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ACTIVE BYSTANDER BEHAVIORS AMONG HIGH SCHOOL STUDENTS:
THE ROLE OF CO-OCCURRENCE OF VIOLENCE VICTIMIZATION AND
PERPETRATION IN PERSONAL VIOLENCE PREVENTION

DISSERTATION

A dissertation submitted in partial fulfillment of the
Requirements for the degree of Doctor of Philosophy
in the College of Social Work at the University of Kentucky

By

Reiko Ozaki

Lexington, Kentucky

Co-Directors: Dr. David D. Royse, Professor of Social Work
and Dr. Patricia G. Cook-Craig, Associate Professor of Social
Work

Lexington, Kentucky

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ABSTRACT OF DISSERTATION

ACTIVE BYSTANDER BEHAVIORS AMONG HIGH SCHOOL STUDENTS: THE ROLE OF CO-OCCURRENCE OF VIOLENCE VICTIMIZATION AND PERPETRATION IN PERSONAL VIOLENCE PREVENTION

Bystander programs aim to prevent personal violence, such as dating violence, sexual violence, sexual harassment, and stalking. They equip community members with skills to stop the violence before it happens by engaging in active bystander behaviors such as speaking up in potentially risky situations or supporting victims. Given that victimization and perpetration of personal violence, including co-occurrence, are common among youth, high schools have begun implementing bystander programs in recent years. This study examined the relationship between high school students' experience of personal violence and their active bystander behaviors.

Using the social identity approach as a theoretical foundation, this study hypothesized that polyvictims with two types of personal violence victimization would be more active as bystanders compared to those with no or one victimization experience. The study also hypothesized that polyperpetrators with two types of personal violence perpetration would be less active as bystanders compared to those with no or one perpetration experience.

The study utilized a secondary dataset from a five-year study, Green Dot across the Bluegrass, which examined the effectiveness of the bystander program Green Dot in reducing rates of personal violence. Using network visualization techniques, commonly co-occurring violence types were identified. Cross-tabulation was used to examine the relationship between experience of co-occurring violence and individual characteristics, including sex, grade, sexual orientation, and exposure to parental partner violence. One-Way Analysis of Variance (ANOVA) was conducted to examine differences in active bystander behaviors based on victimization levels and on perpetration levels. One-Way Analysis of Covariance (ANCOVA) was also used to examine differences in active bystander behaviors based on victimization levels and perpetration levels after controlling for sex, rape myth acceptance, dating violence acceptance, and exposure to the bystander program. Findings revealed that polyvictimization and polyperpetration were both significantly associated with sex, grade, sexual attraction, and exposure to parental

partner violence. Polyvictims showed significantly higher levels of active bystander behaviors than those with single or no victimization. Polyperpetrators also showed significantly higher levels of active bystander behaviors than students in other perpetration categories.

Future research should include contextual variables such as level of injuries, intent of perpetration, and history of violence in order to more accurately distinguish victimization and perpetration. Suggestions for practice and policies include intervention in adult intimate partner violence to reduce impact on children. It is also recommended that bystander programs to be made relevant to students who are not exclusively heterosexual. Considering the potential presence of victims among participants, the program staff should be aware of impact of trauma and be prepared to provide support as needed. Finally, more rigorous investigation of the impact of bystander programs on youth who are victims as well as perpetrators is warranted.

KEYWORDS: Bystander, High School Students, Dating Violence Prevention, Polyvictimization, Polyperpetration, Network Visualization

Reiko Ozaki

April 26, 2017

Date

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April 26, 2017

To Kentucky high school students who participated in the Green Dot across the Bluegrass study from which the data for this dissertation were drawn.

In particular, this work is dedicated to the students who are survivors of violence. And to those who shared their painful experiences by responding to the survey questions honestly, by disclosing it to the “Green Dot ladies,” or by slipping a note about it for the research team to discover later in the piles of survey booklets.

The world can be a better place – a much, much better place. We must keep trying.

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My personal life has changed in many ways since I began this journey. I could not have done this without the encouragement and cheers from all of my family – my beautiful and diverse blend of families in Japan and the United States. My thanks also go to many friends who were my cheerleaders across the globe, in particular, sisters and brothers in Japanese Christian communities in Ohio, Kentucky, and Indiana.

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Chapter One: Introduction

Introduction to the Problem

The high school period is a time when adolescents develop physically, cognitively, emotionally, and sexually, while learning new coping skills, discovering their values, and forging their self-identity (Simpson, 2001). They expand their social world and relationships with peers (Simpson, 2001), putting their newly formed skills and values into practice. Unfortunately, this emerging period is also a time when many youth become involved in violence that is very personal in nature, such as dating violence, sexual violence, sexual harassment, and stalking. In fact, studies have found that violence victimization is concentrated among youth (Finkelhor, 2008; Hashima & Finkelhor, 1999). For example, adolescents are two to three times more likely than adults to be victims of serious violence, such as rape (Finkelhor, 2008). There is ample evidence that high school students across the United States experience these types of violence at alarmingly high rates.

The 2013 Youth Risk Behavior Survey (YRBS), a national representative study of high school students, found that 10.3% of 73.9% youth with dating experience in the entire sample ($N = 13,583$) during the year prior to the survey reported being hurt on purpose by their dating partners one or more times during that year (Kann et al., 2014). In the same survey, about 7% of the youth reported being physically forced to have sexual intercourse ever in their lifetime. Sexual harassment is also a common experience for high school students: Victimization during the high school years is reported by almost half of the respondents in a nationally representative survey (Hill & Kearl, 2011). Further, approximately 18% of female and 7% of male adult respondents indicated that

their first experience of stalking victimization was in their adolescence, according to the 2010 National Intimate Partner and Sexual Violence Survey (NISVS; Black et al., 2011).

These rates of victimization are extremely concerning. However, it is also troubling to recognize that many of these assaults are peer-perpetrated. For instance, according to the 2008 National Survey of Children's Exposure to Violence (NatSCEV), almost 15% of sexual assault and sexual harassment cases for youth between ages 14 and 17 years-old were perpetrated by peers (Turner, Finkelhor, Hamby, Shattuck, & Ormrod, 2011). It is also noteworthy that perpetration of a sexual nature often happens in schools – including 72.2% of sexual harassment and 25.5% of sexual assaults by peers according to a national study (Turner et al., 2011).

To complicate the issue further, many youth are involved in not only one but multiple kinds of violence as victims, perpetrators, or both. Researchers found that multiple victimization is the norm in many studies with both clinical and nationally representative samples (Saunders, 2003). Co-occurrence of perpetration is not uncommon either: Multiple acts of violence are often committed by a small number of repeat offenders (Hamby & Grych, 2013). For example, in the aforementioned NatSCEV study, 25% of teens who were victims of rape also experienced physical dating violence (Hamby, Finkelhor, & Turner, 2012). One study examined the relationships among perpetration of sexual assault, physical violence against peers, and dating partners, and found that perpetration of one type of violence predicted perpetration of another type among males between 16 and 20 years-old (Ozer, Tschann, Pasch, & Flores, 2004). Further, researchers reported rates of victimization-perpetration of dating violence to be

as low as 9% and as high as 45% (Champion, Foley, Sigmon-Smith, Sutfin, & DuRant, 2008; Coker et al., 2000).

The co-occurring experience of violence among youth brings complexity and challenges to researchers and practitioners alike. Past efforts in violence research and programs have been highly compartmentalized, limiting understanding of the issue and advancement toward reducing violence (Hamby & Grych, 2013; Kazdin, 2011; Saunders, 2003). A recent increase in studies investigating co-occurrence of violence (Hamby, McDonald, & Grych, 2014) signals the importance of recognizing complex real life experiences of violence in the community involving youth.

Additionally, the recent decade has seen a substantial change in strategies to prevent these pervasive and personal types of violence. One of the trends observed in literature between 2008 and 2013 is the steady increase of bystander prevention as a topic (Hamby et al., 2014). Bystander programs have received attention from practitioners and researchers as an innovative new approach, due partly to the lack of evidence that show effectiveness in reducing violence using more traditional approaches.

Traditional programs in violence prevention generally target those who are at risk for victimization or perpetration of violence. Sexual violence prevention programs for college students usually target women as potential victims and aim to reduce risk of victimization by providing self-defense training, rape related-facts, and resources for victims (Gidycz, Rich, & Marioni, 2002; Ullman, 2007). On the other hand, traditional programs for college men generally focus on accountability for their own behaviors and intervening on other men's aggressive behavior (Gidycz et al., 2002). Evaluation studies on these types of programs found that they provide short-term improvement in rape-

related knowledge and attitudes at best but no effectiveness in reducing violence victimization and perpetration (Breitenbecher, 2001; Gidycz et al., 2002; Gidycz, Rich, Orchowski, King, & Miller, 2006; Morrison, Hardison, Mathew, & O'Neil, 2004). Evaluation research is extremely limited for the high school population. Prevention programs in high schools are traditionally informational and include a variety of topics such as sexual violence, dating violence, and bullying (Morrison et al., 2004; Senn, 2013). Overall, these programs aim at improving attitudes and knowledge about victims and perpetrators, as well as causes and consequences of violence (Hickman, Jaycox, & Aronoff, 2004). Some evaluation studies reported significant changes in knowledge and/or attitudes while others report no significant change (Hickman et al., 2004; Morrison et al., 2004; Senn, 2013). The vast majority of evaluation studies did not measure changes in rates of violence. One study that measured rates revealed no significant difference in rates of dating violence victimization and perpetration between treatment and control groups (Avery-Leaf, Cascardi, O'Leary, & Cano, 1997).

