Longitudinal Relations between Dating Violence Victimization and Perpetration and Substance Use: The Moderating Role of Gender and School Norms for Dating Violence

Katherine Taylor
Virginia Commonwealth University

Follow this and additional works at: https://scholarscompass.vcu.edu/etd

Part of the Psychology Commons

© The Author

Downloaded from
https://scholarscompass.vcu.edu/etd/3256

This Dissertation is brought to you for free and open access by the Graduate School at VCU Scholars Compass. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of VCU Scholars Compass. For more information, please contact libcompass@vcu.edu.
LONGITUDINAL RELATIONS BETWEEN DATING VIOLENCE VICTIMIZATION AND PERPETRATION AND SUBSTANCE USE: THE MODERATING ROLE OF GENDER AND SCHOOL NORMS FOR DATING VIOLENCE

A dissertation submitted in partial fulfillment of the requirements for the Doctor of Philosophy at Virginia Commonwealth University

By: KATHERINE A. TAYLOR
B.S., Virginia Polytechnic Institute and State University, 2008
M.S., Virginia Commonwealth University, 2011

Director: Terri N. Sullivan, PhD
Associate Professor, Department of Psychology

Virginia Commonwealth University
Richmond, Virginia
November, 2013
Acknowledgements

This study was supported by Cooperative Agreement Number U81/CCU317633 issued by the National Center for Injury Prevention and Control (NCIP) of the Centers for Disease Control and Prevention (CDC). The findings and conclusions in this report are those of the author and do not necessarily represent the official position of the CDC. I would like to thank the members of the Multi-Site Violence Prevention Project for permission to use the data for this study. I would also like to acknowledge the members of this dissertation committee, Dr. Terri Sullivan, Dr. Albert Farrell, Dr. Rose Corona, Dr. Barbara Myers, and Dr. Traci Wike for their time and assistance throughout this project. I am especially thankful to Terri Sullivan for her knowledge, guidance, and encouragement throughout this process and my graduate training. I could not have asked for a more supportive advisor and I certainly could not have done this without her. To my family and friends – thank you for your constant love and support. I am so lucky to have you.
# Table of Contents

<table>
<thead>
<tr>
<th>Acknowledgements</th>
<th>ii</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Tables</td>
<td>vi</td>
</tr>
<tr>
<td>List of Figures</td>
<td>vii</td>
</tr>
<tr>
<td>Abstract</td>
<td>viii</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Review of the Literature</td>
<td>7</td>
</tr>
<tr>
<td>Adolescent Romantic Relationships</td>
<td>8</td>
</tr>
<tr>
<td>Development-Contextual Theory of Romantic Relationships</td>
<td>9</td>
</tr>
<tr>
<td>Benefits of Adolescent Dating</td>
<td>12</td>
</tr>
<tr>
<td>Adolescent Dating Violence</td>
<td>13</td>
</tr>
<tr>
<td>Theories of Adolescent Dating Violence</td>
<td>16</td>
</tr>
<tr>
<td>Outcomes of Dating Violence Victimization</td>
<td>17</td>
</tr>
<tr>
<td>Relations between Dating Violence Victimization and Substance Use</td>
<td>17</td>
</tr>
<tr>
<td>Relations between Dating Violence Victimization and Perpetration</td>
<td>20</td>
</tr>
<tr>
<td>Limitations of Previous Research</td>
<td>22</td>
</tr>
<tr>
<td>Moderators of Relations between Dating Violence Victimization and</td>
<td></td>
</tr>
<tr>
<td>Outcomes</td>
<td>25</td>
</tr>
<tr>
<td>School Norms for Dating Violence</td>
<td>25</td>
</tr>
<tr>
<td>Gender</td>
<td>29</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>31</td>
</tr>
<tr>
<td>Hypotheses</td>
<td>34</td>
</tr>
<tr>
<td>Topic</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Method</td>
<td>37</td>
</tr>
<tr>
<td>Setting</td>
<td>37</td>
</tr>
<tr>
<td>Participants</td>
<td>37</td>
</tr>
<tr>
<td>Procedure</td>
<td>38</td>
</tr>
<tr>
<td>Measures</td>
<td>39</td>
</tr>
<tr>
<td>Demographic Characteristics</td>
<td>39</td>
</tr>
<tr>
<td>Dating Violence Victimization and Perpetration</td>
<td>40</td>
</tr>
<tr>
<td>Substance Use</td>
<td>41</td>
</tr>
<tr>
<td>Class-Level School Norms for Dating Violence</td>
<td>41</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>42</td>
</tr>
<tr>
<td>Results</td>
<td>48</td>
</tr>
<tr>
<td>Descriptive Analyses</td>
<td>48</td>
</tr>
<tr>
<td>Preliminary Analyses</td>
<td>53</td>
</tr>
<tr>
<td>Multilevel Analyses</td>
<td>54</td>
</tr>
<tr>
<td>Relations among Dating Violence Victimization, Gender, Norms for</td>
<td>54</td>
</tr>
<tr>
<td>Dating Violence and Physical Dating Violence Perpetration</td>
<td>54</td>
</tr>
<tr>
<td>Relations among Dating Violence Victimization, Gender, Norms for</td>
<td>58</td>
</tr>
<tr>
<td>Dating Violence and Psychological Dating Violence Perpetration</td>
<td>58</td>
</tr>
<tr>
<td>Relations among Dating Violence Victimization, Gender, and Substance Use</td>
<td>63</td>
</tr>
<tr>
<td>Discussion</td>
<td>66</td>
</tr>
<tr>
<td>Limitations</td>
<td>73</td>
</tr>
<tr>
<td>Implications and Future Research</td>
<td>74</td>
</tr>
</tbody>
</table>
References.........................................................................................................................79
Appendix..........................................................................................................................89
Vita......................................................................................................................................94
List of Tables

Table 1. Percentage of Youth Having Ever Experienced Psychological and Physical Dating Violence Victimization ................................................................. 49

Table 2. Percentage of Youth Having Ever Perpetrated Psychological and Physical Dating Violence ................................................................. 50

Table 3. Percentage of Youth Having Ever Used Substances .............................................. 50

Table 4. Means, Standard Deviations, and Intercorrelations Correlations for Study Variables .................................................................................. 52

Table 5. Comparisons of the Unconstrained and Constrained Models Depicting Relations between Wave 1 Physical and Psychological Dating Violence Victimization and Wave 2 Substance Use ............................................ 54

Table 6. Unstandardized Parameter Estimates for Multilevel Models Predicting Relations between Dating Violence Victimization, Gender, Norms for Dating Violence, and Physical Dating Violence Perpetration ........................................... 57

Table 7. Unstandardized Parameter Estimates for Multilevel Models Predicting Relations between Dating Violence Victimization, Gender, Norms for Dating Violence, and Psychological Dating Violence Perpetration .................... 61

Table 8. Unstandardized Parameter Estimates for Multilevel Models Predicting Relations between Dating Violence Victimization, Gender, and Substance Use ........................................................................................................... 65
## List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>Conceptual Model Depicting Relations between Dating Violence Perpetration and (a) Dating Violence Victimization, Gender, and Demographic Controls at the Individual Level and (b) Intervention Condition and Norms for Dating Violence at the School Level</td>
<td>45</td>
</tr>
<tr>
<td>Figure 2</td>
<td>Conceptual Model Depicting Relations between Substance Use and (a) Dating Violence Victimization, Gender, and Interactions between Victimization and Gender at the Individual Level and (b) Intervention Condition at the School Level</td>
<td>47</td>
</tr>
<tr>
<td>Figure 3</td>
<td>Gender as a Moderator of Relations between Psychological Dating Violence Victimization and Psychological Dating Violence Perpetration</td>
<td>62</td>
</tr>
<tr>
<td>Figure 4</td>
<td>Gender as a Moderator of Relations between Physical Dating Violence Victimization and Psychological Dating Violence Perpetration</td>
<td>62</td>
</tr>
</tbody>
</table>
Abstract

LONGITUDINAL RELATIONS BETWEEN DATING VIOLENCE VICTIMIZATION AND PERPETRATION AND SUBSTANCE USE: THE MODERATING ROLE OF GENDER AND SCHOOL NORMS FOR DATING VIOLENCE

By Katherine A. Taylor

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University

Virginia Commonwealth University, 2013

Director: Terri N. Sullivan, PhD
Associate Professor, Department of Psychology

Adolescent dating violence is commonly experienced by adolescents and is associated with a variety of negative outcomes. Stress and coping and social learning theories suggest that dating violence victimization may predict increased substance use and dating violence perpetration. However, few studies have assessed these relations over time, and existing studies have not assessed physical and psychological dating violence victimization separately nor focused on early adolescent populations. The current study addressed these gaps by examining longitudinal relations between physical and psychological dating violence victimization and substance use and physical and psychological dating violence perpetration among early adolescents. The extent to which gender and class norms for dating violence moderated these relations was also examined. Participants included two cohorts of sixth grade students who reported being involved in a dating relationship at Waves 1 and 2 (N = 2,022; 43% female; 52% African American, 21%
Latino/a, 20% European American, and 7% other). Analyses utilized a multilevel approach whereby students were represented at Level 1 and classes (scores for students in the same cohort and school; \( n = 74 \)) at Level 2. Models tested direct effects from Wave 1 psychological and physical victimization to Wave 2 outcomes and the extent to which gender moderated this effect. Models including psychological and physical perpetration also tested cross-level interactions between Level 1 dating violence victimization and Level 2 class norms for dating violence. Key findings indicated that gender moderated relations between physical and psychological victimization and psychological perpetration. High levels of psychological victimization predicted greater change in psychological perpetration for girls as compared to boys and high levels of physical victimization predicted greater change in psychological perpetration for boys as compared to girls. Additionally, physical and psychological victimization significantly predicted changes in substance use. High levels of physical victimization predicted greater change in substance use, whereas high levels of psychological victimization predicted less change in substance use. These findings highlight the need to address dating violence early in middle school, so as to prevent negative outcomes associated with victimization by a dating partner.
Longitudinal Relations between Dating Violence Victimization and Perpetration and Substance Use: The Moderating Role of Gender and School Norms for Dating Violence Involvement in romantic relationships is an important part of development for many adolescents. Approximately 25% of 12 year-old youth report involvement in a romantic relationship, with rates increasing to 70% by the age of 18 (Connolly & McIsaac, 2009). These prevalence rates capture the percentages of youth who report having a boyfriend or girlfriend. Although researchers primarily assess romantic relationship status through the use of such commonly understood terms, adolescent romance can be conceptualized in various ways (Connolly & McIsaac, 2009). For instance, the terms romantic activities and dating are used to describe interactions between actual or potential romantic partners, respectively. According to Brown’s (1999) development-contextual stage theory of romantic relationship development, adolescent dating experiences tend to follow a developmental sequence of four stages, which coincide with changes in the peer context. During the first stage of romantic relationship development, the initiation phase, adolescents begin to explore romantic interests within the context of same-sex peer groups. As such, this stage is mostly characterized by talking to same-sex peers about infatuations and, subsequently, learning peer group norms for romantic behavior (Connolly & McIsaac, 2009). During the second stage, the status phase, adolescents experience increased opportunities to interact with potential romantic partners and begin to form initial romantic relationships, which are largely influenced by the peer group (Connolly & McIsaac, 2009). During the final two phases, the affection phase and bonding phase, romantic relationships become increasingly intimate and committed (Brown, 1999).

Early adolescence, ages 10 to 14, represents an important timeframe in adolescence to study romantic involvement because dating is often novel, heavily influenced by peers, and
potentially difficult to negotiate as adolescents are learning and attempting to ascribe to behavioral norms related to dating (Arnett, 2010; Connolly & McIsaac, 2009). For example, a qualitative study of early adolescent dating problems revealed that adolescents often have difficulties approaching potential partners, and also experience uncomfortable or inappropriate approaches from other adolescents (Sullivan, Erwin, Helms, Masho, & Farrell, 2010).

Additionally, peers often play an integral role in the development and maintenance of early adolescent romantic relationships (Brown, 1999). For instance, during the initial phases of romantic relationship development, peers exert their influence by communicating norms and attitudes regarding appropriate partner selection (Brown, 1999). Beyond this influence, peers also play a role in relationship maintenance, acting in ways that may support or harm peers’ romantic relationships (Giordano, Manning, & Longmore, 2006).

Dating relationships are a key facet of social development for many adolescents. Although these relationships can promote positive socio-emotional development (Collins, 2003) they can also place youth at risk for victimization and perpetration in dating contexts. Adolescent dating violence includes physical, sexual, and psychological violence within a dating relationship. Physical dating violence involves the use of force to inflict fear or injury (e.g., kicking, pushing, and scratching). Psychological violence includes non-physical acts that are intended to inflict emotional harm (e.g., monitoring behavior and whereabouts, insults, and emotional put-downs). Lastly, sexual violence involves controlling someone’s sexual behavior (Foshee et al., 1996; Simon, Miller, Gorman-Smith, Orpinas, & Sullivan, 2010). Unfortunately, dating violence commonly occurs during adolescence, with prevalence rates among ethnically diverse samples indicating that approximately 30% of youth in a romantic relationship experience physical dating violence victimization (O’Leary, Smith Slep, Avery-Leaf, &
Cascardi, 2008; Simon et al., 2010) and between 40% of youth who have been on a date (Foshee et al., 2009) and 90% of youth in a romantic relationship (O’Leary et al., 2008) have experienced psychological violence. Finally, sexual abuse is less common, with national rates indicating that between 2% and 9% of youth in a romantic relationship have been victimized by this form of abuse (Ackard, Neumark-Sztainer, & Hannan, 2003; Foshee et al., 1996).

Adolescent dating violence victimization not only places youth at risk for physical injury, but it is also associated with a multitude of adjustment problems, including internalizing and externalizing behaviors (Alleyne-Green, Coleman-Cowger, & Henry, 2012; Banyard & Cross, 2008; Banyard, Cross, & Modecki, 2006; Callahan, Tolman, & Saunders, 2003; Holt & Espelage, 2005; Silverman, Raj, Mucci, & Hathaway, 2001; Swahn et al., 2008). In order to better inform prevention and intervention efforts, it is critical to identify consequences of dating violence victimization, especially during early adolescence when maladaptive behaviors could be addressed before patterns become entrenched. The current study drew from two theoretical perspectives, stress and coping theory and social learning theory, and aimed to examine the extent to which dating violence victimization predicted substance use and dating violence perpetration.

Stress and coping theories conceptualize substance use as a form of mental disengagement, or a way to cope with negative emotions associated with experiencing stressful situations. Thus, youth who experience the stress of being victimized by a dating partner may be at increased risk for engaging in substance use as a means to cope with these experiences. Previous longitudinal research has generally supported this notion. For example, Ackard, Eisenberg, and Neumark-Sztainer (2007) examined consequences of physical and sexual dating violence victimization among an ethnically diverse sample of adolescents and found that
victimization in middle school predicted increased marijuana use for female youth five years later. Similarly, among a sample of 11- to 20-year olds Roberts, Klein, and Fisher (2003) found that dating violence victimization (i.e., composite of physical and psychological abuse) predicted increases in illicit substance use for female youth over a one year period.

Social learning theory posits that aggressive behavior is learned through observing others enact and receive positive reinforcement for aggression (Bandura, 1977). According to this notion, youth who are exposed to perpetration by a dating partner may subsequently engage in dating violence perpetration due to beliefs that aggression is an appropriate form of problem-solving and self-expression (Wekerle & Wolfe, 1999). For example, in a longitudinal study of middle and high school youth, Gomez (2011) found that the experience of moderate physical and severe sexual and physical dating violence victimization that resulted in injury predicted male perpetration of intimate partner violence. This author also found that severe dating violence victimization predicted female perpetration of intimate partner violence in young adulthood.

Nevertheless, the current body of research on outcomes of dating violence victimization has several limitations. First, the majority of research is cross-sectional and thus the temporal sequence of dating violence victimization, substance use and dating violence perpetration is not clear (e.g., Howard & Wang, 2003; Leadbeater, Banister, Ellis, & Yeung, 2008; O’Keefe, 1997; Schad, Szwedo, Antonishak, Hare, & Allen, 2008). Second, longitudinal studies have primarily employed samples of youth in high school or with wide age ranges, therefore, limiting our understanding of the consequences of early adolescent dating violence (e.g., Ackard et al., 2007; Roberts et al., 2003). Third, most studies have failed to examine the unique impact of dating violence victimization on substance use and dating violence perpetration, as they have not controlled for previous perpetration (e.g., Ackard et al., 2007; Roberts et al., 2003). A fourth and
final limitation is that with the exception of a handful of studies (e.g., Leadbeater et al., 2008; Roberts et al., 2003; Schad et al., 2008) very few cross-sectional studies and even fewer longitudinal studies have examined the consequences of psychological forms of dating violence (e.g., Ackard et al., 2007; Gomez, 2011; Howard & Wang, 2003; O’Keefe, 1997; Silverman et al., 2001; Swahn et al., 2008) even though previous research shows that this is a very common form of dating violence in adolescence (e.g., Foshee et al., 2009; O’Leary et al., 2008).

