>
<td>25.454</td>
<td>1</td>
<td>.000</td>
<td>2.319</td>
<td>1.672 - 3.215</td>
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<tr>
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<td>.167</td>
<td>14.744</td>
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<td>.000</td>
<td>1.900</td>
<td>1.369 - 2.636</td>
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<tr>
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<td>360.72</td>
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<td>.000</td>
<td>20.687</td>
<td>15.133 - 28.279</td>
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<tr>
<td>Grade (7th vs. High School)</td>
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<td>1</td>
<td>.000</td>
<td>.517</td>
<td>.362 - .737</td>
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<td>.156</td>
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<td>.355</td>
<td>.262 - .482</td>
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<td>11.515</td>
<td>1</td>
<td>.001</td>
<td>.540</td>
<td>.378 - .771</td>
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<tr>
<td>SE</td>
<td>-.394</td>
<td>.073</td>
<td>29.136</td>
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<td>.674</td>
<td>.584 - .778</td>
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<tr>
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<td>.293</td>
<td>4.392</td>
<td>1</td>
<td>.036</td>
<td>.542</td>
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</tr>
</tbody>
</table>

Figure 1.
Direct and Indirect Pathways Predicting DVP

\[ B_{\text{linear}} = -0.359^{***} \]
\[ B_{\text{logistic}} = -0.394^{***} \]
\[ B_{\text{logistic}} = 0.841^{***} \]
References


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