For the college campus communities, sexual assault prevention has become a federal requirement, including the most recent legislation enacted in 2013, Campus Sexual Violence Elimination Act (Campus SaVE Act; Henriksen, Mattick, & Fisher, 2016). Bystander programs are considered one of the most promising approaches in violence prevention and are recommended for implementation on college campuses (Centers for Disease Control and Prevention [CDC], 2014; White House Task Force to Protect Students from Sexual Assault, 2014). While there are some variations in program philosophies and implementations, all bystander programs target behavior changes in people that are third-parties to violence. Rather than helping individuals avoid risk of

their own victimization and perpetration, bystander strategies help all community members to view violence as a serious community problem that they have personal stake in preventing (Banyard, 2011; Edwards, 2009; Katz, 1995). Bystander programs seek to equip community members with knowledge and skills so that they can safely intervene when violence is imminent and create social norms that tolerate no violence (Banyard, 2011; Edwards, 2009; Gidycz, Orchowski, & Berkowitz, 2011; Katz, Heisterkamp, & Fleming, 2011).

Evaluation studies for high school bystander programs show promising results. For example, program participants reported intention to intervene to stop violence significantly more than non-participants in one study (Katz et al., 2011). Another study observed less perpetration of violence among students in a treatment group compared to the control group (Miller et al., 2013). Further, Green Dot, which was implemented in high schools where the data for this study was collected, was shown to be effective in violence reduction in Kentucky high schools. The preliminary findings of the Green Dot program evaluation revealed that, over the three year period, rates of overall violence perpetration were reduced at statistically significant rates in intervention schools while the rates slightly increased in control schools (Coker, Bush, Cook-Craig, Clear, & Recktenwald, 2015).

Although research on effectiveness of bystander programs in violence prevention is promising, it has yet to consider multiple experiences of violence as a factor in behaviors of adolescent bystanders. As noted earlier, past studies revealed that high school students commonly experience multiple types of violence as victims, perpetrators, or both. While bystander programs are implemented widely, the need is great to examine

if there are any differences in active bystander behaviors based on real life experiences of violence among youth and if bystander programs have any impact on their active bystander behaviors.

Rationale and Purpose of the Study

Increasing numbers of bystander programs are implemented across the country and are producing promising evaluation results. In addition to continuing evaluation research on the overall effectiveness of bystander programs in reducing rates of violence, it is also important to consider how these programs work for program participants with different experiences. One of the experiences that has not been examined yet is violence victimization and perpetration among program participants. In particular, given the reality that violence, such as dating violence, sexual violence, sexual harassment, and stalking, co-occur for many high school students, it is crucial that the impact of the multiple experiences on active bystander behaviors be examined. Understanding students' personal experiences of violence may provide more tools to effectively develop and implement programs that focus on youth as empowered members of their high school community who foster non-violence as a social norm and actively engage in prevention efforts.

Because the experience of violence has a strong impact on people, it often influences how people identify themselves in social contexts (Frazier, Conlon, & Glaser, 2001; Tedeschi, 1999). In an effort to examine the impact of co-occurring violence among youth and their behavior as active bystanders, the theoretical framework that connects experience and behavior is necessary. This study will utilize the social identity approach as a heuristic to guide the examination of that connection. The social identity

approach explains individual behavior through the lens of group level identity (Hogg, 2006; Hogg & Abrams, 1998; Hornsey, 2008; Tajfel, Billings, Bundy, & Flament, 1971). From this perspective, one's active bystander behavior can be interpreted as a result of the individual positively identifying with the victim of the situation and acts according to the perceived norm of the group they both belong to, which is to stop the violence. Likewise, if one identifies with the perpetrator, he or she is unlikely to intervene. Chapter 2 provides a detailed description of this approach as a theoretical foundation of the study.

This dissertation was part of a larger study, Green Dot across the Bluegrass, which evaluated the effectiveness of the bystander program, Green Dot, in reducing violence among high school students in Kentucky. Funded by the CDC, this five-year randomized controlled trial investigated if the program reduced rates of sexual violence, dating violence, sexual harassment, stalking, and bullying among youth who attended the intervention schools compared to the control schools (Cook-Craig, Coker et al., 2014). While the parent study investigated the critical epidemiological outcome of rates reduction, it has not examined co-occurrence of violence and its impact on students' active bystander behaviors. The current study was planned to fill this gap and add to the knowledge on co-occurrence of violence among high school students and its relationship to active bystander behaviors.

The study focused on this research question: Do active bystander behaviors differ based on different levels of victimization or perpetration experience of personal violence? The study examined if students with co-occurring experience of violence were more or less active in their bystander behaviors than those who experienced one type of violence

or no violence at all. It also examined the impact of the bystander program, Green Dot, on this association. Figure 1.1 displays the depiction of this conceptual model. The knowledge from this study will contribute to efforts in the growing field of violence prevention using bystander strategies because high school students, in reality, experience violence in multiple ways.

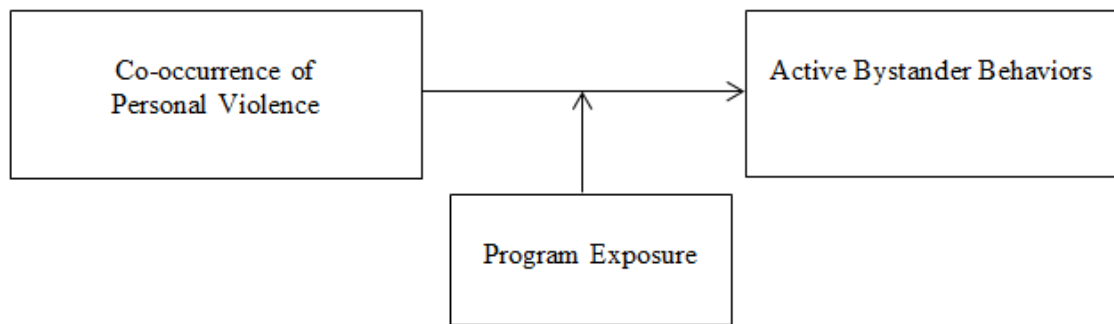


Figure 1.1. Conceptual model representing relationship among variables

Definitions of Key Terms

The terms related to violence and bystander behavior in literature often differ in their precise meanings. This section defines the key terms used in this study.

Violence-related Terms

This study examined victimization and perpetration of dating violence, sexual violence, sexual harassment, and stalking among high school students. These types of violence often include various behaviors that can be operationalized in many ways and have varied legal and scholarly definitions.

Dating violence. *Dating violence* is a form of intimate partner violence that occurs within dating relationships. The CDC defines intimate partner violence as physical, sexual, and psychological violence as well as stalking that occurs between

current or ex-intimate partners (Breiding, Basile, Smith, Black, & Mahendra, 2015). The intimate partner may be a spouse, boyfriend or girlfriend, dating partner, or ongoing sexual partner. The focus of the current study is limited to high school students and their reports of violence in current or previous dating relationships. The acts of violence in this study include psychological violence such as controlling behavior, damaging personal items, and yelling, as well as physical violence, such as hitting and slapping. Sexual violence and stalking are not included as part of dating violence in this study but are included in their own categories as defined below.

Sexual violence. Basile, Smith, Breiding, Black, and Mahendra (2014) defines *sexual violence* as

both penetrative and non-penetrative acts as well as non-contact forms. Sexual violence occurs when a perpetrator commits sexual acts without a victim's consent, or when a victim is unable to consent (e.g., due to age, illness) or refuse (e.g., due to physical violence or threats). (p.1)

In this study, sexual violence may be an act committed by a friend, peer acquaintance, or dating partner, and it can include any type of unwanted sexual activity that was committed with verbal threats, physical force, or when under the influence of substances. The term *sexual assault* is interchangeably used with sexual violence.

Sexual harassment. The U.S. Department of Education ([USDE], 2008) defines *sexual harassment* in schools as “conduct that 1) is sexual in nature, 2) is unwelcome, and 3) denies or limits a student's ability to participate in or benefit from a school's education program” (p.3). These acts generally include pressuring for sexual favors, sexual touching, spreading sexual rumors, telling dirty jokes, and negatively calling

someone gay or lesbian, but also more severe conducts such as flashing, sexual touching, or even forcing sexual acts (e.g. Hill & Kearl, 2011; USDE, 2008). In this study, sexual harassment includes only non-touching behavior, such as gestures, jokes and other communication in sexual nature that make the target feel upset or uncomfortable.

Stalking. Westrup and Fremouw (1998) define *stalking* as “one or more of a constellation of behaviors that (a) are repeatedly directed toward a specific individual (the “target”), (b) are unwelcome and intrusive, and (c) induce fear or concern in the target” (p.258). Using this definition, based on adult behavior, is reasonable because juvenile stalking behavior is similar to that of adults (Scott, Ash, & Elwyn, 2007). The stalking behavior among youth generally includes unwanted approaches and phone calls/text messages, following, and cyberstalking (Purcell, Moller, Flower, & Mullen, 2009). Stalking for this study involves unwanted behaviors that cause the target to fear for his or her personal safety.

Personal violence. All of these types of violence are aggregately referred to as *personal violence* throughout the dissertation. Because each type of violence in this study includes use of psychological or physical force with intention to control a specific target in often personal relationships, usually between romantic partners or school peers, the term personal violence was used aggregately describe all of the violence examined.

Victimization and perpetration. This study examined both victimization and perpetration of personal violence among high school students. *Victimization* indicates being abused by another while *perpetration* is using force, be it physical or psychological, to harm the other. The term *co-occurrence* is used to describe multiple experiences of violence either or both as victims and perpetrators in this study. First introduced by

Finkelhor, Ormrod, and Turner (2007), *polyvictimization* refers to co-occurrence of victimization in multiple types of violence. Similarly, *polyperpetration* indicates co-occurring perpetration of different types of violence. Individuals who experience these phenomena are referred to as *polyvictims* or *polyperpetrators*. For example, one person may be a polyvictim in stalking and sexual harassment while another may be a polyperpetrator in physical dating violence and sexual violence. Further, when discussing co-occurrence of both victimization and perpetration, it is referred to as *victimization-perpetration*. For example, being a victim of sexual harassment while perpetrating psychological dating violence indicates the presence of victimization-perpetration, and the individual may be referred to as a *victim-perpetrator*.