In addition to examining the outcomes of dating violence victimization it is also imperative to better understand the specific factors that place youth at increased risk for negative outcomes in order to better inform youth violence prevention programs. Previous research suggests that multiple factors place adolescents at risk for dating violence victimization or perpetration, including but not limited to family processes such as child maltreatment (e.g., Wolfe, Wekerle, Scott, Straatman, & Grasley, 2004), socio-demographic characteristics such as family structure (e.g., Foshee et al., 2009), and neighborhood factors such as community violence exposure (e.g., Hickman, Jaycox, & Aronoff, 2004). However, less attention has been focused on identifying factors that place youth who experience dating violence victimization at increased risk for negative outcomes. The current study aimed to address this gap in the literature by examining the moderating role of class-level school norms for dating violence and gender on relations between dating violence victimization and dating violence perpetration and substance use.

Peers play an important role in adolescent dating experiences (Brown, 1999) and as such may also influence the negative outcomes of adolescent dating violence. One way peers can exert this influence is by serving as norm-setters for dating violence perpetration. Previous research has largely focused on individual-level norms for dating violence (e.g., Foshee et al.,
indicating that 30% to 60% of dating youth endorse norms supportive of dating violence (Simon et al., 2010). Previous research on norms indicates that peers’ or classmates’ support of dating violence can be examined at the school level based on aggregate measures that represent the norms among youth in the same grade at the same school (Henry, Cartland, Ruch-Ross, & Monahan, 2004). Yet, fewer studies have considered the influence of class-level school norms for dating violence on adolescent dating violence. Based on the tenets of social learning theory (Bandura, 1977), exposure to norms supporting dating violence is likely to contribute to increased dating violence perpetration. For example, focus group studies with ethnically diverse middle school youth have revealed that often male adolescents are not encouraged to treat girlfriends well, and they may perpetrate dating violence in retaliation against a dating partner as a way to save face in front of their peers (Noonan & Charles, 2009). Thus, in the context of class-level school norms supporting dating violence, there may be a stronger relation between dating violence victimization and perpetration.

Previous research has hypothesized that gender also plays an important role in the relation between dating violence victimization and dating violence perpetration and substance use. Some previous studies have used flawed strategies to examine gender differences (e.g., examining relations separately for male and female samples instead of testing gender as a moderator of these relations; Ackard et al., 2007; Gomez, 2011; Roberts et al., 2003). Such study findings indicated that dating violence victimization was associated with substance use for female, but not male, adolescents (e.g., Ackard et al., 2007; Roberts et al., 2003). However, because these studies examined relations separately for male and female samples, they are not
informative regarding gender differences in relations between dating violence victimization and substance use. Findings are also unclear for relations between dating violence victimization and perpetration, as previous research has revealed mixed findings related to the differential strength of these relations for male and female adolescents (e.g., Gomez, 2011; O’Keefe, 1997). Overall, additional research on the moderating role of gender on relations between dating violence victimization and substance use and dating violence perpetration is needed.

The present study sought to address limitations in previous research by examining the longitudinal relations between physical and psychological dating violence victimization and substance use and dating violence perpetration. This study expanded existing research by examining several potential key moderators of this relation, including class-level school norms for dating violence and gender. Furthermore, in order to better understand the consequences of dating violence victimization over time the current study investigated longitudinal relations between two forms of dating violence victimization (i.e., physical and psychological) and multiple outcomes (i.e., dating violence perpetration and substance use) within a large ethnically and geographically diverse sample of early adolescents.

**Review of the Literature**

In the following sections, literature on the outcomes of adolescent dating violence victimization is reviewed. First, an overview of romantic relationships in adolescence is presented. Next, research on adolescent dating violence is reviewed and relations between dating violence victimization and dating violence perpetration and substance use are described. Finally, research on the impact of class-level school norms and gender on the above relations is discussed along with the current study goals.

**Adolescent Romantic Relationships**
The developmental period of adolescence is characterized by multiple biological, social, and cognitive changes, including pubertal growth, a shift from concrete to formal operational thought, and an improvement in perspective-taking abilities (Arnett, 2010). In addition to these changes, adolescence is marked by the development of sexuality. In general, romantic relationships provide a context for sexual development and, as such, are an important part of adolescence. Researchers have struggled to define adolescent romantic relationships in a way that captures adolescents’ actual experiences (Connolly & McIsaac, 2009). For the most part, researchers have focused on romantic relationships and have used commonly understood terms, such as boyfriend/girlfriend, or phrases, such as gone out with, to determine relationship status (Connolly & McIsaac, 2009). Nonetheless, researchers (e.g., Connolly & McIsaac, 2009) have noted that there are additional ways to conceptualize adolescent romance. For instance, romantic activities encompass interactions between romantic partners that are not necessarily couple-based whereas dating describes interactions between actual or potential romantic partners.

According to recent estimates approximately 25% of youth begin dating around the age of 12, with rates increasing to 70% by the age of 18 (Connolly & McIsaac, 2009). In addition to an increase in prevalence, youth also report an increase in the stability of romantic relationships as they get older. For instance, research indicates that adolescents younger than 14 rarely report relationships lasting beyond 4 months, whereas around half of adolescents older than 16 report relationship durations greater than 11 months (Carver, Joyner, & Udry, 2003).

Previous research shows gender and racial-ethnic differences in the prevalence and stability of adolescent romantic relationships. For instance, in a study of 1,284 Canadian middle school youth, Connolly, Craig, Goldberg, and Pepler (2004) found that boys were more likely than girls to report romantic involvement during early adolescence (i.e., ages 9 to 14). Another
study of a nationally representative sample of U.S. adolescents (grades 7 through 11) from the National Longitudinal Study of Adolescent Health (Add Health) found that girls were more likely to report longer durations of relationships across adolescence (Carver et al., 2003). Additionally, this study revealed that during mid- and late-adolescence it is common for female youth to report romantic relationships with older dating partners (Carver et al., 2003). In general, researchers have found considerable similarity in romantic involvement across racial-ethnic groups, with the exception that romantic relationships are less common among Asian-American adolescents (Carver et al., 2003). However, in a study of differences in the characteristics of romantic relationships of African American and European American adolescents who participated in the Add Health study Giordano, Manning, and Longmore (2005) found slight differences in the duration and intimacy of relationships, such that African American adolescents reported having romantic relationships that were longer in duration but less emotionally close (i.e., less frequent interaction, less intimate self-disclosure, and fewer romantic behaviors). In summary, romantic relationships generally begin in early adolescence; however, their prevalence, stability, and intimacy differ across age, gender and race-ethnicity.

**Development-contextual theory of romantic relationships.** Several theorists have sought to describe the development of romantic relationships, with one prominent theory being the development-contextual theory of romantic relationships (Brown, 1999; Connolly & Goldberg, 1999). Drawing from ecological systems theory (Bronfenbrenner, 1979), development-contextual models posit that dating relationships shape and are shaped by transactions among individuals and their environment. Thus, adolescent sexual development occurs within a social context. During the developmental period of adolescence, youth become increasingly autonomous and, as a result, experience a transformation in their relationships with
others (Arnett, 2010). Most notably, adolescents begin to spend less time with parents, while relationships with peers and friends take on increased importance and intimacy (Maccoby, 1988). According to development-contextual stage theories, adolescent dating experiences tend to follow a developmental sequence that is linked to autonomy from parents and increased relatedness with peers (e.g., Brown, 1999; Connolly et al., 2004; Furman & Wehner, 1994).

According to Brown’s (1999) development-contextual theory of adolescent romantic relationships, these relationships are situated within a peer context and their development coincides with changes in the peer context. The first stage of romantic relationship development described by Brown (1999) is the initiation phase. This stage typically occurs during early adolescence and is characterized by adolescents’ tentative exploration of romantic interests. These explorations are situated almost entirely within same-sex peer groups, as romantic involvement consists mostly of talking to same-sex peers about infatuations or crushes. Through these conversations adolescents learn the norms for romantic behavior within their peer group (Connolly & McIsaac, 2009). These initial interests encourage movement away from exclusively same-sex peer affiliations and into mixed-gender groups, where adolescents can engage in a variety of social activities with potential romantic partners. Mixed-gender groups contribute to increased opportunities for romantic involvement and propel adolescents into the second stage, or status phase, of romantic relationship development, which generally spans the middle adolescent period (Connolly & McIsaac, 2009). During this stage, adolescents begin to gain confidence interacting with potential partners and begin to form initial romantic relationships (Brown, 1999). Peers remain a significant influence during this stage as romantic partners are largely selected based on their potential to enhance an individual’s social status within his or her peer group (Connolly & McIsaac, 2009). The final two phases, the affection and bonding phases,
occur more often in later adolescence and the emphasis is less on the role of peers and more on the dyadic relationship (Connolly & McIsaac, 2009). During the third phase, the affection phase, romantic relationships become more intimate and are characterized by increased emotional expression (Brown, 1999). The fourth phase - the bonding phase - is the stage in which relationships become more serious and hold the possibility of long-term commitment (Brown, 1999).

Involvement in romantic relationships is an important part of normative development for many adolescents. However, romantic involvement is particularly important to study during early to mid-adolescence as it is heavily influenced by peers and can be marked by anxiety and fear (Arnett, 2010; Connolly & McIsaac, 2009). Adolescents may find it particularly difficult to negotiate romantic involvement during these initial stages. For instance, in a qualitative study of problem situations within dating contexts, Sullivan and colleagues (2010) found that among a sample of 44 African American early and mid-adolescents (in grades 7 and 9), difficulties initiating contact with a potential romantic partner were a frequently cited problem. Specifically, youth described difficulties approaching potential partners as well as experiencing uncomfortable or inappropriate approaches from other adolescents (Sullivan et al., 2010).

Peers are also heavily involved in romantic relationships during these early stages. As mentioned above, development-contextual models of adolescent dating relationships (Brown, 1999) highlight the role of peers in the initiation phase as they influence norms and attitudes for acceptable behaviors in initiating dating relationships. Peers also exert their influence during the status phase as partner selection is based largely on whether a partner will be accepted by peers and will enhance an adolescent’s image and reputation (Brown, 1999). Because dating relationships are situated within a peer context, peers not only play an important role in initiation
and partner selection but also in relationship maintenance. More specifically they contribute to a climate of fidelity management, acting to support or harm others’ dating relationships and providing instrumental assistance in negotiating dating relationships (Giordano et al., 2006).

Benefits of adolescent dating. At every stage of development, dating relationships can have a positive influence on adolescents’ socio-emotional competence, as they play a key role in identity development, improve self-esteem, prepare adolescents for future romantic relationships, and provide a key source of social support (Collins, 2003). Romantic relationships impact identity development in that they allow adolescents to form a romantic self-concept, or a sense of who they are in romantic relationships. According to Brown (1999) romantic self-concepts begin as a group-based identity, which is formed as adolescents adopt the norms for romantic behavior of their peer group. Once adolescents form this group-based identity and as they proceed through the four developmental stages described above (i.e., initiation, status, affection, and bonding) they develop a self-based identity, which represents their distinct romantic interests.

Furthermore, romantic involvement and romantic self-concepts contribute to more positive global self-esteem and self-esteem in particular domains, including physical appearance and peer acceptance (Furman & Shaffer, 2003). Additionally, the development of a romantic self-concept in adolescence is associated with confidence in one’s own ability to initiate and maintain a romantic relationship and thus, prepares adolescents for adult relationships (Furman & Shaffer, 2003). For example, in a longitudinal study of German adolescents, Seiffge-Krenke and Lang (2002) found that the quality of romantic relationships in mid-adolescence predicted increased commitment in romantic relationships during young adulthood. Finally, with the developmental shift towards increased time spent with peers and romantic partners, adolescents increasingly rely on romantic partners as a source of emotional support, such that by late
adolescence romantic partners are perceived as being the most important source of support, beyond parents and peers (Furman & Buhrmester, 1992).

**Adolescent Dating Violence**

Although many adolescent dating relationships promote positive development, dating relationships can be a significant source of distress and can place youth at risk for victimization and perpetration in these contexts. According to the Centers for Disease Control and Prevention (CDC; 2012), adolescent dating violence is defined as physical, sexual, or psychological violence within a dating relationship. Physical dating violence involves using force to inflict fear or injury. Thus, physical violence that is experienced or perpetrated may include such acts as kicking, pushing, and scratching. Psychological violence involves non-physical behavior that is intended to inflict emotional harm. For example, psychological abuse may occur in the form of insults, monitoring behavior and whereabouts, and emotional put-downs (Foshee, et al., 1996). Sexual violence is less common during adolescence and involves controlling someone’s sexual behavior (Foshee et al., 1996; Simon et al., 2010).

In previous studies, researchers have primarily used self-reports to measure dating violence perpetration and victimization, asking youth to first identify whether they are involved in a romantic relationship and then rate the frequency and/or severity of their experiences with the above forms of dating violence. According to such studies, dating violence commonly occurs during adolescence. Prevalence rates among an ethnically diverse sample of 2,363 high school students indicated that approximately 33% of youth in a romantic relationship (i.e., who report having a boyfriend or girlfriend) reported perpetrating physical violence toward a dating partner and 31% reported experiencing physical victimization (O’Leary et al., 2008). Similarly, among an ethnically diverse sample of 5,404 sixth graders, approximately 30% of girls and 26% of boys
in a romantic relationship (i.e., who reported having a boyfriend or girlfriend) were involved in physical dating violence, as a perpetrator or victim (Simon et al., 2010). Researchers have suggested that the rates are even higher for psychological violence, with recent research indicating rates of psychological dating violence perpetration and victimization ranging from 40% (Foshee et al., 2009) to 90% (O’Leary et al., 2008). Sexual abuse is the least prevalent form of dating violence, with national prevalence rates showing that approximately 2% of adolescents in a romantic relationship have perpetrated this form of violence and between 2% and 9% have experienced sexual violence (Ackard et al., 2003; Foshee et al., 1996).

Mixed findings exist in the literature with regard to gender differences in rates of physical and psychological dating violence victimization and perpetration. For the most part, researchers have found that dating violence is reciprocal during adolescence in that male and female adolescents are equally likely to be both victims and perpetrators of moderate levels of psychological and physical dating violence (Foshee et al., 2009). A growing body of research also shows that female adolescents perpetrate more physical and psychological dating violence than male adolescents (e.g., Wolfe et al., 2003). Yet, previous research has shown that male youth are more likely to perpetrate severe physical and sexual dating violence, making female youth more susceptible to serious injury (Foshee et al., 2009). Additionally, previous research has also suggested that female adolescents who date older partners may be at higher risk for dating violence victimization and that this victimization may occur more often in nonpublic places or outside the school context (Reeves & Orpinas, 2012).

Previous research has also investigated racial-ethnic differences in the prevalence of dating violence victimization and perpetration. In a qualitative study of early adolescents’ experiences of dating violence, Noonan and Charles (2009) found that African American
adolescents were more likely to report involvement in dating violence, as a victim or perpetrator, as compared to Latino/a and European American youth. In another study examining the trajectories of dating violence perpetration, Foshee et al. (2009) found that minority youth (represented predominately by African American adolescents and smaller percentages of Asian American, American Indian, or adolescents who were bi-racial) perpetrated higher levels of moderate physical dating violence (e.g., slapping, biting, and slamming the partner against the wall) than European American youth.

Other research has highlighted the importance of the neighborhood context in the study of adolescent dating violence. For instance, previous research suggests that youth who live in low-income, inner-city neighborhoods may be at increased risk for dating violence due to relatively higher violence rates that may characterize some of these neighborhoods (Spriggs, Halpern, & Martin, 2009; Wekerle & Wolfe, 1999). Consequently, some researchers have argued that the increased prevalence of dating violence among minority youth may be explained by the risk associated with living in inner-city neighborhoods, as minority youth are overrepresented in such neighborhoods (Hickman et al., 2004). On the other hand, among samples of predominately European American youth, researchers have found that youth in rural communities may also be at heightened risk for dating violence involvement. For instance, among a primarily European American sample of 6,864 female high school students, Silverman, Raj, and Clements (2004) found that rates of physical dating violence victimization did not differ based on race/ethnicity or geographic region, but that adolescents from rural and urban communities reported higher rates of physical dating violence victimization, relative to adolescents from suburban neighborhoods. Additionally, among a sample of 2,094 predominately European American adolescents, ages 12 to 18, Spencer and Bryant (2000) found that youth living in rural areas were approximately two
times more likely to experience physical dating violence victimization compared to urban and suburban youth. Thus, this literature highlights that adolescents from both rural and urban communities may be at high risk for involvement in dating violence.

**Theories of adolescent dating violence.** From a theoretical standpoint, researchers have offered several possible explanations for the occurrence of adolescent dating violence. First, researchers have drawn from social learning theory to explain adolescents’ involvement in dating violence. According to social learning theory, individuals learn behaviors through observing and modeling others and through their anticipated reinforcement for engaging in certain behaviors (Bandura, 1977). Thus, youth who have been exposed to violence within their peer group, family or community are at increased risk for involvement in dating violence because they are prone to believing that violence is a functional and appropriate way to express oneself and solve problems (Wekerle & Wolfe, 1999).

Other theoretical explanations of adolescent dating violence draw upon attachment and feminist theories. Bowlby’s (1988) attachment theory postulates that children develop an internal working model of relationships based on their relationship with a caregiver. According to this perspective, individuals with insecure attachments are more prone to involvement in adolescent dating violence, because they are likely to develop a negative representation of who they are and what to expect from others in relationships (Wekerle & Wolfe, 1999). Researchers have also cited feminist theory (Dobash & Dobash, 1992) to explain the dynamics of adolescent dating violence, which describes dating violence as a gendered phenomenon, where men are more likely to be the perpetrators and women the victims. This perspective highlights the traditional power differential between men and women and views men as more dominant and women as more submissive (Wekerle & Wolfe, 1999).
Lastly, researchers have emphasized the interplay among multiple causal factors. For instance, according to \( I^3 \) theory no one causal factor can explain dating violence; rather multiple dispositional and situational factors interact to influence dating violence (Finkel & Eckhardt, 2011). Furthermore, underlying dating violence perpetration are three processes, instigation (i.e., relational dynamics that result in an urge to perpetrate), impellance (i.e., personality or situational factors that increase arousal and the likelihood for perpetration), and inhibition (i.e., features of the person or the situation that promote self-regulation and decrease the urge to perpetrate). These three processes interact to determine an individual’s urge to perpetrate dating violence and their ability to suppress that urge. Thus, there are several dispositional and situational factors related to these three processes (i.e., instigation, impellance, and inhibition) that either promote or protect against dating violence perpetration (Finkel & Eckhardt, 2011).

**Outcomes of Dating Violence Victimization**

**Relations between dating violence victimization and substance use.** Lazarus and Folkman’s (1984) transactional theory of stress is a widely used framework in the study of stress and coping. According to this model, coping strategies are influenced by both the individual and the context. As such, coping strategies vary across situations depending on an individual’s perceptions of the situation, the availability of resources, and the degree of control they have over the situation (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). Researchers have defined coping in multiple ways. For instance, coping strategies have largely been defined according to their function (e.g., emotion-focused strategies which manage negative emotions associated with a stressful event and problem-focused strategies which focus on modifying the event; Lazarus & Folkman, 1984).
According to some researchers (e.g., Carver, Scheier, & Weintraub, 1989) substance use represents a coping strategy to deal with negative emotions generated by stressful events, such as negative dating relationship experiences. More specifically, theoretical models have postulated that substance use may operate as a form of disengagement or affect regulation, both reducing negative affect and increasing positive affect (Carver et al., 1989). Previous research suggests that using substances as a coping strategy is more common when adaptive coping strategies are less accessible; this is particularly true during certain developmental periods and in the context of stressors that are difficult to cope with (Agnew, 2006). For instance, adolescence is a vulnerable developmental period when adaptive coping strategies are less developed or accessible, there is a lack of power and other coping resources, negative emotionality is high, and social control (e.g., parental monitoring) is reduced (Agnew, 2006). In addition, adolescents often perceive that it is difficult to cope with dating violence victimization in prosocial ways.

Several researchers have investigated adolescents’ help-seeking behaviors in response to dating violence victimization and found that adolescents are often reluctant to seek help and face multiple barriers to obtaining positive support (e.g., Black & Weisz, 2003; Chiung-Tao Shen, 2010; Ocampo, Shelley, & Jaycox, 2007; Sullivan et al., 2012). In a qualitative study of dating violence, in-depth interviews with 10 Taiwanese female college students revealed several barriers to seeking help for dating violence victimization (i.e., physical, psychological, and sexual), including negative reactions from others, cultural values of self-reliance, and shame (Chiung-Tao Shen, 2010). Additionally, in a study of 1,655 predominately Latino youth around the age of 14, Ocampo and colleagues (2007) found that although adolescents are hesitant to seek help in situations involving violence during a dating experience, when they do they are most likely to turn to peers, which may be less effective than seeking help from teachers and parents.
These types of barriers to positive coping strategies may make it increasingly likely for adolescents who experience dating violence victimization to use substances, such as alcohol, tobacco, and marijuana, as a coping strategy.

Empirical studies have found positive associations between dating violence victimization and substance use (e.g., Howard & Wang, 2003; Leadbeater et al., 2008; O’Keefe, 1997; Schad et al., 2008). For example, among a large predominately European American sample of female high school students, Silverman and colleagues (2001) found that a composite measure of physical and sexual dating violence victimization was significantly associated with increased risk for substance use (i.e., tobacco and cocaine use, binge drinking, and drinking and driving), unhealthy dieting, risky sexual behavior, pregnancy, and attempted suicide. Additionally, in a large nationally representative sample of female high school students, Howard and Wang (2003) found that physical dating violence victimization was concurrently associated with binge drinking (i.e., past 30 day frequency of having 5 or more drinks in a row), cocaine or inhalant use (i.e., past 30 day frequency), and risky sexual behavior. Swahn and colleagues (2008) also found that among a large sample of high-risk youth in grades 7 through 12, physical dating violence victimization was associated with alcohol use (i.e., past 30 day frequency of having 5 or more drinks in a row), even after controlling for key demographic variables (i.e., age, gender, and race/ethnicity), depression, impulsivity, peer delinquency, and parental monitoring. Similarly, among a sample of 322 Latino adolescents ages 11 to 13, Yan, Howard, Beck, Shattuck, and Hallmark-Kerr (2008) found that youth who reported experiencing physical dating violence victimization in the past-year were significantly more likely to also report alcohol use (i.e., past year report of having five or more drinks on one occasion).

Several studies have examined the impact of dating violence victimization on substance
use over time. For instance, among an ethnically diverse sample of 1,516 middle and high school students, Ackard and colleagues (2007) found that a composite measure of physical and sexual dating violence victimization in middle school predicted increased frequency of tobacco and marijuana use for female adolescents and increased tobacco use for male adolescents five years later. In addition, Roberts and colleagues (2003) found that a composite measure of physical and psychological dating victimization predicted illicit substance use (i.e., composite measure of tobacco, marijuana, and alcohol use) for female youth one year later in a sample of 11 to 20 year-olds.

**Relations between dating violence victimization and perpetration.** According to social learning theory, aggressive behavior is learned through observing and imitating the behaviors and attitudes of others who serve as models (Bandura, 1977). Models can represent a variety of influences, including family, media, friends, and peers. Certain conditions increase the likelihood that individuals will imitate such models, including the degree of similarity between the model and the individual as well as the type of reinforcement the model receives for the behavior. More specifically, an individual is more likely to imitate behaviors that are enacted by a person they perceive as similar to themselves and that result in some form of positive reinforcement. Social learning theory has often been used to explain the development of aggressive behavior. Specifically, witnessing or directly experiencing aggression increases the likelihood that individuals will develop aggressive behavior patterns as they have been exposed to messages that violence is a functional and appropriate tool for problem-solving, emotional expression, and control (Wekerle & Wolfe, 1999). Because victimization is one form of exposure, youth who are victimized by a dating partner may be more likely to engage in future aggressive behavior against a dating partner (Wekerle & Wolfe, 1999).
Previous cross-sectional studies have found support for this theory. For example, among an ethnically diverse sample of 14- to 20-year olds, O’Keefe (1997) examined correlates of dating violence and found that female and male youth who experienced physical dating violence victimization were significantly more likely to perpetrate physical dating violence as well. Additionally, among a sample of 980 middle and high school youth logistic regression analyses revealed that youth who reported physical victimization by another teen were significantly more likely to report dating violence perpetration (Banyard et al., 2006). Lastly, in a study of mutually violent dating relationships, Gray and Foshee (1997) found that among a sample of 77 African American and European American adolescents 66% reported physical victimization and perpetration within a dating relationship.

In line with social learning theory, previous longitudinal research also shows that dating violence victimization is a risk factor for later perpetration. In a recent study based on Waves 1 through 3 of the Add Health study, Gomez (2011) found that among a nationally representative sample of 4,191 middle and high school youth (in grades 7 through 12) moderate (i.e., physical dating violence) and severe (i.e., sexual abuse and physical abuse that resulted in injury) dating violence victimization in adolescence predicted male perpetration of intimate partner violence whereas only severe dating violence victimization predicted female perpetration of intimate partner violence in young adulthood.

Limitations of previous research. Previous research indicates positive associations between dating violence victimization and outcomes, including substance use and dating violence perpetration; yet, the current body of literature is limited in several respects. First and foremost, the majority of research on dating violence is cross-sectional and thus longitudinal relations between dating violence victimization and perpetration and substance use are not clear.
It is important to establish the above relations longitudinally in order to demonstrate that victimization causes increases in perpetration and substance use and rule out the possibility that other variables account for these relations. Although theoretical explanations support the examination of relations between dating violence victimization and these outcomes, there have been relatively few empirical tests of theories (i.e., stress and coping theory and social learning theory) that describe substance use and dating violence perpetration as outcomes of dating violence victimization. Therefore, it is important to examine the longitudinal consequences of dating violence victimization as such research is supported by theory and has important implications for prevention and intervention efforts focused on adolescent dating violence.

Second, most longitudinal studies of dating violence victimization have employed samples of youth in high school or with wide age ranges, thus limiting our understanding of the consequences of dating violence for early adolescents (e.g., Ackard et al., 2007; Roberts et al., 2003). A better understanding of the longitudinal relations between dating violence victimization and negative outcomes for early adolescents is needed as dating relationships typically begin around age 12 (Connolly & McIsaac, 2009) and can be difficult to negotiate (e.g., Sullivan et al., 2010). Third, most studies examining outcomes of dating violence victimization have not controlled for dating violence perpetration (e.g., Ackard et al., 2007; Roberts et al., 2003), even though previous research indicates that perpetration and victimization often co-occur during adolescence (e.g., Gray & Foshee, 1997; Swahn et al., 2008). As such, it is critical to control for dating violence perpetration in order to understand the unique impact of dating violence victimization on perpetration and substance use.

A fourth limitation of the current body of research is that the majority of studies have neglected to examine the consequences of psychological dating violence and have examined
either physical dating violence only (e.g., Gomez, 2011; Howard & Wang, 2003; O’Keefe, 1997; Swahn et al., 2008) or a composite of physical and sexual violence (e.g., Ackard et al., 2007; Gomez, 2011; Silverman et al., 2001). Psychological dating violence is unfortunately experienced by a large percentage of dating youth, with studies indicating prevalence rates ranging from 40% (Foshee et al., 2009) to 90% (O’Leary et al., 2008). Previous research also suggests that psychological victimization can occur in the absence of or more frequently than physical forms of victimization; for instance, in a study of typologies of adolescent violence (i.e., physical and psychological perpetration and victimization across peer and dating contexts), cluster analyses revealed that a subset of youth experienced notably higher levels of psychological dating violence victimization as compared to physical victimization (Bossarte, Simon, & Swahn, 2008). In a cross-sectional study of African American and Hispanic female adolescents, Teitelman, Ratcliffe, McDonald, Brawner, and Sullivan (2011) found that psychological dating violence was uniquely associated with higher levels of depression. However, studies have not examined the unique impact of psychological dating violence victimization on dating violence perpetration or substance use.

A related line of research has examined the relation between relational dating violence victimization and negative outcomes (Leadbeater et al., 2008; Schad et al., 2008). For example, among a sample of 149 European-Canadian youth, ages 12 to 18, who were in dating relationships, Leadbeater and colleagues (2008) found that relational dating victimization (i.e., experience of ignoring, exclusion, and manipulation in a dating relationship) was positively associated with impulsivity, difficulty regulating emotion, and conduct problems, controlling for age, gender, and overt forms of dating violence victimization. In addition, Schad and colleagues (2008) conducted a study of relational victimization in romantic relationships among a sample of
97 ethnically diverse 15 year old adolescents and found that relational dating victimization was positively associated with self-reported alcohol use (i.e., average number of alcoholic drinks consumed in a week), after controlling for age and gender.

Although psychological and relational victimization are both non-physical acts of violence that involve elements of manipulation and control (e.g., doing something to make a dating partner jealous or not letting a dating partner do things with other people) they are slight differences in the way these constructs have been assessed in previous research. For example, relational victimization in a dating relationship, similar to a peer relationship, typically includes ignoring and rumors and gossip. Psychological dating violence victimization; however, primarily involves elements of control and direct verbal insults. Therefore, additional research on the outcomes of psychological dating violence is needed. Nevertheless, given the similarities between relational and psychological forms of victimization (e.g., both are non-physical forms of victimization that can involve manipulation and control) research on relational dating victimization supports hypotheses regarding associations between psychological dating violence victimization and perpetration and substance use.

Overall, previous research indicates that dating violence victimization is related to a variety of negative outcomes, including dating violence perpetration and substance use (e.g., Ackard et al., 2007; Gomez, 2011; Howard & Wang, 2003; Leadbeater et al., 2008; O’Keefe, 1997; Roberts et al., 2003; Schad et al., 2008). However, this research is limited as the majority of studies were concurrent in nature, focused on older adolescents or samples with wide age ranges, and failed to control for levels of dating violence perpetration. Additionally, studies have also failed to examine the unique impact of multiple forms of victimization, including physical and psychological dating violence victimization. Such research is important for several reasons.
First, very few studies have examined the outcomes of psychological dating violence victimization separately from physical victimization. Second, research shows that this is a prevalent form of victimization that can be experienced in the absence of physical victimization (e.g., Bossarte et al., 2008). Third, psychological dating violence victimization may be a precursor to more severe forms of dating violence and, therefore, it may be important to address in early adolescence before behavior patterns become well-established. Therefore, the current study aimed to address these gaps in the literature by investigating the longitudinal relations between physical and psychological dating violence victimization and substance use and dating violence perpetration among an ethnically diverse sample of early adolescents.

**Moderators of Relations between Dating Violence Victimization and Outcomes**

In addition to examining the consequences of adolescent dating violence victimization, it is imperative to understand the factors that contribute to increased risk or buffer youth from the negative outcomes associated with involvement in dating violence victimization. Research on these processes is critical as it identifies factors to screen for and target in intervention and prevention efforts. To date, the majority of research in the area of adolescent dating violence has examined risk and protective factors for involvement in dating violence victimization and perpetration as opposed to consequences of these subtypes of dating violence. Although there may be a number of pathways between dating violence victimization and perpetration and substance use exist, the proposed study will focus on the influence of school norms and gender.

**School norms for dating violence.** According to social-ecological models of human development, such as Bronfenbrenner’s (1979) ecological systems theory, development occurs in the context of multiple ecological systems (i.e., the microsystem, mesosystem, exosystem, macrosystem, and chronosystem). These systems comprise various influences that range from
very proximal to very distal. The microsystem is most proximal to the individual and includes interactions between the individual and people and places within his or her immediate surroundings (e.g., parents, peers, and school). Interactions within the microsystem are of great importance as they have a significant influence on development across the lifespan (Bronfenbrenner, 1979). During adolescence, peer relationships represent a powerful microsystem-level influence as they take on increased importance and intimacy during this developmental stage. Furthermore, these relationships provide a context for growth and have the potential to influence adolescents in both positive and negative ways. On one hand, peers can be an important source of emotional and instrumental support; on the other hand, peers can also encourage risk-taking behaviors (e.g., substance use and aggression) (Arnett, 2010). According to developmental models of adolescent romantic relationships (e.g., Brown, 1999; Connolly et al., 2004; Connolly & Goldberg, 1999), peers are heavily involved in adolescents’ dating relationships, especially during the initial stages when romantic involvement is largely characterized by talking to peers about infatuations and learning peers’ norms for appropriate dating behavior. These norms can extend to dating violence, as peers also set norms about the acceptability of aggression in dating relationships.

Drawing from social learning theory (Bandura, 1977), youth who are exposed to aggressive behavior and attitudes are more likely to be aggressive. Subsequently, youth who experience dating violence and; therefore, observe aggression being modeled by a dating partner, may be more likely to enact dating violence perpetration. In addition to dating partners, during adolescence there are multiple salient models of influence, including peers. Therefore, peer attitudes supporting dating aggression may contribute to relations between dating violence victimization and perpetration. Furthermore, exposure to greater norms supporting dating
violence may strengthen the likelihood that youth who are victimized and observe models of perpetration will perpetrate dating violence. Because researchers have asserted that peers in the same grade at the same school are the most proximal influence on early adolescents (Bernburg & Thorlindsson, 2005; Henry & Chan, 2010), the current study focused on the influence of class-level school norms for dating violence.