Bystander-related Terms

This dissertation investigated the relationship between co-occurrence of personal violence and active bystander behaviors among high school students. It is particularly important to clarify bystander-related terms as they have been used in literature in various and often-conflicting manners.

Bystander. The term *bystander* in this study refers to a person who knows of or directly witnesses an incident or a precursor to an incident of personal violence. As a third-party, this individual may or may not act to help. In general, the simple mention of the term bystander indicates the third-party's inaction and lack of involvement when directly facing an incident. For example, *Merriam-Webster Online Dictionary* (Bystander, n.d.) defines bystander as "one present but not taking part in a situation or event: a chance spectator." Usually in the bystander intervention literature, a bystander is referred to as a witness to an emergency incident regardless of their action or inaction

(Darley & Latané, 1968). This definition requires physical presence of the individual during the incident. However, in more recent violence prevention research, the term bystander is more inclusive and the person does not necessarily have to be present in the emergency situation at hand. For instance, Katz and his colleagues (2011) presume that a bystander is someone who is neither a victim nor a perpetrator in the incident but has an active role in preventing the violence. In this case, the focus of the term is on action, rather than inaction. In another broader definition, a bystander is considered a community member who can prevent violence from happening and also be supportive of survivors in the community (Banyard, Plante, & Moynihan, 2004). Again, the focus is on the action of the individual in the incident as well as outside of the actual incident. It is likely that the growing literature on violence prevention using the bystander approach has resulted in the term being utilized in more complicated and varied ways. For this dissertation, a bystander is someone with “great potential power to do good” (Staub, 2003, p.4) and may act or not act on that potential. A bystander may be physically present as a third-party in the potentially violent situation, one who only has knowledge of any violent situation, or is a witness to the aftermath of violence. Either way, the bystander is a member of the community impacted by violence.

Active bystander behavior. Because the general definition of the term bystander implies lack of action as explained above, in this study, the phrase *active bystander behavior* is used when describing positive and helpful action taken by bystanders in their efforts to prevent violence. In this study, active bystander behavior is always referred to as a prosocial behavior which contributes to prevention of violence. Although a behavior that actively encourages violence as in cheering on a fight is often referred to as an active

bystander behavior (Stueve et al., 2006), it is not the case in this study. *Active bystander intervention* and *active bystander behavior* may also be used interchangeably throughout the paper. The lack of active bystander behavior may be expressed as *bystander inaction*.

Chapter Summary

High school students in the United States experience personal violence at alarming rates as victims, perpetrators, and both. However, there is dearth of research knowledge on this topic for high school students. This study examined the complex experiences of violence such as polyvictimization and polyperpetration in this particular population. This study investigated the association between co-occurrence of personal violence and active bystander behaviors. It is crucial to begin understanding these connections as the bystander programs have been implemented increasingly as a new and promising approach to prevent personal violence.

Chapter Two: Literature Review

This chapter provides a review of literature examining the relationship between high school students' experience of personal violence and their active bystander behaviors. First, the prevalence of personal violence among high school students is described. The second section discusses the efforts and evaluation of programs aimed at preventing personal violence, including bystander programs. Third, the theories that explain bystander behaviors, prosocial behaviors, and factors associated with the behavior are explored, followed by an examination of the social identity approach, which is the theoretical framework for this dissertation study. Finally, the conceptual model of the study is presented.

Personal Violence among High School Students

A review of the literature on the prevalence of personal violence victimization, perpetration, polyvictimization, polyperpetration, and victimization-perpetration among high school age youth in the United States follows next. This review will show how these phenomena are experienced based on students' individual characteristics, with a specific focus on sex, grade, sexual attraction, and exposure to parental partner violence.

Prevalence of Victimization

Psychological and physical dating violence victimization. As noted in Chapter 1, physical dating violence is reported by a large number of youth in the annual survey of high school students in the 2013 Youth Behavioral Risk Surveillance (YBRS) (Kann et al., 2014). Another national representative study, the National Survey of Children's Exposure to Violence (NatSCEV), similarly reported that 6.4% of the subsample ($n = 1,680$) of youth between the ages 12 and 17 reported experiencing physical assault by

their dating partner (Hamby et al., 2012). Extant literature suggests that psychological dating violence is particularly common among high school students. For example, in the longitudinal study of randomly selected adolescents ($N=550$), the annual surveys revealed very high rates of psychological dating violence victimization for both male and female students: 41.1-43.2% of boys and 52.8-59.2% of girls in 9th through 12th grades (Orpinas, Nahapetyan, Song, McNicholas, & Reeves, 2012). These teens reported victimization such as having something damaged, being monitored, and being emotionally hurt on purpose. Another study that surveyed a nationally representative sample of 10th grade students ($N = 2,524$) reported that verbal abuse was experienced by 24.3% of participants (16.5% male and 30.5% female) (Haynie et al., 2013).

Overall, studies show that dating violence victimization experiences largely differ by gender, with many finding more victimization among female than male students (Kann et al., 2014; Wolitzky-Taylor et al., 2008; Young, Grey, & Boyd, 2009). For example, in the 2013 YBRS, females (14.4%) experienced both physical and sexual dating violence at significantly higher rate than males (6.2%). The gender trend prevails regardless of race: White and Hispanic female students (14.6% and 16.0%, respectively) showing higher rates than White and Hispanic male students (4.8% and 6.7%, respectively) (Kann et al., 2014). Similarly, at all grade levels, the victimization rates are higher among females (15.7% for 9th, 15.9% for 10th, 12.0% for 11th, and 13.9% for 12th) compared to males (5.9% for 9th, 5.0% for 10th, 7.3% for 11th, and 6.4% for 12th). In the NatSCEV, while significantly more boys (8.3%) reported physical dating violence victimization than girls (4.5%), the study also revealed that girls (36.4%) were physically

injured three times more often than boys (12.3%) and significantly more girls (47%) were very afraid compared to boys (0%) (Hamby et al., 2012).

Comparing grade levels, multiple studies found that youth in higher grades or older age were victimized more with psychological aggression (Swahn, Simon, Arias, & Bossarte, 2008; Wolitzky-Taylor et al., 2008) and physical violence (Kanne et al., 2014; Swahn et al., 2008) in dating relationship. For example, more physical dating violence victimization was reported among older students (11.7% in 12th grade) than younger students (8.8% in 9th grade) in the 2013 YRBS (Kann et al., 2014). Similarly, the baseline data ($N = 14,190$) from the parent study of this dissertation revealed that the rates of dating violence increased along with the grade levels at a statistically significant level ($p < .0001$) (Coker et al., 2014).

Adolescents who are in a same-sex relationship or identify as lesbian, gay, or bisexual (LGB) may be at a higher risk for dating violence victimization. An analysis of a subsample of teens who have been in same-sex romantic relationships ($n = 117$) from the National Longitudinal Study of Adolescent Health found that 21.3% (14.6% male, 26.4% female) of respondents reported victimization of psychological dating violence while 11.3% (8.8% male, 13.1% female) reported physical victimization (Halpern, Young, Waller, Martin, & Kupper, 2004). A more recent cross-sectional survey of 7th through 12th grade students who have dated during the prior year ($N = 3,745$) revealed a significantly higher victimization rate among LGB youth than heterosexual youth for both physical (43% versus 29%, respectively) and psychologically (59% versus and 46%, respectively) (Dank, Lachman, Zweig, & Yahner, 2014).

Exposure to intimate partner violence between parents has been connected to adolescents' victimization in various types of violence including dating violence (Arriaga & Foshee, 2004; Hamby, Finkelhor, Turner, & Ormrod, 2010). For instance, the aforementioned NatSCEV study revealed that among children between 0 and 17 years of age ($N = 4,549$), those exposed to parental partner violence at age 12 or over were about four times more likely to be victims of dating violence in their lifetime than those without exposure (Hamby et al., 2010). The parent study also reported that, among 14,190 high school students, victims of dating violence were exposed to parental partner violence significantly more than non-victims (47.6% versus 28.1%) (Coker et al., 2014).

Sexual violence victimization. Studies suggest that peer-to-peer sexual assault is commonplace among adolescents. From a cross-sectional study of 7-12th grade students ($N = 1,086$), Young et al. (2009) reported that sexual assault, including kisses, hugs, and touches, as well as oral sex, rape, and attempted rape, was committed by a friend (45.8%), an acquaintance (18.5%), or a dating partner (15%). Sexual violence by dates is also reported similarly by high school students (10.4%) in the 2013 YBRS in the form of kisses, touches, or physically forced intercourse 12 months prior to the survey (Kann et al., 2014).

Many studies found that significantly more girls than boys and older than younger students are sexual assault victims. For instance, in the aforementioned YBRS study (Kann et al., 2014), the rate of sexual violence victimization was more than double for female (10.5%) compared to male (4.2%) students regardless of their race and grade level. The rate of the lifetime victimization of forced sexual intercourse was highest among 12th grade students (8.4%) and declined with grade levels respectively (7.7%, 7.2%, and

9.1%). Gender-grade combination showed a more mixed result with 10th grade female students (11.8%) having the highest victimization rate closely followed by 12th grade female (11.2%), and 9th grade female (8.3%) students. Another national representative study of youth also reported older children, particularly girls, being victimized significantly more than other groups by sexual violence (Turner et al., 2011). Young and colleagues (2009) also found that 52.5% of high school girls in their study reported being sexually assaulted, with a majority being forced to kiss, make out, or fondle. The reports of severe types of sexual assault such as rape (both completed and attempted) and forced fellatio were rare, but the significant majority of the victims in these cases were older girls when compared to other groups by sex and grade levels (Young et al., 2009).