Few empirical studies have examined the influence of norms for dating violence among students in the same class and school. For the most part, previous research has focused on individual norms about the acceptability of violence in dating relationships and unfortunately indicates that adolescents’ often endorse high rates of acceptability of dating violence. For example, among an ethnically diverse sample of sixth graders, Simon et al. (2010) found that 30% of youth with a boyfriend or girlfriend reported attitudes and norms supporting male dating violence perpetration and 60% of youth reported attitudes and norms supporting female dating violence perpetration. Previous research has also found that individual norms supporting dating violence are positively associated with dating violence perpetration. For example, Simon and colleagues (2010) found that youth who reported higher rates of norms and attitudes supporting dating violence were more likely than youth who reported lower rates to engage in dating violence perpetration. Similarly, among a sample of 939 ethnically diverse 14 to 20 year-olds, O’Keefe (1997) found that beliefs about the justifiability of dating violence were positively associated with physical dating violence perpetration for male and female adolescents. Lastly, in a sample of 719 ethnically diverse high school students, Malik and colleagues (1997) found that acceptance of dating violence was associated with increased likelihood of perpetrating physical dating violence.
Other research has addressed the role that norms among friends or peers play in adolescent dating violence; however, these studies have not measured norms consistently. For instance, some studies have assessed norms indirectly, as friends’ own dating violence involvement (e.g., Arriaga & Foshee, 2004; Foshee, Linder, MacDougall, & Bangdiwala, 2001). Others have measured adolescents’ perceptions of their friends’ attitudes toward dating violence (e.g., Foshee, Benefield, Ennett, Bauman, & Suchindran, 2004); or have qualitatively investigated peers’ norms for dating violence (e.g., Noonan & Charles, 2009). Despite inconsistencies in the conceptualization and measurement of peer norms for dating violence, previous studies consistently revealed that in the context of norms supportive of dating violence, adolescents are increasingly likely to engage in dating violence perpetration (e.g., Arriaga & Foshee, 2004; Foshee et al., 2001; Noonan & Charles, 2009). For example, in a study of risk factors for dating violence among 1,965 eighth- and ninth-grade youth, Foshee and colleagues (2001) found that in cross-sectional analyses having friends who were victims or perpetrators of physical dating violence and being accepting of dating violence were positively related to physical dating violence perpetration for female adolescents. Lastly, qualitative research has revealed similar findings. For instance, a focus group study with ethnically diverse middle school youth revealed that male adolescents do not receive peer support for treating girlfriends well and consequently, may perpetrate physical dating violence to maintain their reputation with their peers (Noonan & Charles, 2009).

In summary, peers are a significant developmental influence during adolescence. More generally, they provide a context for adolescents to learn norms and behaviors related to dating. Peers may impact the relation between dating violence victimization and dating violence perpetration by serving as models and norm-setters for aggressive behavior in dating.
relationships (Brown, Bakken, Ameringer, & Mahon, 2008). Therefore, the current study examined whether class-level school norms supporting dating violence moderated relations between dating violence victimization and perpetration, hypothesizing that within a school context characterized by norms supportive of dating violence, there would be a stronger relation between dating violence victimization and dating violence perpetration.

**Gender.** Gender may also play an important role in moderating relations between dating violence victimization and perpetration and substance use. One prominent theory of adolescent dating violence is feminist theory (Dobash & Dobash, 1992), which depicts dating violence as a gendered phenomenon, whereby men are most often the perpetrators and women the victims (Wekerle & Wolfe, 1999). Prevalence rates of physical and psychological dating violence victimization during adolescence have generally not supported this notion and have either revealed similar rates across gender (e.g., Simon et al., 2010) or higher rates of perpetration among female adolescents (e.g., Wolfe et al., 2003). Nevertheless, researchers have argued that prevalence rates do not provide a complete picture of the dynamics of dating violence, as previous research shows that male youth are more likely to perpetrate severe forms of violence and female youth are more susceptible to serious injury from dating violence (Foshee et al., 2009).

Prevalence rates also do not offer information regarding potential differences in the strength of relations between dating violence victimization and outcomes for male and female adolescents. According to Agnew (2006), gender differences in the association between stress and substance use and dating violence perpetration, may exist because of differences in emotional expression, coping skills, resources, and social support for male and female youth (Agnew, 2006). More specifically, Broidy and Agnew (1997) assert that male adolescents are
more likely to respond to stress with anger, whereas female adolescents are more likely to respond with depression. Thus, feelings of anger may be more likely to lead to aggressive coping and feelings of depression may be more likely to lead to self-destructive coping strategies, such as substance use (Broidy & Agnew, 1997). Agnew (2006) argues that coping resources are also gendered, such that male youth may be more likely to cope with stress through aggressive behavior because they receive less direct supervision and conventional support from parents and other important adults. Furthermore, angry responses to stress and lack of social support and supervision may contribute to stronger relations between dating violence victimization and dating violence perpetration for male youth, whereas, feelings of depression in response to dating violence victimization may make female youth more vulnerable to cope through substance use.

Several studies have suggested that there are potential gender differences in relations between dating violence victimization and outcomes, such as substance use and dating violence perpetration. Yet, very few studies have used appropriate methods to test for gender differences, such as assessing the moderating effect of gender on relations between dating violence victimization and outcomes (e.g., O’Keefe, 1997). The majority have attempted to examine relations using separate samples of male and female adolescents (e.g., Ackard et al., 2007; Gomez, 2011; Roberts et al., 2003). For instance, in a five year longitudinal study Ackard and colleagues (2007) found that dating violence victimization (i.e., a composite measure of physical and sexual dating violence) in middle school was significantly associated with increased marijuana use for female adolescents only. Similarly, Roberts and colleagues (2003) found that dating violence victimization (i.e., a composite measure of physical and psychological dating violence) was associated with increases in illicit substance use and antisocial behavior one year later for female adolescents only. In a longitudinal study of middle and high school youth,
Gomez (2011) found that the experience of severe sexual and physical dating violence victimization (i.e., violence that resulted in injury) in adolescence predicted male and female perpetration of intimate partner violence in young adulthood, but that less severe physical dating violence victimization predicted perpetration for male adolescents only. Qualitative studies also offer some insight into the differential effects of dating violence victimization on outcomes for male and female youth. For instance, in focus groups with African American and European American ninth grade students Reeves and Orpinas (2012) found that female adolescents were more aware of the negative effects of psychological dating violence victimization, noting its long-lasting negative impact on individual well-being. However, such studies that analyze relations separately by gender cannot offer conclusions regarding gender differences in relations between dating violence victimization and externalizing behaviors.

Only one study examined the moderating effect of gender on the relation between physical dating violence victimization and perpetration, and found a stronger relation for girls than for boys among a sample of 14 to 20-year olds (O’Keefe, 1997). Overall, research on the moderating effect of gender on longitudinal relations between dating violence victimization and substance use and dating violence perpetration is limited. Additional research is needed that utilizes analytic strategies designed to assess the moderating role of gender on these relations to clarify theoretical pathways that suggest dating violence victimization may be a stronger predictor of dating violence perpetration for male adolescents and substance use for female adolescents (Agnew, 2006; Broidy & Agnew, 1997).

**Statement of the Problem**

Adolescent dating violence is a significant public health concern. Recent estimates among ethnically diverse samples of youth indicate that approximately one-third of adolescents
have experienced physical dating violence victimization (O’Leary et al., 2008) and between 40% (Foshee et al., 2009) and 90% (O’Leary et al., 2008) have experienced psychological dating violence victimization. According to stress and coping and social learning theories, dating violence victimization may lead individuals to engage in perpetration and substance use over time (Agnew, 2006). This may be especially likely in contexts where peers in the same grade at the same school endorse norms supporting aggressive behavior within a dating relationship. In addition, relations between dating violence victimization and substance use may be stronger for female youth and relations between dating violence victimization and dating violence perpetration may be stronger for male youth.

Only a few studies of adolescents have examined longitudinal relations between dating violence victimization and frequencies of substance use (e.g., Ackard et al., 2007; Roberts et al., 2003) and dating violence perpetration (e.g., Gomez, 2011), and a review of this literature highlights several limitations. First, most studies focus solely on dating violence victimization and have not controlled for dating violence perpetration (e.g., Ackard et al., 2007; Roberts et al., 2003) in determining the extent to which dating violence victimization predicts outcomes, such as substance use and dating violence perpetration. As dating violence victimization and perpetration often co-occur in adolescence (Gray & Foshee, 1997), it is imperative to examine the unique impact of dating violence victimization on outcomes, such as dating violence perpetration and substance use. Also, adolescent samples in these studies typically include high school students or youth with wide age ranges (e.g., Ackard et al., 2007; Roberts et al., 2003), with little research focusing on early adolescents. Lastly, very few studies have included psychological violence in measures of dating violence victimization (e.g., Ackard et al., 2007; Gomez, 2011). Given its high prevalence, it is important to understand the extent to which this
subtype of dating violence victimization uniquely contributes to negative outcomes above and beyond the effects of physical dating violence victimization. Thus, the current study addressed these gaps in the literature by examining longitudinal relations between physical and psychological dating violence victimization and substance use and dating violence perpetration among an ethnically and geographically diverse sample of early adolescents.

The extent to which class-level school norms supporting dating violence moderated relations between victimization and perpetration was also examined. It is important to consider the role of peers in the same grade and school as they are highly influential in the development of romantic relationships and dating behaviors (Connolly & McIsaac, 2009). In fact, stage theories of romantic relationship development support the strong influence of peer norms on adolescent dating behaviors (Brown, 1999; Connolly & Goldberg, 1999). Previous studies have examined peer norms as predictors of adolescent dating violence (e.g., Arriaga & Foshee, 2004); yet, little is known about the moderating effect of these norms on relations between dating violence victimization and outcomes, including substance use and dating violence perpetration. Additionally, research in this area has largely focused on individual and friend group norms supporting dating violence. Thus, the proposed study extended the current body of research by examining the moderating effect of class-level school norms supporting dating violence on relations between dating violence victimization and dating violence perpetration.

Lastly, the current study examined the moderating role of gender on relations between dating violence victimization and substance use and dating violence perpetration. Researchers (e.g., Agnew, 2006) have suggested that relations between dating violence victimization and substance use and dating violence perpetration may differ for male and female youth due to gender differences in emotional expression, coping skills, resources, and social support.
However, empirical tests of gender differences are limited as only one study (i.e., O’Keefe, 1997) examined gender as a moderator of relations between dating violence victimization and perpetration, while other studies (e.g., Ackard et al., 2007; Gomez, 2011; Roberts et al., 2003) have examined relations separately for male and female adolescents. Thus, the current study utilized appropriate statistical analyses to better understand the moderating role of gender on relations between dating violence victimization and substance use and dating violence perpetration. In summary, the current study sought to fill a gap in the literature by investigating relations between dating violence victimization and substance use and dating violence perpetration for early adolescents and the role that gender and class-level school norms for dating violence play in these relations.

**Hypotheses**

The current study aims were to investigate the longitudinal relations between dating violence victimization (i.e., psychological and physical) and substance use and physical and psychological dating violence perpetration for early adolescents and the moderating effect of class-level school norms for dating violence and gender on these relations. The current study had three specific objectives.

1. To examine the direct effects from psychological and physical dating violence victimization to substance use and psychological and physical dating violence perpetration six months later from the Fall to Spring of sixth grade.

_Hypothesis 1.1: It was hypothesized that physical and psychological dating violence victimization at Wave 1 would predict increased physical dating violence perpetration at Wave 2, after controlling for physical and psychological dating violence perpetration at Wave 1._
Hypothesis 1.2: It was hypothesized that physical and psychological dating violence victimization at Wave 1 would predict increased psychological dating violence perpetration at Wave 2, after controlling for psychological and physical dating violence perpetration at Wave 1.

Hypothesis 1.3: It was hypothesized that physical and psychological dating violence victimization at Wave 1 would predict increased substance use at Wave 2, after controlling for substance use and psychological and physical dating violence perpetration at Wave 1.

2. To examine the potential moderating effect of class-level school norms for dating violence on the longitudinal relations between psychological and physical dating violence victimization and psychological and physical dating violence perpetration.

Hypothesis 2.1: It was hypothesized that class-level school norms supporting dating violence at Wave 2 would moderate the relation between physical and psychological dating violence victimization at Wave 1 and physical dating violence perpetration at Wave 2, such that a stronger relation between both subtypes of dating violence victimization and physical dating violence perpetration would be present for youth who reported high levels of class-level school norms supporting dating violence as compared to youth who reported low levels of norms supporting dating violence.

Hypothesis 2.2: It was hypothesized that class-level school norms supporting dating violence at Wave 2 would moderate the relation between physical and psychological dating violence victimization at Wave 1 and psychological dating violence perpetration at Wave 2, such that a stronger relation between both subtypes of dating violence victimization and psychological dating violence perpetration would be present for youth who reported high levels of class-
level school norms supporting dating violence as compared to youth who reported low levels of norms supporting dating violence.

3. To examine the potential moderating effect of gender on the longitudinal relations between psychological and physical dating violence victimization and substance use and psychological and physical dating violence perpetration.

*Hypothesis 3.1:* It was hypothesized that gender would moderate the relations between physical and psychological dating violence victimization at Wave 1 and physical dating violence perpetration at Wave 2, such that relations between both subtypes of dating violence victimization and physical dating violence perpetration would be stronger for male adolescents.

*Hypothesis 3.2:* It was hypothesized that gender would moderate the relations between physical and psychological dating violence victimization at Wave 1 and psychological dating violence perpetration at Wave 2, such that relations between both subtypes of dating violence victimization and psychological dating violence perpetration would be stronger for male adolescents.

*Hypothesis 3.3:* It was hypothesized that gender would moderate the relations between physical and psychological dating violence victimization at Wave 1 and substance use at Wave 2, such that relations between both subtypes of dating violence victimization and substance use would be stronger for female adolescents.

**Method**

**Setting**

The present study used data from the Multisite Violence Prevention Project (MVPP, 2004), a seven-year project funded by the National Center for Injury Prevention and Control.
(NCIPC) at the CDC. Middle school students participated in an experimental study that assessed the impact of violence prevention programs for sixth grade students at 37 schools across 4 geographical sites (Durham, NC; Richmond, VA; Chicago, IL; and northeast GA). The participating schools at every site included students in grades six through eight. In Chicago, the schools served students in kindergarten through eighth grade. A high percentage of students at the participating schools were from low-income families, as 42% to 96% of students qualified for the federal free or reduced price lunch program. At the time of the study, the average poverty rate and youth arrest rate in the selected school districts (28% and 63/100,000, respectively) were higher than the national average (16% and 43/100,000, respectively; Henry, Farrell, & MVPP, 2004).

**Participants**

Active parental permission and student assent were obtained from 5,811 of the 7,343 eligible students. At each wave, data were collected only from students who remained in their original school, thus, one or more waves of data were available for 5,465 students (97% of those consented and eligible). Approximately 49% of participants were male; 52% of students were African American, 21% Latino/a, 20% European American, and 7% other. For the current study only youth who reported being involved in a dating relationship within the last three months at Wave 1 and Wave 2, in the Fall and six months later, during the Spring of sixth grade (2,022 students, 43% female), were included in the final sample. Among this sample of youth, approximately 55% were African American, 17% were Latino/a, 16% were European American, 9% were Multiracial, and 3% were another race/ethnicity. Approximately 43% of youth reported living in a two-parent household, 28% lived in a single parent household, 12% lived with a
parent and a stepparent or parent’s significant other, 9% lived with a single parent and additional family members, 5% lived with an adult relative, and 3% reported another family structure.

**Procedure**

The Institutional Review Boards at the four participating universities (i.e., Duke University, The University of Georgia, University of Illinois at Chicago, and Virginia Commonwealth University) and the CDC approved all study procedures. The study employed a cluster-randomized design, such that 8 to 12 schools were first recruited within each geographic site. Next, schools within each site were randomly assigned to one of four conditions (i.e., universal intervention, selective intervention, combined universal and selective intervention, or no-intervention control), with equal numbers of schools in each condition. The first cohort of youth was recruited in the Fall of 2001 and the second cohort the following year. Students selected for the first cohort who repeated the sixth grade were not eligible to be recruited for the second cohort. Consent and assent forms were sent home with students. At three of the sites those students who returned their forms received a $5 gift card, whether or not they or their parents agreed to participation.

Student data were collected during the fall and spring of the sixth grade and in the spring of the following two years. An additional wave of data was collected from students in the second cohort during the fall of the seventh grade. Students completed the survey using computer-assisted self-interviewing with audio (Audio-CASI). Students were administered the survey at school in groups of 10 to 20; they were seated such that their responses were not visible to others. Students read the questions on the computer while listening to them through headphones, and then entered responses using the keyboard. When permitted by schools, students received a $5 gift card in appreciation of their time and effort in participating in the survey.
Measures

For the present study, measures were used to assess five domains, including demographic characteristics, dating violence victimization, dating violence perpetration, substance use, and class-level school norms for dating violence.

Demographic characteristics. Demographic characteristics were assessed by student report. Students were asked to identify their gender as either male or female. Race/ethnicity was assessed with two questions. First, students were asked to indicate whether they were Hispanic or Latino; then they were asked how they described themselves by choosing as many of the following options as they desired: White, Black or African American, American Indian or Alaska Native, Asian Indian, Other Asian, or Some other race. To assess family structure students were asked to indicate who lived in their home (e.g., mother, father, stepmother, grandmother). A family structure variable was created to reflect the following family structures: two-parent family, multi-generational single parent family, parent with either stepparent or parent’s significant other, single parent with or without other adults, foster family, adult relative with neither parent, or other.