Extant research on sexual violence victimization of youth based on sexual attraction is extremely limited. However, the available studies indicate extremely high prevalence rates of sexual violence victimization among non-heterosexual youth. For example, the data analysis of seven population-based studies of high school students in the United States and Canada and found that sexual minority youth consistently experienced significantly more sexual violence victimization compared to heterosexual students (Saewyc et al., 2006). In the baseline data analysis of the parent study ($N = 18,030$), sexual violence victimization in the past 12 months was experienced at a significantly higher rate by youth who were sexually attracted to the same sex or both sexes than those who were exclusively heterosexual (30.2 % versus 16.6%) (Williams et al., 2014). Further, the 2010 National Intimate Partner and Sexual Violence Survey (NISVS) found that, among all rape victims, significantly more bisexual women (48.2%) compared to heterosexual women (28.3%) reported experience of their first completed

rape victimization while they were between 11 and 17 years-old (Walters, Chen, & Breiding, 2013).

Youth who live in a household where violence occurs between parental figures face a great risk of sexual violence victimization. The NatSCEV study reported that, among youth 12 years and older, within the 0 to 17 year-old sample ($N = 4,549$), more than 16% of youth who experienced victimization in any type of sexual assault in the past year also had a history of parental partner violence exposure (Hamby et al., 2010). Prevalence specific to high school age youth is not reported in this particular article, but another report from the same dataset found that sexual violence was experienced by 14 to 17 year-olds significantly more than any other age group (Finkelhor, Turner, Ormrod, & Hamby, 2009). Further, according to the baseline analysis of the parent study ($N = 18,030$), 30.6% of sexual violence victims were exposed to parental partner violence while 14.3% were not (Williams et al., 2014).

Sexual harassment victimization. Sexual harassment is a common experience among youth. The most recent nationally representative study on sexual harassment in schools conducted by the American Association of University Women (AAUW) reported that 48% of respondents in 7th to 12th grades experienced harassment such as sexual comments, homophobic name calling, and unwanted sexual touching during the school year (Hill & Kearl, 2011). In the earlier AAUW studies (1993, 2001), when asked about their entire school career, over 80% of youth in grades 8 through 12 revealed sexual harassment victimization. Another national survey suggested that 15.8% of 14 to 17 year-olds experienced sexual harassment in their lifetime (Finkelhor, Turner, Shattuck, & Hamby, 2013).

Studies have found that female students are targeted for sexual harassment significantly more than male students. For example, Hill & Kears (2011) reported that significantly more girls than boys were sexually harassed (56% versus 40%) both in-person and electronically. In another study, approximately 75% of girls, which is more than double the rate of boys, reported being harassed in the form of sexual stares and sexual jokes (Young et al., 2009). Young and colleagues (2009) found that older girls reported being sexually harassed more than younger girls, while the rates for boys did not differ by age. Similarly, Hill and Kears (2011) reported that the gender gap widened with age.

Past research indicates that sexual minority youth are particularly vulnerable to sexual harassment. A national representative study of school climate for lesbian, gay, bisexual, and transgender (LGBT) youth reported that 64.4% of LGBT high school students experienced unwanted touching or direct sexual remarks at school, with 18.7% reporting these experiences occurred often or frequently (Kosciw, Greytak, Bartkiewicz, Boesen, & Palmer, 2012). In a study of 13 to 18 year-olds sampled from two national sources ($N = 5,139$), lesbian, bisexual girls, and gay boys reported significantly higher rates of sexual harassment victimization (72%, 66%, and 66%, respectively) compared to heterosexual boys (23%) (Mitchell, Ybarra, & Korchmaros, 2014). Further, in another study, 71% of LGBT students reported experiencing sexual harassment victimization in comparison to 32% of heterosexual students (Gruber & Fineran, 2008).

The baseline analysis from the parent study recently examined the association between exposure to parental partner violence and sexual harassment and found that the sexual harassment victimization rate was significantly higher for students exposed to

parental partner violence (42.4%) than for students who were not exposed (25.6%) among 18,090 high school students (Clear et al., 2014). There is no other literature to date that has examined this specific association. However, sexual harassment victimization is often included as part of bullying and other school violence victimization research. For example, in their study of 5-8th Grade students ($N = 992$), Espelage, Low, & De La Rue (2012) measured levels of victimization in four types of peer aggression: verbal/physical, relational (e.g. exclusion, damaging reputation), homophobic name calling, and sexual harassment. The study revealed that 29% of poly-victims with high levels of victimization in all four areas, including sexual harassment, were also exposed to parental partner violence. An Italian study of elementary and middle school students between 8 to 15 years old ($N = 1,059$) reported that those exposed to parental partner violence were significantly more likely to be victimized in school (Baldry, 2003). Although the Italian study did not specifically measure sexual harassment, it included items such as “I was called a nasty name” or “I had rumors spread about me” which are often sexual in nature and are part of sexual harassment measurement in population studies in the United States (e.g. AAUW, 2001; Hill & Kearl, 2011). While sexual harassment and witnessing of parental partner violence are both common among high school students, there is a gap in research on specific association between these two experiences.

Stalking victimization. Although literature on stalking among adults, including college students and the criminal justice population, have increased over the years (Nobles, Fox, Piquero, & Piquero, 2009), literature on stalking among adolescents in general is scarce, in particular, there is no nationally representative studies on this topic

to date (Fisher et al., 2014). It is clear, however, that stalking victimization begins during adolescence for many. According to the National Violence Against Women Survey (NVAWS), out of all adults who reported stalking victimization in their lifetime, approximately 12% stated that they were younger than 18 at their first experience of stalking (Tjaden & Thoennes, 1998). More recently, as stated in Chapter 1, the National Intimate Partner and Sexual Violence Survey (NISVS) found that 18.3% of women and 7.0% of men first experienced stalking between the ages of 11 and 17 (Black et al., 2011). One of the first empirical studies of adolescent stalkers ($N = 299$) in the Australian juvenile justice system found that 69% of their victims were female and 71% of the victims were high school students (Purcell, Pathe, & Mullen, 2010). The same study also found that 57% of the cases involved same-gender stalking with more females (86%) than males (40%) although the nature of the relationship, such as romantic or friends, is not clear.

A recent publication from the baseline data of the parent study made available much needed prevalence information on adolescent stalking experience. Fisher and colleagues (2014) reported that, out of 18,013 high school students surveyed, 16.5% reported having been stalked in the past 12 months. They also found that there were significant differences in rates of stalking victimization based on sex (13.9% males versus 18.7% females), sexual attraction (attracted to opposite sex only 14.8% versus same or both sex 27.1%) and grade levels (15.6% of 9th, 17.7% of 10th, 15.6% of 11th versus 17.7% of 12th grade students). Further, exposure to parental partner violence among stalking victims in this sample was more than double the rate among non-victims, 26.4% versus 13.1%, respectively (Fisher et al., 2014).

Prevalence of Perpetration

While it is important to recognize that many high school students are victimized, it is also crucial to pay attention to the fact that many of the perpetrators are their peers.

Psychological and physical dating violence perpetration. Many studies have been conducted on dating violence incident rates and victimization experiences, but research focusing on perpetration among youth is limited. Among the small number of studies that surveyed the perpetration of dating violence, a nationally representative study of 10th-grade students ($N = 2,524$) found that psychological abuse, such as insulting and threatening, was perpetrated by 21.4% of participants (13.0% male vs. 28.2% female) and physical abuse, including pushing and throwing something, by 9.1% (6.3% male vs. 11.4% female) (Haynie et al., 2013). Another study by Coker et al. (2000), which used a stratified cluster sample of high school students from the 1997 South Carolina Youth Risk Behavior Survey ($N = 5,414$), reported that approximately 12% of participants reported being a victim (7.6%) or perpetrator (7.7%) of physical dating violence, with higher rates of both victimization and perpetration in females (14.4%) than males (9.1%).

Prevalence studies over the years have revealed that adolescent girls, compared to boys, not only report more victimization but also the infliction of physical as well as psychological violence in dating relationships. For example, significantly more girls reported physical violence against their dates than boys (5.73% and 2.06%, respectively) in a study of a general sample of 8th through 10th-grade students ($N = 2,907$) (Foshee et al., 2011). Also, a study of a randomly selected sample from a school system (9-12th grades, $N = 2,090$) resulted in significantly more perpetration of physical dating violence by females (8.8%) than males (4.0%) (Champion et al., 2008). Further, among 2,363

students in randomly selected high schools in one county, 92% of girls and 85% of boys reported engaging in at least one act of psychological aggression against a date in the past year (O’Leary, Slep, Avery-Leaf, & Cascardi, 2008). However, as noted above in the victimization section, researchers have reported significant differences in the extent and impact of dating violence based on gender. Specific gender difference in perpetration includes boys being more likely than girls to injure their dating partners and boys using more severe forms of violence than girls (Foshee et al., 2011). Also, in general, past studies suggest that girls tend to use more psychological and physical aggression, while boys use more sexual aggression in their dating relationships (Foshee, 1996; Poitras & Lavoie, 1995; Wolfe, Wekerle, Reitzel-Jaffe, & Lefebvre, 1998).

Research on dating violence perpetration among LGB adolescents is particularly lacking. In a study on dating violence among this population, Dank et al. (2014) revealed that in comparison with heterosexual youth, LGB youth are at a significantly higher risk for the perpetration of physical violence (33% versus 20%), psychological abuse (37% versus 25%), cyber abuse (18% versus 12%), and sexual coercion (4% versus 2%) against their dating partners. From the parent study of this dissertation ($N = 14,190$), Coker and her colleagues (2014) reported that the rates of perpetration were significantly higher among high school students who were not exclusively heterosexual in their sexual attraction (28.9%) compared to those who were exclusively heterosexual (18.8%). The same study also examined the association between dating violence perpetration and exposure to parental partner violence and found a statistically significant result. The researchers found that 30.5% of dating violence perpetrators reported exposure to parental partner violence compared to 16.4% of non-perpetrators (Coker et al., 2014).

Sexual violence perpetration. Although the number of studies on sexual violence perpetration among adolescents is limited, past research indicates that sexual violence among youth is often peer-perpetrated. As mentioned in Chapter 1, results of the 2008 NatSCEV indicated that peers committed 13.8% of sexual assaults, sexual harassment, and flashing for youth aged 14 to 17 years (Turner et al., 2011). It is also noteworthy that infliction of violence of a sexual nature often happens at school, including 36.7% of flashing and 25% of sexual assault (Turner et al., 2011). Aforementioned study by Young et al. (2009) found that among a sample of 1,086 students in 7th through 12th grades, significantly more girls in higher grade levels were sexually assaulted compared to younger girls and all boys. The survey asked about the victims' relationship to perpetrators and found that 40% of females were sexually assaulted by their peers who were mostly known to them although sex and age of the perpetrator were not reported (Young et al., 2009).

While many studies examined the impact of witnessing parental partner violence on youth's aggressive behavior, there is only one study to date that specifically examined sexual violence perpetration as an outcome variable. A survey of 9th and 12th graders in Minnesota ($N = 71,594$) revealed that both male and female students who reported witnessing one family member abusing another were more likely to report sexually assaulting someone (Borowsky, Hogan, & Ireland, 1997). A deficiency in current literature is, again, studies of youth who are sexually attracted to the same or both genders. In one study on sexual violence in dating relationships among adolescents, Dank et al. (2014) did indicate that significantly more LGB youth reported sexual

coercion by dates than heterosexual youth. Although the perpetrators are likely to be LGB also, it may not apply to all cases.

More recently, the parent study of this dissertation found several significant differences between various demographic characteristics of youth. Williams et al. (2014) reported that, among 18,030 respondents, significantly more males (10.6%) than females (5.8%), more exclusively non-heterosexual youth (13.7%) than exclusively heterosexual youth (7.1%), and more students with parental partner violence exposure (14.2%) than those with no exposure (5.9%) reported perpetration of sexual violence. Perpetration rates increased with grade levels only for female students at a statistically significant rate for this large sample.

Sexual harassment perpetration. Youth disclose perpetration of sexual harassment quite often. According to AAUW (2001), 54% of 8th through 11th grade students in a nationally representative sample ($N = 2,064$) reported that they sexually harassed another student in some way, including telling sexual jokes, calling someone gay or lesbian, or touching someone in a sexual manner. Sexual harassment is often peer perpetrated and occurs at school; 72.2% of incidents occurred at school among a nationally representative sample of 14 to 17 year-olds in another study (Turner et al., 2011).

Over the years, research on youth sexual harassment identified boys as the majority of sexual harassers (Clear et al., 2014; Fineran & Bennett, 1999; Hill & Kearnl, 2011; McMaster, Connolly, Pepler, & Craig, 2002). The recent AAUW study found that 54% of sexual harassment victims reported one male student as the perpetrator, while 14% identified one female student as their perpetrator (Hill & Kearnl, 2011). In addition,

younger students, rather than older students, were more likely to sexually harass someone according to an earlier study by AAUW (2001).

As described earlier in the victimization section, extant literature consistently finds that LGB youth are significantly more likely to be sexually harassed than their non-LGB counterparts. While there have been a sizable number of studies that examined the experience of sexual harassment victimization among LGB youth (e.g. Kosciw et al., 2012; Young et al., 2009), perpetration research on this group is virtually non-existent. One rare study that examined perpetration rate is the baseline analysis of the parent study of this dissertation. Among a large sample of high school students ($N = 18,090$), Clear et al. (2014) found that students who were not exclusively heterosexual (14.2%) reported sexually harassing others at a significantly higher rate than exclusively heterosexual students (7.5%).

Another gap in literature is the association between exposure to parental partner violence and sexually harassing behavior among youth. In one study, history of family violence was a significant risk factor of sexual harassment perpetration for boys but not for girls (Fineran & Bolen, 2006). The variable on family violence included observation of verbal fights as well as physical fights between family members but did not specify who the members were. The aforementioned study by Clear et al. (2014) specifically examined physical partner violence between parental figures. The rate of sexual harassment perpetration among students with exposure to parental partner violence almost doubled compared to that of those without the exposure (13.0% versus 6.9%, respectively).

Stalking perpetration. Researchers agree that some “following” behaviors among adolescents are normal, particularly when excitement of courtship and admiration is involved (Scott et al., 2007). However, there are teens who exhibit abnormal and obsessional “following” behaviors similar to those of adult stalkers that are threatening and induce fear in the targets (McCann, 2001).

Past studies on adolescent stalking behavior primarily focused on describing individual stalker typologies by using case studies and small samples of perpetrators in the juvenile justice system (e.g. Emer, 2001; Evans & Meloy, 2011; McCann, 1998). In one of the first empirical studies of adolescent stalking, Purcell et al. (2009) reviewed protective order applications in stalking cases within the Australian juvenile court system ($n = 299$) and reported that almost all stalkers were known to the victims (98%) and included current or ex-school peers (24%), acquaintances (23%), and ex-dating partners (21%). The authors also reported that the majority of perpetrators were male (64%) and high school students (79%). In the same study, the difference along the gender line appeared in some categories of stalking based on motivations. For example, while both males and females were equally represented among stalkers who were bullies (28%) and retaliatory (22%), rejected stalkers (22%) who stalked after the break-up of dating relationship, predatory stalkers (5%) who aimed at forcing unwanted sexual activities, and intimacy-seeking stalkers (2%) were almost always males perpetrating against female peers. Further, same-sex stalking occurred overwhelmingly more among girls compared to boys (86.1% versus 40.3%) as an extension of bullying or some types of retaliation rather than in the context of romantic relationship (Purcell et al., 2009). The numbers are

small for some categories; nonetheless, they provide beginning knowledge of youth stalking patterns by gender.

The parent study of this dissertation conducted the first population-based study on youth stalking perpetration in the United States, using the baseline data from Kentucky high schools ($N = 18,013$). Fisher et al. (2014) found that reports of stalking perpetration were significantly lower than reports of victimization (5.3% versus 16.5%). When the perpetration rates were compared based on demographic characteristics, stalkers were significantly more male than female (6.5% versus 4.2%), more likely to be attracted to the same or both sexes than to opposite sex only (10.2% versus 4.5%), and more likely to be exposed to parental partner violence than not (9.5% versus 3.8%). However, the grade level had no significant association with stalking perpetration.

Co-occurrence of Personal Violence

Traditionally, research on violence had been conducted separately, creating its own field and experts within each type of violence. Some scholars have argued in recent years that compartmentalized research on violence has missed opportunities to improve policies and programs by reflecting the reality that individuals experience violence in multiple ways (Hamby & Grych, 2013; Kazdin, 2011; Saunders, 2003). For example, victims are vulnerable to further victimization in different types of violence (Espelage & Holt, 2007; Finkelhor et al., 2013) while perpetrators are often a small group of individuals committing multiple types of violence (Hamby & Grych, 2013; Lisak & Miller, 2002). With this understanding, research on co-occurrence of violence has dramatically increased in recent years (Hamby et al., 2014).

For youth, the recent surge of co-occurrence studies has focused on bullying (Finkelhor, Turner, & Hamby, 2012) particularly among middle school populations, with topics such as victimization of different types of bullying (Wang, Iannotti, Luk, & Nansel, 2010), perpetration of bullying, homophobic teasing, and sexual violence (Espelage, Basile, De La Rue, & Hamburger, 2014), and bullying involvement among child maltreatment victims (Hong, Espelage, Grogan-Kaylor, & Allen-Meares, 2012). Although efforts in bullying research and programming over the last decades are clearly an important part of ensuring safety for youth, the current definitions used in research community excludes serious physical and sexual assaults unless they fit the specific definition of bullying, including power differentials between the perpetrator and the victim (Finkelhor et al., 2012). Focusing on the term “bullying” may undermine the reality of violence that occurs in the daily experience of youth. Various forms of violence should be specifically defined and examined in relation to one another in order to develop policies and programs that address the reality of those who experience violence. Below, extant literature is reviewed on poly-victimization, poly-perpetration, and victimization-perpetration of personal violence among high school age youth.

Polyvictimization. Nationally representative studies on violence victimization among children and youth have found that poly-victimization is common and that victimization in one type of violence is a good predictor of victimization in another (Finkelhor, Ormrod, & Turner, 2007; Finkelhor, Ormrod, Turner, & Holt, 2009). Among nationally representative sample of children ages 2 to 17 ($N = 2,030$) in the Developmental Victimization Survey (DVS) data, Finkelhor et al. (2007) found that 97% of peer sexual assault victims, 92% of rape victims, 91% of flashing victims, 87% of

verbal sexual harassment victims, and 76% of dating violence victims reported being victimized in more than 4 and an average of 7 types of violence in the previous year. For older youth, Hamby et al. (2012) analyzed the data collected from youth aged 12 to 17 from the 2008 NatSCEV and reported that 30.6% of physical dating violence victims were also victimized in another type of violence. In particular, co-occurrence of victimization by sexual violence and physical dating violence was common in this sample of teens. Many adolescents who experienced rape (25%), sexual harassment (18.1%), and flashing by peer (20.4%) were also victims of physical dating violence significantly more than non-victims (Hamby et al., 2012). Over all, Hamby et al. (2012) reported that 59.8% of youth who were physically abused by dates have also been sexually violated in some way in their lifetime.

Two studies so far have analyzed rates of polyvictimization in personal violence and sex among youth. Neither found any significant difference between males and females. In the subsample of youth aged between 12 and 17 from the aforementioned NatSCEV ($n = 1,680$), Hamby et al. (2012) found no difference between females and males in prevalence of co-occurrence of victimization of physical dating violence and other types of violence, including rape and sexual harassment. Another longitudinal investigation of Canadian high school students ($N = 1,734$) revealed that both male and female students who reported sexual harassment victimization at 9th grade were significantly more likely to report other victimization including physical dating violence at 11th grade compared to those who reported no sexual harassment at 9th grade (Chiodo, Wolfe, Crooks, Hughes, & Jaffe, 2009). Although Finkelhor et al. (2007) reported that older boys were more likely to be poly-victims, this finding is based on a much wider age

range (2 to 17) and included a variety of victimization types (e.g., war, robbery, and rape) rather than just personal violence. In adult samples, gender difference is salient in experience of multiple victimizations especially when sexual violence is involved (Black et al., 2011; Hamby & Grych, 2013; Pimlott-Kubiak, & Cortina, 2003). For example, Pimlott-Kubiak and Cortina (2003) found that women comprised of 90% of poly-victims of adult and child physical assault, adult emotional abuse, lifetime sexual violence, and lifetime stalking.