Dating violence victimization and perpetration. Dating violence was measured using an adaptation of the Dating Violence and Norms measure (Foshee et al., 1996). Adaptations from the original included minor wording changes for three items, the addition of two items (i.e., “Stomped out of the room or house during a disagreement”; “Punched or hit you/him or her with something that could hurt”), and a change in the response scale for the Physical Violence subscales. The self-report measure comprised 26 items that assessed dating violence perpetration and victimization. First, youth were asked whether or not they have had a boy/girlfriend in the last 3 months. If youth reported yes, they were then asked whether or not they had “done any of
the following things to a boyfriend/girlfriend” (perpetration)” and whether “a boy/girlfriend has
done the following things to you” (victimization) in the last three months. Youth were asked not
to count instances of self-defense. To measure perpetration, two subscales were used, Physical
and Psychological Perpetration. The Physical Perpetration subscale consists of nine items, such
as, “How many times have you punched or hit him/her with something that could hurt?” The
Psychological Perpetration subscale consists of four items, such as, “How many times have you
said things to hurt his/her feelings on purpose?” To measure victimization, the Physical and
Psychological Victimization subscales were used. The items included in these subscales mirror
the Perpetration items. Youth indicated the frequency of these behaviors, using a four-point
response scale, where 0 = Never, 1 = 1-3 times, 2 = 4-9 times, 4 = 10 or more times. Higher
scores indicate higher levels of dating violence. Based on Wave 1 data from the first cohort,
Cronbach alphas for the Physical and Psychological Perpetration subscales were .91 and .76,
respectively and Cronbach alphas for the Physical and Psychological Victimization subscales
were .89 and .68, respectively.

Substance use. Substance use was measured using the Problem Behavior Frequency
Scale (PBFS; Farrell, Kung, White, & Valois, 2000; Miller-Johnson, Sullivan, Simon, & MVPP,
2004), a self-report measure comprised of seven subscales that assess the frequency of multiple
problem behaviors (i.e., physical aggression, nonphysical aggression, relational aggression,
delinquent behavior, substance use, overt victimization, and relational victimization). The
Substance Use subscale consisted of six items, such items as, “How many times have you drunk
beer (more than a sip or taste)?” Frequency of these behaviors in the last 30 days is reported
using a six-point response scale, where 1 = Never, 2 = 1-2 times, 3 = 3-5 times, 4 = 6-9 times, 5 =
10-19 times, and 6 = 20 or more times and higher scores indicate higher levels of problem behavior. For the current study, Cronbach alpha for the subscale was .84.

Class-level school norms for dating violence. Norms for dating violence were measured using an adapted version of the Norms for Dating Violence Scale (Foshee et al., 1998). The measure was adapted so that half of the items reflected norms for female dating violence and the other half reflected norms for male dating violence. In this self-report scale, students are asked to rate how strongly they agree or disagree with 10 beliefs regarding violence toward a dating partner. Norms for violence by boys against their girlfriends are assessed by five items, such as “It is okay for a boy to hit his girlfriend if she did something to make him mad.” Norms about female dating violence are assessed using five identical items reworded to address norms regarding violence by girls against their boyfriends. Responses are provided on a 5-point scale, where 1 = Strongly disagree, 2 = Disagree somewhat, 3 = Agree somewhat, and 4 = Strongly agree. For the current study, all items were averaged to create a composite measure of norms. A class-level measure of norms for dating violence was created by aggregating norms across students in the same cohort at the same school. The Cronbach alpha for the scale was .82.

Data Analysis

Data from MVPP underwent rigorous data cleaning procedures in order to identify data entry errors, outliers, and suspect response patterns. Primary analyses were conducted using Mplus version 7 (Muthén & Muthén, 2012). Analyses used a multilevel approach whereby student-level variables were represented at Level 1 and class-level variables were represented at Level 2. Class-level variables represented scores for students in the same cohort at the same school, based on the notion that youth in the same school who entered at the same time would experience a more similar school environment as compared to youth who entered the same
school at a different time (Henry, Farrell, Schoeny, Tolan, & Dymnicki, 2011). This yielded a total of 74 clusters, with an average of 27 students per cluster. Missing data on outcome variables (i.e., psychological and physical dating violence perpetration and substance use) due to incomplete responses were handled using full-information maximum likelihood (FIML), a method which estimates missing data based on the variables that are present (Muthén & Muthén, 2012). Models were calculated with the MLR estimator, to account for the non-normality and non-independence of study variables.

Family structure, race/ethnicity, and gender were included as Level 1 control variables based on previous research showing that rates of physical and psychological violence perpetration differ by gender (e.g., Foshee et al., 2009; Wolfe et al., 2003) and that adolescents from single-parent households and who identified as non-White are at greater risk for dating violence perpetration (e.g., Foshee et al., 2007). Gender was dummy-coded, such that female adolescents were chosen as the reference group (0 = female; 1 = male). Race/ethnicity was dummy-coded such that African American was chosen as the reference group as it was the largest ethnic group in the sample. Family structure was also dummy coded, such that two-parent families represented the reference group, as it was the most prevalent type of family structure in the current sample. Intervention condition was included as a Level 2 control variable and was dummy-coded into three variables: universal intervention, targeted intervention, and combined intervention, with the control condition as the reference group. Interaction terms for victimization and gender were defined in Mplus by creating a variable representing the product of gender and dating violence victimization. Except for the dummy-coded variables, all predictor variables at Levels 1 and 2 were grand-mean centered to facilitate interpretation.

Sets of models were tested separately for each outcome, for a total of three sets of
models. The first two sets of models tested hypotheses that physical and psychological dating violence perpetration varied as a function of physical and psychological dating violence victimization, gender, interactions between each form of victimization and gender, class norms for dating violence, and the cross-level interaction between dating violence victimization and norms (see Figure 1). The specific models tested for each form of perpetration were as follows:

Level 1 (student):

\[ W_{2}Perpetration_{ij} = \beta_{0j} + \beta_{1}FamilyStructure_{ij} + \beta_{2}Ethnicity_{ij} + \beta_{3}WP1PhysicalPerpetration_{ij} + \beta_{4j}WP1PsychologicalPerpetration_{ij} + \beta_{5j}Gender_{ij} + \beta_{6j}WP1PhysicalVictimization_{ij} + \beta_{7j}WP1PsychologicalVictimization_{ij} + \beta_{8}PsychologicalVictimization_{ij}Gender_{ij} + \beta_{9}WP1PhysicalVictimization_{ij}Gender_{ij} + e_{ij} \]  

\[ \beta_{0j} = \gamma_{00} + \gamma_{01}InterventionCondition_{j} + \gamma_{02}Norms_{j} + u_{0j} \]  

\[ \beta_{6j} = \gamma_{60} + \gamma_{61}Norms_{j} + u_{6j} \]  

\[ \beta_{7j} = \gamma_{70} + \gamma_{71}Norms_{j} + u_{7j} \]  

In the Level 1 equation \( \beta_{0j} \) is the intercept, \( \beta_{1}, \beta_{2}, \beta_{3}, \text{ and } \beta_{4} \), are the regression coefficients for the control variables (i.e., family structure, ethnicity, Wave 1 physical perpetration, and Wave 1 psychological perpetration), \( \beta_{5j}, \beta_{6j}, \text{ and } \beta_{7j} \) are the regression coefficients for gender, physical dating violence victimization, and psychological dating violence victimization, respectively, \( \beta_{8j} \) and \( \beta_{9j} \) are the regression coefficients for the interaction terms, and \( e_{ij} \) represents the residual error. The subscript, \( j \), refers to Level 2 (classes), whereas subscript, \( i \), refers to Level 1 (students). Regression coefficients for Level 1 variables have a subscript, \( j \), as their regression slopes were assumed to vary across classes. Relations between physical and psychological dating violence victimization and perpetration were modeled at Level 1 and Level 2 by including
random intercepts and slopes for these variables in Level 1 of the models. The first Level 2 equation predicts the intercept, or the class-level average of dating violence perpetration, by intervention condition and norms for dating violence. The second and third equations depict cross-level interactions between victimization and norms for dating violence, as the relations between victimization and perpetration (represented by the victimization slope coefficients, $\beta_{0j}$ and $\beta_{7j}$) were expected to vary as a function of norms for dating violence. The terms, $u_{0j}$, $u_{1j}$, and $u_{2j}$ represent the Level 2 residual error.
Figure 1. Conceptual model depicting relations between dating violence perpetration and (a) dating violence victimization, gender, and demographic controls at the individual level and (b) intervention condition and norms for dating violence at the school level. The individual-level model includes random intercepts and slopes (black circles) that are modeled at the school-level.
The third set of models tested relations between psychological and physical dating violence victimization, gender, and substance use and tested hypotheses that substance use varied as a function of psychological and physical dating violence victimization, gender, and the interaction between these two subtypes of dating violence victimization and gender (see Figure 2). The specific model tested was as follows:

Level 1 (student):

\[ W_{2\text{SubstanceUse}}_{ij} = \beta_0j + \beta_1\text{FamilyStructure}_{ij} + \beta_2\text{Ethnicity}_{ij} + \beta_3\text{Gender}_{ij} + \beta_4W_{1\text{PhysicalPerpetration}}_{ij} + \beta_5W_{1\text{PsychologicalPerpetration}}_{ij} + \beta_6W_{1\text{SubstanceUse}}_{ij} + \beta_7W_{1\text{PhysicalVictimization}}_{ij} + \beta_8W_{1\text{PsychologicalVictimization}}_{ij} + \beta_9\text{PsychologicalVictimization}_{ij}\text{Gender}_{ij} + \beta_{10}W_{1\text{PhysicalVictimization}}_{ij}\text{Gender}_{ij} + e_{ij} \]  

(5)

Level 2 (class):

\[ \beta_0j = \gamma_{00} + \gamma_{01}\text{InterventionCondition}_{ij} + u_{0j} \]  

(6)

The Level 1 equation represents the intercept of substance use, the regression coefficients for physical and psychological victimization, gender, interactions between gender and victimization, and control variables (i.e., family structure, ethnicity, Wave 1 physical perpetration, and Wave 1 psychological perpetration). At Level 2, intervention condition was included as a control variable.
Figure 2. Conceptual model depicting relations between Wave 2 substance use and (a) Wave 1 dating violence victimization, gender, and interactions between victimization and gender at the individual level and (b) intervention condition at the school level. The individual-level model includes random intercepts (black circles) that are modeled at the school-level.
Based on Hox’s (2010) recommendations for analyzing two-level models, each set of multilevel models were run in the following sequence: (a) a baseline model with random intercepts was tested, (b) a model with Level 1 predictors with fixed slopes and random intercepts was tested, (c) Level 2 predictors were added to the model in the previous step, (d) Level 1 predictors with random slopes were tested one-by-one to determine whether any of the slopes of the predictor variables had significant variance between groups, and (e) lastly, cross-level interactions between Level 2 predictors and Level 1 predictor variables with significant slope variation were tested. A hierarchical approach was utilized, such that sets of variables were entered step-by-step. Control variables at Level 1 (i.e., family structure, gender and race/ethnicity) and Level 2 (i.e., intervention condition) were entered first, followed by Wave 1 outcomes second, physical and psychological victimization third, interaction terms fourth, and norms for dating violence last. Within each model, parameter estimates and standard errors were examined to determine the significance of individual predictors. Based on recommendations by Snijders and Bosker (1994), the proportion of Level 1 and Level 2 variance explained by each set of variables was determined by calculating the difference in the amount of Level 1 ($R^2_1$) and Level 2 ($R^2_2$) residual variance as a proportion of the total error variance. This results in a statistic that is comparable to the multiple $R^2$.

**Results**

**Descriptive Statistics**

Prevalence rates of Wave 1 dating violence victimization and Wave 2 dating violence perpetration and substance use were calculated by gender and for the entire sample in SPSS version 21. Item responses were dichotomized, such that any experience of victimization, perpetration, or substance use was coded as 1 and no experience as 0. The percentage of youth
who reported ever having experiencing each type of dating violence victimization is shown in Table 1. Having a partner do something to evoke jealously was the most common type of psychological victimization, with a little over a third of boys (34.0%) and girls (38.7%) reporting having experienced this. Being scratched was the most common physically violent act experienced by girls (40.6%), whereas having a dating partner stomp out of the room or house during a disagreement was the most common form of physical victimization reported by boys (19.2%). Among the total sample, more severe types of physical victimization, such as being slammed or held against a wall (11.1%), having something thrown at them that could hurt (14.8%), and being punched or hit with something that could hurt (12.6%) were less commonly experienced.

Table 1

<table>
<thead>
<tr>
<th>Type of Dating Violence Victimization</th>
<th>Total Sample (%)</th>
<th>Girls (%)</th>
<th>Boys (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Psychological Victimization</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Damaged something that belonged to you</td>
<td>19.7</td>
<td>24.6</td>
<td>13.3</td>
</tr>
<tr>
<td>Said things to hurt your feelings on purpose</td>
<td>27.5</td>
<td>26.3</td>
<td>29.0</td>
</tr>
<tr>
<td>Would not let you do things with other people</td>
<td>22.2</td>
<td>25.2</td>
<td>18.2</td>
</tr>
<tr>
<td>Did something just to make you jealous</td>
<td>36.0</td>
<td>34.0</td>
<td>38.7</td>
</tr>
<tr>
<td><strong>Physical Victimization</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threatened to hit or throw something at you</td>
<td>20.4</td>
<td>24.0</td>
<td>15.6</td>
</tr>
<tr>
<td>Scratched you</td>
<td>30.6</td>
<td>40.6</td>
<td>17.3</td>
</tr>
<tr>
<td>Slapped you</td>
<td>18.3</td>
<td>26.3</td>
<td>7.6</td>
</tr>
<tr>
<td>Slammed you or held you against a wall</td>
<td>11.1</td>
<td>13.6</td>
<td>7.9</td>
</tr>
<tr>
<td>Kicked you</td>
<td>20.2</td>
<td>27.8</td>
<td>10.0</td>
</tr>
<tr>
<td>Pushed or shoved you</td>
<td>21.0</td>
<td>26.1</td>
<td>14.2</td>
</tr>
<tr>
<td>Stomped out of the room or house during a disagreement</td>
<td>20.6</td>
<td>21.7</td>
<td>19.2</td>
</tr>
<tr>
<td>Threw something at you that could hurt</td>
<td>14.8</td>
<td>20.2</td>
<td>7.7</td>
</tr>
<tr>
<td>Punched or hit you with something that could hurt</td>
<td>12.6</td>
<td>17.2</td>
<td>6.5</td>
</tr>
</tbody>
</table>

The percentage of youth who reported ever perpetrating each type of dating violence is shown in Table 2. Doing something to make a dating partner jealous was the most common type
of psychological perpetration for girls (34.5%) and boys (20.7%). Slapping was the most common physically violent act perpetrated by girls (23.5%), whereas pushing or shoving was the most common type of physical perpetration by boys (15.3%).

Table 2

*Percentage of Youth Having Ever Perpetrated Psychological and Physical Dating Violence*

<table>
<thead>
<tr>
<th>Type of Dating Violence Peretration</th>
<th>Total Sample (%)</th>
<th>Girls (%)</th>
<th>Boys (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Psychological Perpetration</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Damaged something that belonged to him/her</td>
<td>12.7</td>
<td>12.6</td>
<td>12.8</td>
</tr>
<tr>
<td>Said things to hurt his/her feelings on purpose</td>
<td>21.1</td>
<td>24.1</td>
<td>18.2</td>
</tr>
<tr>
<td>Would not let him/her do things with other people</td>
<td>14.6</td>
<td>13.8</td>
<td>15.2</td>
</tr>
<tr>
<td>Did something just to make him/her jealous</td>
<td>26.6</td>
<td>34.5</td>
<td>20.7</td>
</tr>
<tr>
<td><strong>Physical Perpetration</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threatened to hit or throw something at him/her</td>
<td>14.8</td>
<td>16.7</td>
<td>13.4</td>
</tr>
<tr>
<td>Scratched him/her</td>
<td>14.4</td>
<td>20.1</td>
<td>10.2</td>
</tr>
<tr>
<td>Slapped him/her</td>
<td>16.8</td>
<td>23.5</td>
<td>11.7</td>
</tr>
<tr>
<td>Slammed him/her or held you against a wall</td>
<td>10.0</td>
<td>7.8</td>
<td>11.6</td>
</tr>
<tr>
<td>Kicked him/her</td>
<td>11.4</td>
<td>11.7</td>
<td>11.2</td>
</tr>
<tr>
<td>Pushed or shoved him/her</td>
<td>16.8</td>
<td>18.8</td>
<td>15.3</td>
</tr>
<tr>
<td>Stomped out of the room or house during a disagreement</td>
<td>16.0</td>
<td>19.0</td>
<td>13.7</td>
</tr>
<tr>
<td>Threw something at him/her that could hurt</td>
<td>9.8</td>
<td>10.0</td>
<td>9.6</td>
</tr>
<tr>
<td>Punched or hit him/her with something that could hurt</td>
<td>9.2</td>
<td>9.4</td>
<td>9.0</td>
</tr>
</tbody>
</table>

The percentage of youth who reported ever having used specific substances is shown in Table 3. Drinking wine or wine coolers was the most common type of substance use reported by boys (25.6%) and girls (28.7%). A large percentage of boys (25.2%) and girls (25.9%) also reported having drunk beer. Illicit drug use (i.e., marijuana use) was relatively less common among boys (9.3%) and girls (7.1%).