To date, no published studies examined the relationship between age or grade differences and co-occurrence of personal violence victimization in annual rates. Turner, Finkelhor, and Ormrod (2010) found that lifetime experience of polyvictimization of many different types of violence increased with age in their nationally representative sample of children and youth from NatSCEV 2008. This is naturally expected due to accumulated experience of violence just as any other experience throughout one's life. However, entering high schools may provide increased opportunities for victimization in the context of peer relationships, observed as a spike in the onset of polyvictimization at age 15 in one study with an analysis with 989 youth (Finkelhor, Ormrod et al., 2009).

Studies of single type personal violence revealed that youth who identify as sexual minority are more vulnerable to victimization than their counterparts (Dank et al., 2014; Gruber & Fineran, 2008; Mitchell et al., 2014). No published study to date exists on polyvictimization specifically among this population.

There are a very small number of studies that examined polyvictimization and exposure to parental partner violence. In the 2008 NatSCEV data with children aged between 2 and 17 ($N = 4,053$), 86% of poly-victims with more than 10 types of violence,

such as sexual assault, burglary, child abuse, and bullying among others, witnessed family violence including violence between parents (Turner et al., 2010). While they did not specify rates of poly-victims witnessing parental partner violence, the analysis of 2002-2003 Developmental Victimization Survey (DVS) data revealed that one of the significant predictors of poly-victimization for a subsample of youth between 10 and 17 years of age was living conditions such as being part of dangerous families including presence of family violence (Finkelhor, Ormrod et al., 2009). These results show the potential relationship between exposure to parental partner violence and poly-victimization of personal violence among high school students.

Polyperpetration. Several longitudinal studies of male college students indicate that sexual assault perpetrators are more likely than non-perpetrators to later commit the same or similar sexual offenses (Abbey & McAuslan, 2004; Malamuth, Linz, Heavey, Barnes, & Acker, 1995; White & Smith, 2004). Sexual assault perpetrators may not only be repeat offenders who commit the same or similar offenses but polyperpetrators who also perpetrate other types of personal violence such as intimate partner violence and child abuse (Lisak & Miller, 2002). Much of the literature on personal violence polyperpetration is limited to college students and criminal justice populations, leaving this topic severely understudied among general youth population.

In one of the few studies on poly-perpetration among teens, Sears, Byers, & Price (2007) reported that both boys and girls in the Canadian sample of 7th, 9th and 11th grade students ($n = 633$) used multiple types of violence, including psychological, physical, and sexual tactics, against their dating partners, with significantly more girls (26%) than boys (19%) reporting poly-perpetration. The same study also found that more older students

of both sexes reported being perpetrators of single and multiple forms of dating violence than younger students (Sears et al., 2007). In contrast, another study revealed gender difference in patterns of polyperpetration. The investigation of polyperpetration of sexual assault, physical aggression against peers, and physical dating violence among European and Mexican American youth aged between 16 and 20 ($n = 247$) revealed that males who reported one type of perpetration were significantly more likely to report another type of perpetration while this was not the case for females (Ozer et al., 2004). Further, perpetration of any single or multiple violence at baseline was a significant predictor of sexual assault perpetration a year later for males only (Ozer et al., 2004).

Both of these studies did not inquire about participants' self-identification on sexual attraction, leaving a large gap in knowledge on poly-perpetration in this particular group. Sears et al. (2007) used a measure on fear of family violence that included fear of potential violence by one parental figure to another parent as well as to the students themselves. The researchers found that that fear of family violence was one of the risk factors for boys who reported use of psychological, physical, and sexual violence against their dates. Although it is not clear that parental partner violence actually occurred in respondents' lives, it still shows that the potential for it may create an environment that makes youth prone to aggressive behavior.

Victimization-perpetration. Research on multiple experience of violence in both victimization and perpetration among youth is largely conducted on bully-victims (e.g. Juvonen, Graham, & Schuster, 2003; Mishna, Khoury-Kassabri, Gadalla, & Daciuk, 2012; Nansel et al., 2001). Outside of bullying, one study examined co-occurrence of violence such as shooting, stabbing, and serious physical fights in a nationally

representative sample of 11 to 17 year-olds and found that youth who used those severe types of violence against others were significantly more likely to be victimized themselves than non-perpetrators (Shaffer & Ruback, 2002).

Research is still extremely limited on the topic of personal violence in high school students as victim-perpetrators. Champion et al. (2008) reported high rate of victimization-perpetration of physical dating violence among high school students: 44.9% of victims also reported perpetrating and 43.2% of perpetrators reported also being victimized. The aforementioned study using the 1997 South Carolina YRBS ($N = 5,414$) revealed that that almost 12% of youth reported being involved in physical dating violence as a victim (7.6%) or a perpetrator (7.7%), with more girls (14.4%) than boys (9.1%) as victim-perpetrators (Coker et al., 2000). More recently, the analyses of baseline data ($N = 14,090$) in the parent study of this dissertation resulted in a high correlation between dating violence victimization and perpetration ($\chi^2 = 3236.1, p < .0001$), with 47.7% of victims also reporting perpetration although only 6.6% of non-victims reported perpetration (Coker et al., 2014).

In case of sexual harassment, several studies concluded that many students have both been the harasser and the harassed (AAUW, 2001; Fineran & Bennett, 1999; Fineran & Bolen, 2006; McMaster et al., 2002). According to the most recent AAUW study on sexual harassment among high school youth ($n=1,965$), a great majority of girls (92%) and boys (80%) who disclosed perpetration of sexual harassment also reported being victimized (Hill & Kear, 2011). In general, these studies did not observe any difference in rates of victimization-perpetration based on gender. However, Fineran and Bolen (2006) found that the process through which the victimization-perpetration pattern

develops were strikingly different along the gender line. Their path analysis showed that the strongest path for female students led from victimization to perpetration while for males it was the other way around. The authors reported that retaliation explained a small portion of the victimization-perpetration path for girls but retaliation did not explain perpetration-victimization path for boys.

The recent baseline analysis of the parent study data by Clear et al. (2014) resulted in much lower rate of victimization-perpetration in sexual harassment contrary to other studies mentioned above. Among the sample of 18,090 high school students, only 5.1% reported experiencing both victimization and perpetration of sexual harassment, with a statistically significant difference between the rates for female students (3.9%) and male students (6.5%). Clear and colleagues (2014) also reported that the rates of victimization-perpetration were significantly higher for students who were attracted to the same sex or both sexes than to opposite sex only, and for students who were exposed to parental partner violence than for those who were not.

For stalking, the literature suggests that adolescent males are more likely than females to be victim-perpetrators. The parent study ($n = 18,013$) also revealed that more male (3.6%) than female (2.1%) students reported experience of co-occurring victimization and perpetration in stalking (Fisher et al., 2014). The stalking victim-perpetrators were also significantly more likely to be non-heterosexual in sexual attraction (6.4%) rather than exclusively heterosexual (2.2%), and younger in class standing (3.0% in 9th, 2.8% in 10th, 2.6% in 11th, and 2.6% in 12th grades).

To date, no published study explored the association between victim-perpetrators and their exposure to parental partner violence, leaving a significant gap in literature.

Summary

The review of relevant literature suggests that experience of personal violence is common among high school students. Co-occurring experiences of personal violence, particularly polyvictimization, are also common for youth. While research efforts have increased in the area of co-occurrence of violence in this population, the knowledge-base is extremely limited especially on polyperpetration and victimization-perpetration of personal violence.

There are some patterns in experiences of multiple types of personal violence among youth based on risk factors such as gender, age, sexual attraction, and exposure to parental partner violence. Extant literature suggests that there is no significant difference in poly-victimization along the gender line. However, given the limited number of studies on this topic, it is premature to conclude that there is no gender difference in prevalence of youth polyvictimization. In fact, considering that adult women are significantly more polyvictims than men (Hamby & Grych, 2013) and adolescent females are significantly more victimized in single types of personal violence (Fisher et al., 2014; Hill & Kearnl, 2011; Kann et al., 2014), it is reasonable to hypothesize that more girls than boys are polyvictims. Likewise, the limited number of available studies on prevalence of polyperpetration of personal violence among youth suggests that there is no significant gender difference. Past research on adolescent dating violence often suggested that girls more than boys use violence in their romantic relationships (Haynie et al., 2013). However, as males were identified as perpetrators significantly more than females in other single type of violence including sexual violence (Williams et al., 2014), sexual

harassment (Hill & Kearl, 2011), and stalking (Fisher et al., 2014), it is possible that more boys than girls commit multiple types of personal violence.

A small number of studies suggest that older youth are more likely to be polyvictims (Finkelhor et al., 2007) and polyperpetrators (Sears et al., 2007) likely because experience of violence, as any other experience, accumulates with age. The relationship between age and violence is well-documented in criminology research. In the United States, over the last several decades, the age distribution for violent crimes such as rape and aggravated assault has generally peaked in the late 20s (See Ulmer & Steffensmeier, 2015 for review).

Youth who are attracted to same or both genders are highly vulnerable in various ways related to personal violence. Compared to their heterosexual counterparts, youth who are not exclusively heterosexual are significantly more at risk for victimization in single types of personal violence including physical and psychological dating violence (Dank et al., 2014), sexual violence (Saewyc et al., 2006), sexual harassment (Gruber & Fineran, 2008), and stalking (Fisher et al., 2014). While there is no published study to date on polyvictimization of personal violence among sexual minority youth, with the extent of victimization experienced by this group of youth across all varieties of personal violence, it is possible that polyvictimization among them is more prevalent than exclusively heterosexual youth. Even less literature exists on personal violence perpetration by youth who are not exclusively heterosexual. With the obvious need to understand their vulnerability and experience of victimization, it seems that research, so far, concentrated on victimization. Although extremely limited in number, published studies to date report that significantly more sexual minority youth compared to

heterosexual youth perpetrated all types of dating violence including psychological, physical, cyber abuse, and sexual abuse (Dank et al., 2014), sexual violence (Williams et al., 2014) and sexual harassment (Clear et al., 2014). It is then possible that polyperpetration is observed more among youth who are attracted to the same or both genders compared to youth who are exclusively heterosexual in sexual attraction.

Past research consistently found exposure to parental partner violence to be associated with various negative experiences among youth, including victimization in dating violence, sexual violence (Hamby et al., 2010), and stalking (Fisher et al., 2014) as well as perpetration of dating violence (Jouriles, Mueller, Rosenfield, McDonald, & Dodson, 2012), sexual violence (Borowsky et al., 1997), sexual harassment (Fineran & Bolen, 2006), and stalking (Fisher et al., 2014). Poly-victimization and polyperpetration of personal violence among high school students exposed to parental partner violence are some of the topics which have not been specifically studied to date. However, limited number of studies suggest that presence of or fear of parental partner violence is a predictor of poly-victimization of various types of violence (Turner et al., 2010) as well as poly-perpetration of psychological, physical and sexual violence in dating relationship (Sears et al., 2007).

Although extremely limited, extant research has explored gender differences in experience of personal violence victimization-perpetration among high school students. Based on the limited available literature, more females than males are dating violence victim-perpetrators (Coker et al., 2000) while more males than females are victim-perpetrators of stalking (Fisher et al., 2014). Also for stalking, more non-heterosexual youth and more students in younger grade levels were likely to be victim-perpetrators

(Fisher et al., 2014). In case of sexual harassment, one study did not find a difference in prevalence of victimization-perpetration along the gender line but did in the process of how it is experienced (Fineran & Bolen, 2006). There exists a significant knowledge gap on experience of victimization-perpetration of different types of personal violence among youth.

This review of prevalence literature clearly demonstrates a startling reality: Personal violence, including experience of multiple types of violence, is an ordinary experience for many high school students. Given the prevalence, there have been various efforts to prevent them. The efforts, including some traditional programming and the innovative bystander approach are reviewed in the section below.

Efforts to Prevent Personal Violence

In order to provide the current study with a context in which active bystander behaviors of high school students are investigated, this section first describes the historical background of the efforts to prevent personal violence. It is followed by an introduction of the bystander strategies in personal violence prevention, including the general tenets of the programs, and programming in the high school setting. Further, a detailed description of the Green Dot program is provided, including evaluation results from its implementation in the college setting as well the most recent results in the high school intervention trial.

Historical Background

In the early 1990s, the first national study on sexual harassment in high schools by the American Association of University Women (1993) brought attention to this topic, leading to development of school policies and programs. In 2001, the U.S. Department

of Education issued *the Revised Guidance on Sexual Harassment*, describing schools' responsibilities in responding to incidents of sexual harassment and its effects as well as prevention of its recurrence as a condition of federal funds (USDE, 2001). In general, sexual harassment prevention efforts in primary and secondary schools have often been combined with bullying prevention, and focused on meeting the legal mandates at both the state and the federal levels, including mandatory reporting and zero-tolerance policies leading to suspension and expulsion of perpetrators (Bradshaw et al., 2011; Espelage & Swearer, 2003). While there are several studies published on prevalence and effects of sexual harassment among high school students since the 1990s (e.g. AAUW, 1993; Fineran & Bennet, 1999; Hill & Kearl, 2011), literature on sexual harassment prevention programs and evaluation of those programs is scarce. In a publication on sexual harassment in schools, Shoop and Edwards (1994) assert that school districts with sexual harassment policies must train staff and students in order to prevent sexual harassment. The authors provide guidance on sexual harassment curriculum for different grade levels, up to 12th grade, including age-appropriate activities with details such as the objectives, time, and materials needed to incorporate them into the preexisting school programs. The suggested topics for younger students include appreciating differences and identifying good and bad touches, while topics directly related to sexual harassment are suggested for older students (Shoop & Edwards, 1994).

There are curriculums developed and used in schools and community organizations, although their impacts may not have been evaluated. For example, a manual for a school-based sexual harassment prevention program in Pennsylvania was written to prepare local non-profit agencies to deliver a workshop on sexual harassment

and sexual violence to 1st through 12th-grade students (Pittsburgh Action Against Rape, 2009). This particular curriculum covers topics such as definitions, identifying harassing behaviors, and consequences of sexual harassment at all grade levels and additional contents such as school harassment policies, drug-facilitated sexual assault, and abusive relationships for students at the 8th grade level or older. There is paucity in extant research literature on sexual harassment prevention programs for all grade levels. However, it is particularly lacking for high schools, because the primary target of efforts has been middle and elementary schools with many focusing on bullying prevention.

Bullying research and programming in the United States proliferated since the early 2000s due to some high profile school shootings by teens who were often bullied by peers (Espelage & Swearer, 2003). Bullying prevention programs have existed much longer outside of the United States. The first of such programs, the Olweus Bullying Prevention Program (OBPP), was developed in Norway in 1983 by Daniel Olweus, and it was prompted by the suicides of three boys who were bullied by school peers (Olweus & Limber, 2010). The OBPP, which has also been conducted in the United States, aims at stopping the current bullying behaviors, preventing new incidents, and improving peer relationships by implementing components for school administrators, staff, teachers, students, and parents as well as the community (Olweus & Limber, 2010). Although an early review of bullying prevention programs revealed that programs primarily focused on teaching aggression management at the individual level (Leff, Power, Manz, Costigan, & Nabors, 2001), a more recent systematic review found that some programs focused on individual students' cognitive and communication skills, while others also involved the school, parents, and community like the OBPP (Farrington & Ttofi, 2009). Overall,

prevention programs that focus on bullying in the United States tend to target middle schools (e.g. Espelage, Low, Polanin, & Brown, 2013; Olweus & Limber, 2010; Whitaker, Rosenbluth, Valle, & Sanchez, 2004).

Research literature on sexual violence prevention programs for high school students is also scarce. In their review of sexual assault prevention programs, Morrison and colleagues (2004) found that there are very few evaluation studies conducted on high school programs. The majority were universal programs, which target general audience regardless of risk factors, and addressed multiple issues such as sexual violence in dating relationships or bullying as the main topic with dating and sexual harassment added in discussions (Morrison et al., 2004). For example, one program with 11th graders ($n = 325$) provided information in the classrooms about signs and consequences of sexual and dating violence, services for victims, and related laws, and found increased knowledge among participants about sexual assault laws and local resources for victims regardless of their victim or perpetrator status (Hilton, Harris, Rice, Krans, & Lavigne, 1998). Sexual violence prevention programs for high schools traditionally focused on changing attitudes about rape and increasing knowledge about services like the college-based programs described below.

Sexual violence prevention programs started in colleges across the United States because research since the 1980's emphasized college women as a high risk population for sexual violence victimization (Fisher, Cullen, & Turner, 2000; Himelein, 1995; Koss, Gidycz, & Wisniewski, 1987; Sellers & Bromley, 1996; Smith, White, & Holland, 2003). The college efforts on prevention of sexual assault increased in the 1990s specifically due to passage of laws that addressed this issue. These laws include the Crime Awareness

and Campus Security Act of 1990, which is in Title II of the Student Right-to-Know and Campus Security Act of 1990, and amendments to this act in 1998 which renamed it the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act (Fisher, Hartman, Cullen, & Turner, 2002). One of the many provisions of these acts include the requirement for colleges and universities with Title IX funding to report their policies on educational programs aimed at promoting awareness of sexual violence, leading to proliferation of campus programs throughout the country (Coker et al., 2011; Cook-Craig, Coker, et al., 2014). These programs traditionally utilized the methods of risk reduction for women as potential victims, prevention programs for men as potential perpetrators, and educational programs for all students (Lonsway et al., 2009).

The risk reduction programs for women traditionally taught skills to reduce risks for victimization and provided information on consequences of rape victimization and resources available (Gidycz et al., 2002). Self-defense techniques have commonly been used in these programs, because studies have shown that strategies such as physical resistance and verbal resistance are effective in avoiding rape victimization (Ullman, 2007). However, an evaluation of a risk reduction program with a self-defense component for college women (N=500) found no significant difference in rates of victimization in program participants and students in the control group who were wait-listed for the program (Gidycz et al, 2006). Programs for college men often provide content that encourages participants to be accountable for their behavior and teach them how to intervene when other men are sexually aggressive (Gidycz et al., 2002). While past evaluation studies found that some programs evidenced positive changes in beliefs and attitudes about rape and self-reported likelihood to rape among college men, they

have not been connected to reduction of actual violence (Breitenbecher, 2001; Gidycz et al., 2002). Finally, general rape education programs are mostly conducted with mixed-gender audiences for college as well as community settings (Morrison et al., 2004). Researchers have agreed that these educational programs showed effectiveness in the short-term to bring about positive changes in attitudes, beliefs, and knowledge about rape (Breitenbecher, 2001; Gidycz et al., 2002; Morrison et al., 2004). Overall, the traditional sexual assault prevention programs did not produce promising results; in particular, they lack evidence that demonstrates changes in behavior and reduction in actual rates of violence.

For high schools, Senn (2013) suggests that since the early inception of personal violence prevention programming, the focus has been more on dating violence than sexual violence. Many dating violence prevention programs were implemented in high schools and evaluated over the years. Hickman et al. (2004) reviewed evaluation studies of dating violence prevention programs and found that most programs for teens focused on increasing knowledge about dating violence and its impact as well as improving attitudes on the issue. Of those, one dating violence program aimed at increasing knowledge of dating violence and services for victims and improving conflict resolution skills among 11th and 12th grade students with a 5-session curriculum in the required health classes presented by their regular teachers (Avery-Leaf et al., 1997). The authors reported significant decrease in attitudes justifying male-to-female dating violence for program participants, but no significant difference was found in rates of perpetration, victimization, and injuries between treatment and control groups. While this was one of

the rare studies that evaluated changes in rates of perpetration and victimization, the program showed no effectiveness in that regard.