50
Table 3

*Percentage of Youth Having Ever Used Substances*

<table>
<thead>
<tr>
<th>Type of Dating Violence Perpetration</th>
<th>Total Sample (%)</th>
<th>Girls (%)</th>
<th>Boys (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drunk beer (more than a sip or taste)</td>
<td>25.5</td>
<td>25.9</td>
<td>25.2</td>
</tr>
<tr>
<td>Drunk wine or wine coolers (more than a sip or taste)</td>
<td>26.9</td>
<td>28.7</td>
<td>25.6</td>
</tr>
<tr>
<td>Smoked cigarettes</td>
<td>18.3</td>
<td>18.9</td>
<td>18.0</td>
</tr>
<tr>
<td>Been drunk</td>
<td>12.2</td>
<td>11.1</td>
<td>13.1</td>
</tr>
<tr>
<td>Drunk liquor (like whiskey or gin)</td>
<td>13.3</td>
<td>13.4</td>
<td>13.2</td>
</tr>
<tr>
<td>Used marijuana (pot, hash, reefer)</td>
<td>8.3</td>
<td>7.1</td>
<td>9.3</td>
</tr>
</tbody>
</table>

Means, standard deviations, and correlations among the uncentered Level 1 and 2 variables were calculated in Mplus using multilevel analyses and are reported in Table 4. At the student level (Level 1) Wave 1 physical and psychological dating violence victimization were significantly correlated \( (r = .76) \) as were Wave 2 physical and psychological dating violence perpetration \( (r = .81) \). Wave 2 substance use was significantly correlated with both forms of perpetration at Wave 2 \( (rs = .30 \text{ to } .31) \). In addition, both forms of victimization at Wave 1 were significantly correlated with Wave 2 substance use \( (rs = .14 \text{ to } .19) \) and Wave 2 physical \( (rs = .24 \text{ to } .25) \) and psychological perpetration \( (rs = .26 \text{ to } .28) \). Gender was significantly correlated with both forms of victimization \( (rs = .07 \text{ to } .23) \), but not perpetration or substance use. At the class level (Level 2), Wave 2 norms for dating violence were significantly correlated with dating violence victimization at Wave 1 \( (rs = .61 \text{ to } .67) \), as well as both forms of perpetration at Wave 2 \( (rs = .58 \text{ to } .71) \) and substance use at Wave 2 \( (r = .27) \).
### Table 4

**Means, Standard Deviations, and Intercorrelations**

*Correlations for Study Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1 Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. W1 Psychological Victimization</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.35</td>
<td>.49</td>
</tr>
<tr>
<td>2. W1 Physical Victimization</td>
<td></td>
<td>.76**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.27</td>
<td>.51</td>
</tr>
<tr>
<td>3. W1 Psychological Perpetration</td>
<td></td>
<td>.58**</td>
<td>.50**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.24</td>
<td>.45</td>
</tr>
<tr>
<td>4. W1 Physical Perpetration</td>
<td></td>
<td>.50**</td>
<td>.53**</td>
<td>.81**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.18</td>
<td>.43</td>
</tr>
<tr>
<td>5. W1 Drug Use</td>
<td></td>
<td>.27**</td>
<td>.29**</td>
<td>.35**</td>
<td>.35**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.20</td>
<td>.52</td>
</tr>
<tr>
<td>6. W2 Psychological Perpetration</td>
<td></td>
<td>.28**</td>
<td>.26**</td>
<td>.40**</td>
<td>.37**</td>
<td>.21**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td>.26</td>
<td>.48</td>
</tr>
<tr>
<td>7. W2 Physical Perpetration</td>
<td></td>
<td>.24**</td>
<td>.25**</td>
<td>.37**</td>
<td>.41**</td>
<td>.22**</td>
<td>.81**</td>
<td>--</td>
<td></td>
<td></td>
<td>.19</td>
<td>.46</td>
</tr>
<tr>
<td>8. W2 Drug Use</td>
<td></td>
<td>.14**</td>
<td>.19**</td>
<td>.20**</td>
<td>.20**</td>
<td>.53**</td>
<td>.31**</td>
<td>.30**</td>
<td>--</td>
<td></td>
<td>1.3</td>
<td>.74</td>
</tr>
<tr>
<td>9. Gender</td>
<td></td>
<td>.07*</td>
<td>.23**</td>
<td>-.04</td>
<td>-.02</td>
<td>.06*</td>
<td>-.05</td>
<td>-.04</td>
<td>.02</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Level 2 Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. W2 Norms for Dating Violence</td>
<td></td>
<td>.61**</td>
<td>.67**</td>
<td>.81**</td>
<td>.77**</td>
<td>.40**</td>
<td>.71**</td>
<td>.58**</td>
<td>.27**</td>
<td>.35**</td>
<td>--</td>
<td>1.77</td>
</tr>
</tbody>
</table>

*Note.* *p < .01, **p < .001*
**Preliminary Analyses**

Prior to conducting analyses, a multiple-group model was run to test differences in direct effects from dating violence victimization to substance use for students who reported being in a dating relationship at Wave 1 only \( (n = 489) \) versus students who reported being in a relationship at Wave 1 and Wave 2 \( (n = 2,022) \). The purpose of these analyses were to determine whether youth who dated at Wave 1 only were at lower risk for substance use and subsequently significantly different from the current sample, who were in a dating relationship at Wave 1 and Wave 2. Such information has important implications for the interpretation and generalization of study findings.

In order to test for differences, a constrained model where paths were set to be equivalent across groups was compared to an unconstrained model, where paths between Wave 1 physical and psychological victimization and controls (i.e., gender, family structure, race/ethnicity, and Wave 1 substance use, physical and psychological dating violence perpetration) and Wave 2 substance use were allowed to vary. Several fit indices were used to compare model fit, including the \( \chi^2 \) statistic, comparative fit index (CFI), Bayesian information criterion (BIC), root mean square error of approximation (RMSEA). Models with a CFI value of .95 or higher (Hu & Bentler, 1999) and RMSEA value below .06 indicate good fit. CFI differences of .01 or more (Cheung & Rensvold, 2002) and BIC differences of 10 or more (Raftery, 1993) indicate significant differences in model fit, wherein models with higher CFI and lower BIC values are favored. The chi-squared difference test was calculated using the Satorra-Bentler scaled chi-squared value (mean adjusted for non-normally distributed continuous data) reported in Mplus in a formula by Satorra and Bentler (1999). The constrained model was favored based on a non-significant chi-squared difference test \( (\chi^2(9) = 10.14, p > .10) \) and other fit indices (see Table 5).
Thus, pathways between psychological and physical dating violence victimization at Wave 1 and substance use at Wave 2 were equivalent for youth who reported being in a dating relationship at Wave 1 only and those who reported being in a relationship at Wave 1 and Wave 2.

Table 5

Comparisons of the Unconstrained and Constrained Models Depicting Relations between Wave 1 Physical and Psychological Dating Violence Victimization and Wave 2 Substance Use

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>$Df$</th>
<th>CFI</th>
<th>BIC</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unconstrained model</td>
<td>0.00</td>
<td>0</td>
<td>1.00</td>
<td>46388.50</td>
<td>.00</td>
</tr>
<tr>
<td>Constrained model</td>
<td>10.14</td>
<td>9</td>
<td>1.00</td>
<td>46344.40</td>
<td>.01</td>
</tr>
</tbody>
</table>

Multilevel Analyses

Relations among dating violence victimization, gender, norms for dating violence and physical dating violence perpetration. The first set of models examined relations between dating violence victimization and physical dating violence perpetration. These models tested the following hypotheses: (a) Wave 1 physical and psychological dating violence victimization would predict changes in physical dating violence perpetration from Wave 1 to Wave 2, controlling for demographic characteristics (i.e., family structure, gender, and race/ethnicity) and Wave 1 physical and psychological perpetration at Level 1 and intervention condition at Level 2 and (b) the degree to which victimization was associated with changes in physical perpetration would vary as a function of gender and Level 2 class norms for dating violence. Results of these models are shown in Table 6. The baseline random intercept model (Model 1) showed significant variance at Level 1 ($\beta = .21, p < .001$) and Level 2 ($\beta = .01, p = .001$). The intraclass correlation (ICC), a measure of the degree to which individual differences are accounted for by class differences, was 0.03.

In Model 2, student demographic characteristics at Level 1 (i.e., family structure, gender, and race/ethnicity) and intervention condition at Level 2 accounted for 1% of the modeled
variance at Level 1 and 8% of the variance at Level 2. Gender was the only demographic characteristic significantly associated with Wave 2 physical perpetration ($\beta = -0.04, p = 0.033$), such that boys reported lower levels of physical dating violence perpetration than girls. In Model 3, Wave 1 physical and psychological dating violence perpetration were added and accounted for 17% of the modeled variance in Level 1 scores and 34% of the variance in Level 2 scores. Wave 1 physical ($\beta = 0.36, p < 0.001$) and psychological ($\beta = 0.09, p = 0.038$) dating violence perpetration significantly predicted change in physical perpetration from Wave 1 to Wave 2. In other words, controlling for race/ethnicity, gender, family structure, and intervention condition, high levels of physical and psychological perpetration at Wave 1 were associated with greater change in physical perpetration from Wave 1 to Wave 2. In Model 4, Wave 1 physical and psychological dating violence victimization were added, but did not account for any modeled variance in Level 1 or Level 2 scores. Neither physical ($\beta = 0.06, p = 0.230$) nor psychological ($\beta = -0.02, p = 0.673$) victimization at Wave 1 predicted changes in physical perpetration from Wave 1 to Wave 2. In Model 5, interactions between gender and each form of victimization were added. The interaction terms accounted for 1% of the modeled variance in Level 1; however, they did not account for any additional variance in Level 2 scores. Interactions were not significant for physical ($\beta = 0.11, p = 0.245$) or psychological ($\beta = -0.11, p = 0.130$) victimization. Thus, expectations that the degree to which victimization predicted changes in physical perpetration would differ by gender were not supported.

Model 6 tested the effects of Level 2 norms for dating violence on class averages of physical dating violence perpetration. Level 2 norms for dating violence did not account for any modeled variance in Level 1 or 2 scores. Wave 2 class norms for dating violence were not associated with changes in class averages of physical dating violence perpetration from Wave 1.
to Wave 2 ($\beta = .12, p = .119$). In order to test hypotheses that class norms for dating violence moderated longitudinal relations between each form of dating violence victimization and physical perpetration, random effects for Level 1 regression coefficients representing the effects of physical and psychological dating violence victimization on physical perpetration were added to Model 6. Following recommendations by Hox (2010) random effects were tested one at a time to determine if they showed significant variance across classes. Slope variances were not significant for regression coefficients representing the relation between physical dating violence victimization and physical perpetration ($\beta = .04, p = .181$) or the relation between psychological dating violence victimization and physical perpetration ($\beta = .02, p = .109$). Hence, relations between physical and psychological dating violence victimization and physical perpetration did not significantly vary across classes. As such, cross-level interactions were not tested.
Table 6

Unstandardized Parameter Estimates for Multilevel Models Predicting Relations between Dating Violence Victimization, Gender, Norms for Dating Violence, and Physical Dating Violence Perpetration

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1 (student)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>.191*** (.014)</td>
<td>.173*** (.032)</td>
<td>.101*** (.025)</td>
<td>.184*** (.028)</td>
<td>.178*** (.026)</td>
<td>.180*** (.026)</td>
</tr>
<tr>
<td>Family Structure</td>
<td>.030 (.021)</td>
<td>.008 (.019)</td>
<td>.006 (.019)</td>
<td>.007 (.019)</td>
<td>.005 (.019)</td>
<td></td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>-.025 (.021)</td>
<td>-.017 (.017)</td>
<td>-.017 (.017)</td>
<td>-.017 (.017)</td>
<td>-.012 (.017)</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-.040* (.019)</td>
<td>-.031 (.017)</td>
<td>-.044** (.015)</td>
<td>-.039* (.017)</td>
<td>-.040* (.017)</td>
<td></td>
</tr>
<tr>
<td>W1 Physical Perpetration</td>
<td>.355*** (.053)</td>
<td>.334*** (.057)</td>
<td>.339*** (.057)</td>
<td>.338*** (.057)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W1 Psychological Perpetration</td>
<td>.094* (.045)</td>
<td>.089 (.047)</td>
<td>.083 (.048)</td>
<td>.081 (.048)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W1 Physical Victimization</td>
<td></td>
<td></td>
<td>-.019 (.077)</td>
<td>-.016 (.077)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W1 Psychological Victimization</td>
<td>-.016 (.038)</td>
<td>-.054 (.054)</td>
<td>-.052 (.054)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W1 Physical Victimization x Gender</td>
<td>.108 (.093)</td>
<td>.105 (.093)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W1 Psychological Victimization x Gender</td>
<td>-.108 (.071)</td>
<td>-.105 (.071)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Level 2 (class)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Universal Intervention Condition</td>
<td>.043 (.038)</td>
<td>.037 (.032)</td>
<td>.037 (.032)</td>
<td>.038 (.032)</td>
<td>.038 (.031)</td>
<td></td>
</tr>
<tr>
<td>Targeted Intervention Condition</td>
<td>.024 (.033)</td>
<td>.013 (.027)</td>
<td>.011 (.027)</td>
<td>.013 (.026)</td>
<td>.010 (.026)</td>
<td></td>
</tr>
<tr>
<td>Combined Intervention Condition</td>
<td>.076 (.042)</td>
<td>.059 (.036)</td>
<td>.058 (.036)</td>
<td>.058 (.036)</td>
<td>.048 (.036)</td>
<td></td>
</tr>
<tr>
<td>Norms about Dating Violence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.120 (.077)</td>
</tr>
<tr>
<td><strong>Variance estimates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Level residual variance</td>
<td>.207*** (.020)</td>
<td>.206*** (.020)</td>
<td>.172*** (.016)</td>
<td>.172*** (.016)</td>
<td>.171*** (.016)</td>
<td>.171*** (.016)</td>
</tr>
<tr>
<td>Between Level residual variance</td>
<td>.006** (.002)</td>
<td>.005* (.002)</td>
<td>.002 (.002)</td>
<td>.002 (.002)</td>
<td>.002 (.002)</td>
<td>.002 (.002)</td>
</tr>
<tr>
<td>Change in $R^2$</td>
<td>0.01</td>
<td>0.17</td>
<td>0.00</td>
<td>0.01</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Change in $R^2$</td>
<td>0.08</td>
<td>0.34</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

*Note. Standard errors are in parentheses. All models were fully-saturated (CFI = 1.00; RMSEA = 0.00). *p < .05. **p < .01. ***p < .001.*
Relations among dating violence victimization, gender, norms for dating violence and psychological dating violence perpetration. The next set of models examined relations between physical and psychological dating violence victimization and psychological dating violence perpetration in order to test hypotheses that Wave 1 dating violence victimization would predict changes in psychological dating violence perpetration from Wave 1 to Wave 2 (controlling for demographic characteristics and Wave 1 physical and psychological perpetration at Level 1 and intervention condition at Level 2) and the degree to which victimization was associated with changes in psychological perpetration would vary as a function of gender and Level 2 class norms for dating violence. Results of these models are shown in Table 7. Model 1, the baseline random intercept model, showed significant variance in psychological dating violence perpetration at Level 1 ($\beta = .23, p < .001$) and Level 2 ($\beta = .01, p = .001$). The ICC was .02.

In Model 2, student demographic characteristics at Level 1 (i.e., family structure, gender, and race/ethnicity) and intervention condition at Level 2 were added and accounted for 1% of the modeled variance in Level 1 scores and 15% of the variance in Level 2 scores. Gender ($\beta = -.05, p = .016$) and race/ethnicity ($\beta = -.06, p = .008$) were significantly associated with Wave 2 psychological dating violence perpetration, such that boys reported lower levels of psychological perpetration as compared to girls and African American adolescents reported higher levels of psychological perpetration than students from other racial/ethnic groups. The combined intervention also had a significant effect on psychological perpetration ($\beta = .08, p = .020$), such that students who received the combined intervention (i.e., universal and targeted intervention) reported higher levels of psychological perpetration as compared to students in the control group. In Model 3, the addition of Wave 1 physical and psychological perpetration accounted for 16%
of the modeled variance in Level 1 scores and 38% of the variance in Level 2 scores. Wave 1 physical ($\beta = .17, p = .021$) and psychological ($\beta = .28, p < .001$) dating violence perpetration were significant predictors of Wave 2 psychological perpetration. In other words, controlling for race/ethnicity, gender, family structure, and intervention condition, high levels of Wave 1 physical and psychological perpetration were associated with greater change in psychological dating violence perpetration from Wave 1 to Wave 2. Next, Wave 1 physical and psychological perpetration were added to Model 4; they did not account for any additional variance in Level 1 and 2 scores. Neither physical ($\beta = .04, p = .327$) nor psychological ($\beta = .05, p = .249$) dating violence victimization significantly predicted changes in psychological perpetration. In Model 5, interactions between gender and each form of victimization were added. The interaction terms accounted for 1% of the modeled variance in Level 1 scores and 13% of the variance in Level 2 scores. Interactions between psychological victimization and gender ($\beta = -.17, p = .020$) and physical victimization and gender ($\beta = .21, p = .027$) were significant, thus the extent to which these two forms of dating violence victimization predicted changes in psychological perpetration varied for boys and girls. Figures 3 and 4 illustrate the interactions between gender and psychological and physical dating violence victimization, respectively. High levels of psychological victimization predicted greater change in psychological perpetration for girls as compared to boys. The relation between psychological victimization and psychological perpetration was significantly different from zero for girls ($\beta = .16, p = .010$); however, this relation was not significant for boys ($\beta = -.01, p = .908$). Additionally, high levels of physical victimization were associated with greater change in psychological perpetration for boys as compared to girls, although relations were not significantly different from zero for boys ($\beta = .10, p = .054$) or girls ($\beta = -.11, p = .144$).
Model 6 incorporated Level 2 norms for dating violence, to test their impact on changes in class averages of psychological dating violence perpetration. Wave 2 norms for dating violence did not account for any of the modeled variance in Level 1 and 2 scores and were not a significant predictor of change in average levels of psychological dating violence perpetration across school classes (β = .14, p = .051). Next, random effects representing the effects of physical and psychological dating violence victimization on psychological perpetration were added to Model 6 one-by-one. There was significant variance in the slope for physical (β = .05, p = .004) and psychological (β = .03, p = .002) dating violence victimization, indicating that relations between physical and psychological dating violence victimization and psychological perpetration significantly varied across classes. Subsequently, the cross-level interactions between Level 1 victimization and Level 2 class norms for dating violence were tested by examining norms as a predictor of the slopes representing relations between physical victimization and psychological perpetration and psychological victimization and psychological perpetration. Cross-level interactions were not significant for physical (β = -.16, p = .420) or psychological (β = -.18, p = .616) dating violence victimization. Contrary to hypotheses, norms for dating violence did not moderate relations between either form of victimization and psychological perpetration.
### Table 7

Unstandardized Parameter Estimates for Multilevel Models Predicting Relations between Dating Violence Victimization, Gender, Norms for Dating Violence, and Psychological Dating Violence Perpetration

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1 (student)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>.191*** (.014)</td>
<td>.256*** (.031)</td>
<td>.175*** (.027)</td>
<td>.262*** (.026)</td>
<td>.257*** (.027)</td>
<td>.259*** (.026)</td>
</tr>
<tr>
<td>Family Structure</td>
<td>.034 (.023)</td>
<td>.006 (.020)</td>
<td>.002 (.021)</td>
<td>.002 (.020)</td>
<td>.000 (.020)</td>
<td></td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>-.063** (.024)</td>
<td>-.055** (.020)</td>
<td>-.056** (.020)</td>
<td>-.057** (.020)</td>
<td>-.049* (.020)</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-.048* (.020)</td>
<td>-.036 (.019)</td>
<td>-.050** (.018)</td>
<td>-.049* (.019)</td>
<td>-0.051** (.019)</td>
<td></td>
</tr>
<tr>
<td>W1 Physical Perpetration</td>
<td></td>
<td>.171** (.054)</td>
<td>.150** (.057)</td>
<td>.161** (.057)</td>
<td>.160** (.057)</td>
<td></td>
</tr>
<tr>
<td>W1 Psychological Perpetration</td>
<td></td>
<td></td>
<td>.280*** (.058)</td>
<td>.242*** (.062)</td>
<td>.232*** (.063)</td>
<td>.229*** (.063)</td>
</tr>
<tr>
<td>W1 Physical Victimization</td>
<td></td>
<td></td>
<td>.042 (.042)</td>
<td>-.114 (.078)</td>
<td>-.110 (.077)</td>
<td></td>
</tr>
<tr>
<td>W1 Psychological Victimization</td>
<td></td>
<td></td>
<td></td>
<td>.049 (.043)</td>
<td>.162* (.063)</td>
<td>.159* (.062)</td>
</tr>
<tr>
<td>W1 Physical Victimization x Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.211* (.091)</td>
<td>.206* (.090)</td>
</tr>
<tr>
<td>W1 Psychological Victimization x Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-1.168* (.076)</td>
<td>-1.164* (.076)</td>
</tr>
<tr>
<td><strong>Level 2 (class)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Universal Intervention Condition</td>
<td>0.054 (.034)</td>
<td>0.044 (.027)</td>
<td>0.043 (.027)</td>
<td>0.043 (.027)</td>
<td>0.043 (.027)</td>
<td>0.043 (.026)</td>
</tr>
<tr>
<td>Targeted Intervention Condition</td>
<td>0.017 (.028)</td>
<td>0.006 (.023)</td>
<td>0.003 (.022)</td>
<td>0.005 (.022)</td>
<td>0.002 (.021)</td>
<td></td>
</tr>
<tr>
<td>Combined Intervention Condition</td>
<td>0.084* (.036)</td>
<td>0.067* (.030)</td>
<td>0.064* (.030)</td>
<td>0.064* (.030)</td>
<td>0.052 (.031)</td>
<td></td>
</tr>
<tr>
<td>Norms about Dating Violence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Variance estimates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Level residual variance</td>
<td>.226*** (.017)</td>
<td>.225*** (.017)</td>
<td>.191*** (.015)</td>
<td>.190*** (.015)</td>
<td>.189*** (.015)</td>
<td>.189*** (.015)</td>
</tr>
<tr>
<td>Between Level residual variance</td>
<td>.005** (.002)</td>
<td>.003* (.001)</td>
<td>.000 (.001)</td>
<td>.001 (.001)</td>
<td>.000 (.001)</td>
<td>.000 (.001)</td>
</tr>
<tr>
<td>Change in $\hat{R}^2$</td>
<td>0.01</td>
<td>0.16</td>
<td>0.00</td>
<td>0.01</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Change in $\hat{R}^2$</td>
<td>0.15</td>
<td>0.38</td>
<td>-0.14</td>
<td>0.13</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Standard errors are in parentheses. All models were fully-saturated (CFI = 1.00; RMSEA = 0.00).

* $p < .05$. ** $p < .01$. *** $p < .001$. 

61
Figure 3. Gender as a moderator of relations between psychological dating violence victimization and psychological dating violence perpetration.

Figure 4. Gender as a moderator of relations between physical dating violence victimization and psychological dating violence perpetration.
Relations among dating violence victimization, gender, and substance use. The last set of models examined relations between dating violence victimization and substance use in order to test hypotheses that Wave 1 dating violence victimization would predict changes in substance use from Wave 1 to Wave 2 (controlling for demographic characteristics and Wave 1 substance use at Level 1 and intervention condition at Level 2) and that the extent to which victimization predicted changes in substance use would vary as a function of gender. Results of these models are shown in Table 8. Model 1, the baseline random intercept model, showed significant variance in substance use at Level 1 ($\beta = .54, p < .001$), but not Level 2 ($\beta = .01, p = .073$). The ICC was .02. Although levels of substance use did not differ across school classes, in subsequent models the random intercept was included so as to control for the influence of intervention condition at Level 2.

In Model 2, student demographic characteristics at Level 1 (i.e., family structure, gender, and race/ethnicity) and intervention condition at Level 2 were added and did not account for any of the modeled variance in Level 1 scores and accounted for 4% of the variance in Level 2 scores. Demographic characteristics and intervention condition were not significantly associated with Wave 2 substance use. In Model 3, the addition of Wave 1 physical and psychological perpetration and substance use accounted for 28% of the modeled variance in Level 1 scores and 34% of the variance in Level 2 scores. Wave 1 substance use significantly predicted changes in Wave 2 substance use ($\beta = .76, p < .001$); however, physical and psychological perpetration did not predict changes in Wave 2 substance use. Thus, controlling for gender, race/ethnicity, family structure, and intervention condition, high levels of Wave 1 substance use were associated with greater change in substance use from Wave 1 to Wave 2. Next, Wave 1 physical and psychological dating violence victimization were added to Model 4; they accounted for 1% of
the modeled variance in Level 1 scores and 6% of the variance in Level 2 scores. Wave 1 physical (β = .14, p = .049) and psychological (β = -.12, p = .044) victimization both significantly predicted changes in substance use. More specifically, high levels of physical victimization predicted greater change in substance use; whereas high levels of psychological victimization predicted less change in substance use. In Model 5, interactions between gender and each form of victimization were added. The interaction terms did not account for any of the variance in Level 1 and Level 2 scores. Interaction terms were not significant for physical (β = -.02, p = .878) or psychological victimization (β = -.08, p = .434). Therefore, the extent to which victimization predicted changes in substance use did not significantly differ as a function of gender.
Table 8

Unstandardized Parameter Estimates for Multilevel Models Predicting Relations between Dating Violence Victimization, Gender, and Substance Use

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1 (student)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>1.337*** (.020)</td>
<td>1.274*** (.050)</td>
<td>.416*** (.094)</td>
<td>.429*** (.094)</td>
<td>.414*** (.094)</td>
</tr>
<tr>
<td>Family Structure</td>
<td>.047 (.030)</td>
<td>.013 (.022)</td>
<td>.012 (.022)</td>
<td>.013 (.022)</td>
<td></td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>.023 (.039)</td>
<td>.019 (.034)</td>
<td>.021 (.033)</td>
<td>.019 (.033)</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>.023 (.035)</td>
<td>-.025 (.029)</td>
<td>-.048 (.030)</td>
<td>-.028 (.031)</td>
<td></td>
</tr>
<tr>
<td>W1 Physical Perpetration</td>
<td></td>
<td>.011 (.067)</td>
<td>-.033 (.072)</td>
<td>-.037 (.073)</td>
<td></td>
</tr>
<tr>
<td>W1 Psychological Perpetration</td>
<td>.015 (.074)</td>
<td>.050 (.074)</td>
<td>.046 (.074)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W1 Substance Use</td>
<td>.755*** (.074)</td>
<td>.750** (.076)</td>
<td>.754** (.075)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W1 Physical Victimization</td>
<td></td>
<td></td>
<td>.143 (.073)</td>
<td>.174 (.124)</td>
<td></td>
</tr>
<tr>
<td>W1 Psychological Victimization</td>
<td></td>
<td>-.121 (.060)</td>
<td>-.076 (.076)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W1 Physical Victimization x Gender</td>
<td></td>
<td></td>
<td>.003 (.152)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W1 Psychological Victimization x Gender</td>
<td></td>
<td></td>
<td>-.080 (.103)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Level 2 (class)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Universal Intervention Condition</td>
<td>.011 (.060)</td>
<td>.017 (.050)</td>
<td>.019 (.050)</td>
<td>.020 (.050)</td>
<td></td>
</tr>
<tr>
<td>Targeted Intervention Condition</td>
<td>.032 (.046)</td>
<td>.007 (.033)</td>
<td>.004 (.032)</td>
<td>.006 (.033)</td>
<td></td>
</tr>
<tr>
<td>Combined Intervention Condition</td>
<td>.008 (.051)</td>
<td>.029 (.034)</td>
<td>.028 (.034)</td>
<td>.026 (.034)</td>
<td></td>
</tr>
<tr>
<td><strong>Variance estimates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Level residual variance</td>
<td>.536*** (.049)</td>
<td>.535*** (.049)</td>
<td>.386*** (.038)</td>
<td>.384*** (.038)</td>
<td>.384*** (.038)</td>
</tr>
<tr>
<td>Between Level residual variance</td>
<td>.009 (.005)</td>
<td>.008 (.005)</td>
<td>.004 (.003)</td>
<td>.003 (.003)</td>
<td>.003 (.003)</td>
</tr>
<tr>
<td>Change in $R^2$</td>
<td>.00</td>
<td>.28</td>
<td>.01</td>
<td>.00</td>
<td></td>
</tr>
<tr>
<td>Change in $R^2$</td>
<td>.04</td>
<td>.34</td>
<td>.06</td>
<td>.00</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Standard errors are in parentheses. All models were fully-saturated (CFI = 1.00; RMSEA = 0.00).

*p < .05. **p < .01. ***p < .001.
Discussion

The present study examined longitudinal relations between physical and psychological dating violence victimization and three outcomes, substance use, physical dating violence perpetration, and psychological dating violence perpetration. Gender and class norms for dating violence were also examined as moderators of the above relations. The present study sought to extend the existing body of research in several ways. First, the extent to which psychological and physical dating violence victimization uniquely predicted changes in dating violence perpetration and substance use over time was examined. Second, this study focused on a sample of early adolescents. Key findings indicated that the extent to which physical and psychological dating violence victimization predicted changes in psychological dating violence perpetration differed by gender. More specifically, high levels of psychological victimization predicted greater change in psychological perpetration over time for female youth, as compared to male youth and high levels of physical victimization predicted greater change in psychological perpetration over time for male youth, as compared to female youth. In addition, physical and psychological victimization both significantly predicted changes in substance use. More specifically, high levels of physical victimization predicted greater change in substance use, whereas high levels of psychological victimization predicted less change in substance use over time. In the following sections, study findings are discussed along with limitations, practical implications, and directions for future research.

One aim of the present study was to examine the longitudinal relations between dating violence victimization and dating violence perpetration and the extent to which gender moderated these relations. For female adolescents, as compared to male adolescents, high levels of psychological victimization predicted greater change in psychological perpetration. For male
adolescents, as compared to female adolescents, high levels of physical victimization predicted greater change in psychological perpetration. Previous research on the longitudinal relations between specific forms of dating violence victimization and perpetration is very limited. A strength of the current study was the examination of the predictors of specific types of dating violence perpetration, including physical and psychological, as many studies have not examined these as separate outcomes. To date, only one longitudinal study has examined relations between dating violence victimization and perpetration, and found that physical victimization predicted early adulthood intimate partner violence for male, but not female, youth. For female youth, only severe dating violence victimization (i.e., composite measure of physical and sexual victimization) led to perpetration of intimate partner violence in adulthood (Gomez, 2011).

The finding that high levels of physical dating violence victimization was associated with greater change in psychological perpetration six months later for male youth as compared to female youth is consistent with hypotheses that dating violence victimization would be a stronger predictor of longitudinal changes in perpetration for male youth. According to Agnew and Broidy (1997), male and female youth may respond differently to stressful events, such as dating violence victimization, due to differences in emotional expression and coping resources. These researchers assert that because male youth are more likely to respond to stress with feelings of anger, they are, in turn, more likely to utilize aggressive coping strategies. Further, being that male youth receive less direct parental supervision and social support as compared to female youth they may be more apt to utilize more aggressive and less prosocial coping strategies. Therefore, it may be that male adolescents who experience physical victimization are more likely to feel angry and in turn develop more aggressive behavior patterns over time. Previous research has suggested that male-to-female physical aggression is perceived as especially intolerable
among adolescents, due to the physical advantage of male youth as well as the legal implications (Reeves & Orpinas, 2012). As such, male youth who experience physical victimization by a dating partner may be more apt to channel their anger into more tolerable and covert forms of dating violence perpetration, such as psychological perpetration.

The finding that Wave 1 psychological dating violence victimization predicted greater change in psychological perpetration from Wave 1 to Wave 2 for female adolescents is in contrast to the expectation that victimization would be more strongly associated with longitudinal changes in perpetration for male adolescents. As mentioned above, this hypothesis was based on the notion that there are gender differences in emotional expression, social support, and coping resources that make male youth more vulnerable to utilizing aggressive coping strategies (Agnew & Broidy, 1997). On the contrary, the current finding suggests that female adolescents exhibit greater changes in psychological dating violence perpetration over time as a result of experiencing psychological dating violence victimization. Although cross-sectional research echoes the notion that psychological victimization and perpetration often co-occur among female adolescents (Foshee et al., 2009), studies have not examined these relations longitudinally. Drawing from social learning theory (Bandura, 1977), female youth who observe dating partners modeling psychological perpetration may be more likely to perpetrate psychological violence against a dating partner. This may be due to the idea that individuals who are exposed to aggressive behavior are more likely to develop beliefs that aggression is a functional and appropriate tool for self-expression and problem-solving (Wekerle & Wolfe, 1999). In addition to dating partners, peers may also model violent behaviors within dating relationships and may have an even stronger influence on behavior during early adolescence. Thus, the norms and behaviors of the peer group may also impact the likelihood that female
youth will perpetrate psychological dating violence. For instance, previous studies have indicated that peer attitudes in support of dating violence are associated with higher levels of dating violence perpetration (e.g., Arriaga & Foshee, 2004; Foshee et al., 2001; Noonan & Charles, 2009) and that female perpetration of dating violence is oftentimes more acceptable than male perpetration (Reeves & Orpinas, 2012). Thus, in the context of peer group norms supportive of dating violence female adolescents who experience psychological dating violence victimization may be more likely to perpetrate psychological dating violence.

Contrary to hypotheses, physical and psychological dating violence victimization did not predict changes in physical perpetration and longitudinal relations were not moderated by gender. Although multiple cross-sectional studies have found positive associations between physical dating violence victimization and physical perpetration (e.g., Banyard et al., 2006; Gray & Foshee, 1997; O’Keefe, 1997), previous research has not tested the degree to which physical and psychological victimization uniquely predict changes in physical perpetration, controlling for previous levels of perpetration and the alternate form of victimization. In general, there are likely multiple factors that influence longitudinal relations between dating violence victimization and perpetration and may explain why dating violence victimization did not predict changes in physical perpetration over time. First, features of the dating relationship play an important role in the dynamics of dating violence victimization and perpetration. For example, the likelihood that victimization leads to later physical perpetration may be greater for adolescents who remain in the same relationship in comparison to adolescents who discontinue the relationship in which they experience victimization. In a recent study of relationship features associated with dating violence among a large ethnically diverse sample of adolescents, Giordano, Soto, and Manning
(2010) found that longer relationship duration was associated with higher levels of physical dating violence perpetration.

The majority of previous studies that have demonstrated longitudinal relations between dating violence victimization and negative outcomes have assessed victimization as a composite of physical and psychological (e.g., Roberts et al., 2003) or physical and sexual (e.g., Ackard et al., 2013; Gomez, 2011) forms of victimization. The current study suggests that key differences may exist in longitudinal relations between physical and psychological subtypes of dating violence victimization and perpetration. It is important to note that physical and psychological forms of dating violence victimization and perpetration were highly correlated. This fact supports the consideration of composite measures that combine physical and psychological forms of dating violence victimization and dating violence perpetration. However, in a recent study assessing the structure of dating violence victimization and perpetration measures among early adolescents, a four factor model was supported consisting of separate constructs for physical and psychological victimization and perpetration (Goncy et al., 2013). Thus, research suggests that these two forms of dating violence victimization and perpetration are related but distinct constructs that may be differentially related to adolescent outcomes.

The present study also tested longitudinal relations between physical and psychological dating violence victimization and substance use and the moderating effect of gender on these relations. It was hypothesized that physical and psychological dating violence victimization would predict changes in substance use and that victimization would be a stronger predictor of change for female adolescents, based on theoretical accounts that they are more likely to respond to stressors with feelings of depression and utilize self-destructive coping strategies, such as substance use (Broidy & Agnew, 1997). Findings indicated that physical and psychological
victimization significantly predicted change in substance use over time, such that high levels of psychological victimization predicted less change in substance use and physical victimization predicted greater change in substance use.

The finding that high levels of psychological victimization were associated with less change in substance use over time was not consistent with hypotheses. Prior research has shown a longitudinal association between dating violence victimization and substance use (Ackard et al., 2007; Roberts et al., 2003), albeit the majority of studies in this area have not addressed psychological forms of dating violence victimization. Overall, more research is needed to understand underlying processes that may better explain the longitudinal relation between psychological dating violence victimization and substance use. For example, youth who experience dating violence victimization may also experience victimization in other domains, namely the peer domain. These youth may represent more passive victims who are likely to experience rejection and marginalization by peers. Because substance use typically occurs within the peer group during early adolescence (Willis & Cleary, 1999) youth who are rejected by their peers may not have access or be strongly influenced by peers to engage in substance use. Furthermore, additional research is needed on the overlap of peer- and dating-based victimization and techniques such as latent class analysis may be helpful in identifying profiles of youth who experience various patterns of peer and dating violence victimization and the subsequent impact on negative outcomes (e.g., peer and dating violence perpetration and substance use).

The finding that physical dating violence victimization predicted greater changes in substance use over time was consistent with hypotheses that adolescents who experienced victimization would use substances as a way to cope with the negative emotions associated with
victimization and in turn exhibit increased substance use over time. The fact that physical, and not psychological forms of dating violence victimization predicted larger changes in substance use may be due to the greater severity of physical victimization. For example, studies that have found a relation between dating violence victimization and substance use over time have assessed victimization as a composite of multiple forms of victimization (e.g., Ackard et al., 2007; Roberts et al., 2003), suggesting that more severe victimization may be more likely to predict substance use over time. In addition, this relation may also have been impacted by other factors. For instance, the frequency of substance use across all stages of adolescence, but especially in early adolescence, is often heavily influenced by peer use. Previous cross-sectional (e.g., Brendgen, Vitaro, & Bukowski, 2000; Deković, 1999; Rai et al., 2003) and longitudinal (e.g., Barnes et al., 2006) research has indicated that greater peer deviancy is associated with a higher frequency of substance use. It may be that youth who experience physical victimization affiliate with peers who are also involved in dating violence as well other deviant behaviors, such as substance use. Because of this affiliation, youth who experience physical victimization may be more likely to demonstrate greater changes in substance use over time.

A final aim of the present study was to test hypotheses that the strength of relations between dating violence victimization and perpetration would differ based on class-level school norms for dating violence. To do this, cross-level interactions between Level 1 victimization and Level 2 norms were tested to determine whether relations between victimization and perpetration varied as a function of class norms for dating violence. Findings indicated that class norms did not moderate relations between either form of dating violence victimization and perpetration. Because there was not significant variability in relations between each form of victimization and physical perpetration across classes, class norms were not tested as a moderator of relations
between victimization and physical perpetration. Relations between both forms of victimization and psychological perpetration did show significant variability across classes; however, this variability was not a function of class norms for dating violence. This may have been due to the characteristics of the sample and the transition from elementary to middle school. More specifically, youth in the current study were in the sixth grade and for the most part, transitioning to a new school with a different and larger group of peers. Subsequently, the adolescents in the current sample may not have been acutely aware of class norms for dating violence, which may have been why they did not significantly influence relations between victimization and perpetration. In addition, individual beliefs play an important role in adolescent dating behavior. Previous research has shown positive associations between individual beliefs about the acceptability of violence within dating contexts and dating violence perpetration (Simon et al., 2010). Therefore, although setting-level norms are an important influence on individual behavior, future research should examine class norms for dating violence in conjunction with individual beliefs about the acceptability of dating violence to better understand how these norms interact to influence dating violence.

**Limitations**

Although the present study had several strengths, it is important to note study limitations. Firstly, the current sample only included youth who reported being in a dating relationship in the past three months at Wave 1 and Wave 2, in the Fall and Spring of sixth grade. Although multiple group analyses showed that there were not significant differences in relations between Wave 1 dating violence victimization Wave 2 substance use for youth in a dating relationship at both waves versus Wave 1 only, the current study was not able to examine group differences in relations between Wave 1 victimization and Wave 2 perpetration, as youth in a dating
relationship at Wave 1 only did not complete perpetration measures at Wave 2. Thus, current study findings in regards to relations between dating violence victimization and perpetration cannot be generalized to youth who were in a relationship in the Fall of sixth grade, but discontinued that relationship and did not begin another relationship. Additionally, because relationship status was based on the presence of a relationship in the past three months and additional questions about the relationship (e.g., duration) were not asked, it could not be determined whether youth in the current sample were in a relationship with the same person at both waves. Examining the influence of relationship factors such as longevity, age of dating partner, and level of conflict on relations between dating violence victimization and negative outcomes may be an important direction for future research as previous research shows that the likelihood of being physically victimized by a dating partner is higher for youth in dating relationships that are longer in duration, sexually intimate, high in conflict, and characterized by high dependency (Giordano et al., 2010). Little is known; however, about the relationship context within which psychological dating violence occurs, as research has mainly focused on physical perpetration. Thus, future research should examine the particular relationship features that are associated with psychological dating violence victimization and perpetration.

Secondly, analyses did not control for peer-based victimization and aggression and therefore, conclusions about the unique effect of dating violence victimization, over and above peer victimization cannot be made. Because dating relationships are situated heavily within the peer group during adolescence, and especially during early adolescence (Brown, 1999), future research should examine whether peer- and dating-based violence are distinct forms of violence. Thirdly, the current study relied solely on adolescents’ reports of dating violence victimization and perpetration, norms for dating violence, and substance use. Although youth are likely the
best reporters of their dating behavior, these reports may be prone to response bias, especially given the sensitive nature of the topic. A final limitation is that data were only collected from one person in the dating relationship as opposed to both dating partners. Dyadic models may be especially relevant in studies of adolescent dating violence as previous research not only shows that mutual violence is very common in adolescent dating relationships (e.g., Foshee et al., 2009), but also that one partner’s perpetration of violence in a dating relationship is positively associated with the other person’s perpetration (e.g., O’Leary & Smith Slep, 2003).

Implications and Future Research

Findings from the present study have important implications for violence prevention efforts. Prevalence rates of specific forms of dating violence victimization and perpetration indicate that large numbers of youth reported experiencing multiple types of dating violence victimization, including scratching, insults, and acts to evoke jealousy. Although these rates mostly pertained to less severe forms of victimization and perpetration, dating violence does occur in early adolescence and should be addressed early in middle school. This is critical given research showing that involvement in dating violence during adolescence increases the likelihood of involvement in intimate partner violence in adulthood (e.g., Gomez, 2011). Current study findings also suggest that physical and psychological victimization may be experienced differently by male and female adolescents, as evidenced by differential relations between physical and psychological dating violence victimization and psychological perpetration. Thus, prevention and intervention efforts should address the complexity in risk factors for dating violence perpetration for male and female youth. For example, based on findings that higher levels of psychological dating violence victimization are associated with greater change in psychological dating violence perpetration over time among female adolescents, this form of
victimization should be targeted early among female youth so as to prevent later perpetration.

Findings that psychological dating violence perpetration varied as a function of psychological dating violence victimization for female adolescents also suggest that future research should examine the pattern of relations between dating violence victimization and perpetration over the course of middle school. Previous studies have assessed trajectories of dating violence perpetration across adolescence (e.g., Foshee et al., 2009). However, our knowledge of the trajectories of dating violence victimization across adolescence is limited. Additionally, a better understanding of the relation between developmental trajectories of dating violence victimization and perpetration is needed as such research would help determine critical points for intervention.

In light of current findings that specific forms of dating violence victimization differentially predicted dating violence perpetration and substance use for male and female adolescents, future research should continue to examine how specific forms of dating violence victimization impact adolescent adjustment. Furthermore, future research should assess other forms of violence that may be commonly experienced in early adolescent dating relationships, such as cyber and relational aggression. For instance, in a recent study of cyber dating aggression Zweig, Dank, Yahner, and Lachman (2013) found that among a sample of 3,745 youth, 26% of adolescents reported experiencing cyber abuse in a dating relationship. Studies should also test the longitudinal effects of these other forms of dating violence victimization on adolescent well-being, as cross-sectional research has revealed positive associations between relational dating violence victimization and emotion dysregulation, conduct problems (Leadbeater et al. 2008) and substance use (Schad et al., 2008).

Another direction for future research would be to examine typologies of youth involved
in dating violence victimization and perpetration so as to better understand the risk and protective factors associated with profiles of youth involved in dating violence and to identify youth who may be at higher risk for negative outcomes. Although researchers have begun to examine typologies of youth involved in multiple forms of violence, including dating violence, studies have mostly focused on perpetration and have identified typologies using over-simplified methods (e.g., creating typologies based on youth’s reports of ever having experienced violence). Subsequently, additional research is needed that utilizes person-centered approaches, such as latent class analysis (LCA) to identify and better understand profiles of youth who experience specific forms of dating and peer-based victimization. Another direction for future research would be to examine typologies of youth involved in both dating violence perpetration and victimization. Just as there is a large body of research showing that some youth are highly aggressive and victimized in peer contexts (e.g., Olweus, 1978; Schwartz, 2000), research has also shown that there is a large degree of overlap in perpetration and victimization within dating contexts (e.g., Gray & Foshee, 1997; Swahn et al., 2008). Thus, a worthwhile direction of inquiry would be to examine typologies of dating violence victims and perpetrators as these youth may be at higher risk for negative adjustment.

Given the low frequencies of more severe forms of dating violence victimization in the current study, another direction for future research would be to examine dating problems (Sullivan et al., 2010), as opposed to violent behaviors, in early adolescence, as these may be more prevalent during this developmental period and may lead to more severe forms of dating violence and other negative outcomes. There may also be specific problem situations that are more relevant to various developmental stages of dating relationships. For example, problem situations related to approaching dating partners and peer influences on dating relationships may
be particularly relevant in early adolescence.

Lastly, future research should examine the longitudinal outcomes of dating violence victimization among more diverse groups of adolescents. For instance, recent research has indicated that compared to heterosexual youth, lesbian, gay, and bisexual youth are at higher risk for multiple forms of dating violence victimization, including physical, psychological, cyber, and sexual victimization (Dank, Lachman, Zweig, & Yahner, 2013) and subsequently, may also be at high risk for negative outcomes associated with dating violence. In addition, potential differences in the outcomes of dating violence victimization should be examined for adolescents in different age and racial/ethnic groups. Unfortunately, the current study could not test age and racial/ethnic differences due to sample size limitations; however, this is an important area for future research as previous studies show differences in rates of dating violence victimization and perpetration across different age (Holt & Espelage, 2005) and racial/ethnic groups (Foshee et al., 2009; Noonan & Charles, 2009).
List of References
List of References


Appendix

Dating Violence Scale

Part 1: Qualifying Question

In the past 3 months, have you had a boyfriend or girlfriend (someone that you dated or gone out with)?

____Yes

____No (if no, skip remainder of questions and go to next module)

Part 2: Dating Victimization

Response Options: 1 = Never, 2 = 1-3 times, 3 = 4-9 times, 4 = 10 or more times

Instructions: Thinking about the last three months, how often has a boyfriend/girlfriend (someone that you dated or gone out with) done the following things to you? Only include it when the person did it to you first. In other words, don’t count it if they did it to you in self-defense.

1. Damaged something that belonged to you.

2. Said things to hurt your feelings on purpose.

3. Threatened to hit or throw something at you.

4. Scratched you.

5. Slapped you.

6. Would not let you do things with other people.
7. Slammed you or held you against a wall.
8. Did something just to make you jealous.
10. Pushed or shoved you.
11. Stomped out of the room or house during a disagreement.
12. Threw something at you that could hurt.
13. Punched or hit you with something that could hurt.

**Part 3: Dating Perpetration**

*Response Options:* 1 = Never, 2 = 1-3 times, 3 = 4-9 times, 4 = 10 or more times

*Instructions:* Thinking about the last three months, how often have you done the following things to a boyfriend/girlfriend (someone that you dated or gone out with)? Only include it when you did it to the person first. In other words, don’t count it if you did it in self-defense.

1. Damaged something that belonged to him/her.
2. Said things to hurt his/her feelings on purpose.
3. Threatened to hit or throw something at him/her.
4. Scratched him/her.
5. Slapped him/her.
6. Would not let him/her do things with other people.
7. Slammed him/her or held him/her against a wall.
8. Did something just to make him/her jealous.
10. Pushed or shoved him/her.
11. Stomped out of the room or house during a disagreement.
12. Threw something at him/her that could hurt.

13. Punched or hit him/her with something that could hurt.

**Problem Behavior Frequency Scales**

*Response Options:* 1 = Never, 2 = 1-2 times, 3 = 3-5 times, 4 = 6-9 times, 5 = 10-19 times, 6 = 20 or more times.

*Instructions:* In the last 30 days, how many times have you?

**Drug Use Items:**

1. Drunk beer (more than a sip or taste)
2. Drunk wine or wine coolers (more than a sip or taste)
3. Smoked cigarettes
4. Been drunk
5. Drunk liquor (like whiskey or gin)
6. Used Marijuana (pot, hash, reefer)

**Dating Violence Norms**

*Response Options:* 1 = Strongly disagree, 2 = Disagree somewhat, 3 = Agree somewhat, 4 = Strongly agree

*Instructions:* How strongly do you agree or disagree with the following statements?

**Part 1: Norms for Dating Violence by Males**

1. It is okay for a boy to hit his girlfriend if she did something to make him mad.
2. A girl who makes her boyfriend jealous on purpose deserves to be hit.
3. It is okay for a boy to hit his girlfriend if she insulted him in front of friends.
4. It is okay for a boy to hit a girl if she hit him first.
5. Girls sometimes deserve to be hit by the boys they date.

Part 2: Norms for Dating Violence by Females

1. Boys sometimes deserve to be hit by the girls they date.
2. It is okay for a girl to hit a boy if he hit her first.
3. A boy who makes his girlfriend jealous on purpose deserves to be hit.
4. It is okay for a girl to hit her boyfriend if he insulted her in front of friends.
5. It is okay for a girl to hit her boyfriend if she did something to make him mad.

Demographics

1. Are you Hispanic or Latino?
   1. No, not Hispanic or Latino
   2. Yes, Puerto Rican
   3. Yes, Mexican, Mexican American, Chicano
   4. Yes, Cuban
   5. Yes, other Hispanic or Latino

2. How do you describe yourself?
   1. White
   2. Black or African American
   3. American Indian or Alaska Native
   4. Asian Indian
   5. Other Asian
   6. Some other race
3. Think about the grown-ups that live in your house. Place a mark by each grownup that lives in your house.

1. Mother
2. Father
3. Stepmother/Father's Girlfriend
4. Stepfather/Mother's Boyfriend
5. Foster Mother/Guardian
6. Foster Father/Guardian
7. Grandmother
8. Grandfather
9. Aunt
10. Uncle
11. Other relatives or friends
Katherine Anne Taylor was born on October 22, 1985, in Wilmington, North Carolina, and is an American citizen. She graduated from Midlothian High School, Midlothian, Virginia in 2004. She received her Bachelor of Science in Psychology from Virginia Polytechnic Institute and State University, Blacksburg, Virginia in 2008 and received a Master of Science in Developmental Psychology from Virginia Commonwealth University in 2011.