There are three dating violence prevention programs for high school age youth that are worth mentioning: Safe Dates, Shifting Boundaries, and the Fourth R. Unlike traditional programs described above, these programs provide community-based activities in addition to delivery of educational curriculum to students. The Safe Dates program, conducted for 8th and 9th-grade students, focuses on changing social norms related to dating violence, reducing gender stereotyping, and improving conflict management skills through school-based activities such as poster campaigns, theatrical presentations, and 10-session curriculum (Foshee et al., 1998). The community components included seminars for local service providers about teen dating violence. Safe Dates has been evaluated for effectiveness at reducing rates of dating violence and mediating factors were assessed over three years in four waves of surveying a total of 1,566 adolescents (Foshee et al., 2005). Significant treatment effects were observed at all four follow-up phases on perpetration of psychological abuse as well as moderate type of physical and sexual violence along with victimization of moderate type of physical violence. Authors reported that changes in norms of dating violence and gender roles mediated program effects along with the awareness of local resources.

Shifting Boundaries targets middle schools and incorporates the building-based restraining orders, increased monitoring of identified “hotspots” in the building, and posters to raise awareness (Taylor, Stein, Mumford, & Woods, 2013). In the study that involved a sample 6th and 7th grade students ($N = 2,655$), a multi-level, longitudinal, experimental design was used with 30 middle schools randomly assigned to four different

groups: building-based intervention only, classroom-based intervention only, combined intervention, and control group. Taylor and colleagues (2013) reported positive results for the building-based intervention. Building-based only or combined intervention both reduced sexual violence victimization by peers or dating partners significantly more than other groups. Building-only intervention was also effective in reducing frequency of sexual harassment victimization and perpetration as well as peer sexual violence perpetration (Taylor et al., 2013).

The Fourth R is a Canadian program which delivers a 21-session curriculum on healthy relationships in the regular health class components by trained teachers (Wolfe et al., 2009). The program's school-based components include additional training for teachers on dating violence, information for parents, and "safe-school committees" by students. A cluster randomized trial involving 9th grade students ($N = 1,722$) revealed that, after 2.5 years, the rate of physical dating violence was approximately 2.5 times higher in students in control schools (9.8%) compared to intervention schools (9.8% vs 7.4%, $p = .05$) (Wolfe et al., 2009).

Shift from the Traditional to Bystander Programs

In sum, the evaluation studies for traditional programs provide some positive results in changing knowledge and attitudes associated with personal violence. However, a large majority of evaluation research of these programs did not measure changes in behavior and rates of violence as outcome, or even when included, did not demonstrate positive changes. Further, traditional programs primarily focused on the individual level of change by providing information about personal violence such as consequences, laws, and resources available, and teaching skills to deal with conflicts. In contrast, programs

that involved community components demonstrated reduction in rates of violence (Foshee et al., 1998; Foshee et al., 2000; Taylor et al., 2013; Wolfe et al., 2009).

In the 1990s, the focus of school violence prevention programming began shifting from individuals directly involved in violence to the community, or bystanders, due to school shootings that shed light on peers and adults who saw warning signs or knew of intentions but did not act (See Stueve et al., 2006, for review). During that period, many practitioners implemented traditional programs for sexual and dating violence prevention in schools and universities. The bystander approach was adopted from bullying prevention in middle schools to sexual violence prevention for colleges where practitioners and researchers were searching for a new idea (Katz et al., 2011). This community focus is essential to bystander strategies in personal violence prevention because involving all community members in prevention efforts promotes awareness of violence to a wider audience and increases reception of messages than targeting those who are at high-risk for victimization and perpetration (Banyard, Moynihan, & Plante, 2007; Banyard et al., 2004).

With this background, bystander programs to prevent personal violence were originally developed as an innovative new approach to thwart the initial occurrence of sexual violence for college population in the 1990s and proliferated in recent years (e.g. Banyard et al., 2007; Coker et al., 2011; Hamby et al., 2014; Katz et al., 2011). Research literature so far suggests that bystander programs do have positive impacts on participants in various ways. In addition to changes in knowledge and attitudes measured in traditional prevention programs, the unique outcomes measured by bystander programs include outcomes related specifically to bystander intentions and behaviors as displayed

in Table 1. For example, one of the college programs, Bringing in the Bystander®, founded by the University of New Hampshire, has been evaluated rigorously by the team of researchers who are affiliated with the program. One of their evaluation studies examined the bystander training of student leaders on campus ($N = 196$) and found that program participation was associated with increased confidence in being an active bystander, willingness to help, and positive views of bystander intervention (Banyard, Moynihan, & Crossman, 2009). Banyard (2008) also examined the effectiveness of the program among the general undergraduate students ($N = 389$) and discovered that more positive outcomes in bystander behaviors were associated with such characteristics as being female, knowing a victim, and having greater sense of community.

The CDC (2014) has reported that bystander programs are promising as they meet the principles of effective prevention strategies. Based on a review of prevention programs targeting youth delinquency and violence, substance use, and risky sexual behavior, effective programs are found to be comprehensive, use various teaching methods, provide sufficient dosage, are theory-driven, provide opportunities for positive relationships, are appropriately timed, are socio-culturally relevant, include outcome evaluation, and are conducted by well-trained staff (Nation et al., 2003). As the efforts in evaluating bystander programs continue, new research results continue to be published. Further, driven by the promises and needs for evidence-based programs, some college-based programs have also been adapted to and implemented in high schools (Cook-Craig, Coker, et al., 2014; Katz et al., 2011).

Table 2.1

Bystander Programs Targets, Methods, Outcomes Measured, and Findings

Programs	Author (year)	Target Issues Setting Sample Methods	Outcomes Measured	Findings
Bringing in the Bystander	Banyard (2008)	Sexual violence College 389 undergraduate Pre- and post-tests	Knowledge, rape myth acceptance, college date rape attitude, bystander attitudes, bystander behaviors, bystander efficacy, decisional balance, sense of community, perceived control, extroversion	More positive bystander outcomes were related to being female, having taken a class on sexual violence, knowing a victim, higher levels of extroversion, interpersonal and sociopolitical control, greater sense of community, greater knowledge on sexual violence, and lesser rape myth acceptance. Empathy with victims did not remain significant when predicting bystander behavior over time
	Banyard, Eckstein, & Moynihan (2010)	Sexual violence College 389 undergraduates Pre- and post-tests	Readiness for change, knowledge, rape myth acceptance, college date rape attitude, bystander attitude and behavior, bystander efficacy, decisional balance, sense of community, perceived control	Program participants moved toward more readiness to change. Program participants with more readiness to change reported more prosocial behavior, less likely to believe in rape myth, more likely to feel effective in intervening, and more likely to be positive on bystander intervention.
	Banyard, Moynihan, &	Sexual violence College	Bystander efficacy, rape myth acceptance, willingness to help,	Program participants reduced rape myth acceptance, increased bystander

	Crossman (2009)	196 undergraduate campus leaders Pre- and post-tests	pros and cons of being an active bystander, decisional balance	confidence, increased willingness to help, increased positive perception on bystander intervention.
Coaching Boys Into Men	Miller et al. (2012)	Dating violence High school 1,513 male athletes Randomly selected sites Pre- and post-tests	Recognition of abusive behavior, gender-equitable attitudes, intention to intervene, positive and negative bystander intervention, abuse perpetration	Program participants had positive change in intention to intervene, higher level of positive bystander intervention, and recognition of abusive behavior.
Green Dot	Coker et al. (2011)	Sexual violence College 7,945 undergraduates Cross sectional survey	Intervention exposure, rape myth acceptance, dating violence acceptance, observed bystander behaviors, active bystander behaviors	Trained students had lower rape myth acceptance and dating violence acceptance, and reported more observed bystander behaviors and engaging in more active bystander behaviors.
Men's Program	Gidycz, Orchowski, & Berkowitz (2011)	Sexual violence College 635 men in the 1 st year dormitory Pre- and post-tests, 4 and 7 months follow-up	Rape myth acceptance, hypergender ideology, peer disapproval for sexual aggression, peer engagement in bystander intervention, association with aggressive peers, modeling of aggressive behavior, reinforcement for aggression, personal engagement in bystander intervention, support for rape prevention efforts, accurate identification of rape scenarios, assessment of sexual aggression.	Program participants reported less reinforcement for engaging in sexually aggressive behavior, fewer associations with sexually aggressive peers, and less exposure to sexually explicit media. Men with hx of sexual aggression had less reinforcement of behavior at 4 months but spiked back up at 7months.

The Men's Program (One In Four)	Langhinrichsen-Rholing et al. (2011)	Sexual violence College 213 male freshmen Pre- and post-tests	Bystander efficacy, bystander willingness to help, rape myth acceptance	Program participants reduced rape myth acceptance, and reported greater changes in bystander efficacy and willingness to intervene.
Mentors in Violence Prevention	Katz et al. (2011)	Gender-based violence High school 1,744 students (9-12 th) in two high schools Matched comparison group Pre and post-tests	Student Perceptions of Wrongfulness, Student Self-Report of Taking Action	Program participants were more likely to identify violence as wrong and more likely to intervene.
	Ward (2001)	Gender-based violence High school 209 students (9-12 th) Mixed method design with pre and post-tests case study	Knowledge change attitudes on gender violence, self-efficacy, student satisfaction	Program participants scored significantly higher for knowledge scale at post-test. Program participants showed significantly less tolerance for sexist or violent behavior toward females. Program participants had increased confidence in themselves to prevent and/or confront sexist and violent behavior.

Tenets of the Bystander Programs

The bystander programs educate participants to become aware of personal violence as a community problem by providing impactful information such as statistics, causes and consequences, and examples of incidents (Banyard et al., 2007; Edwards, 2009; Moynihan et al., 2015). Through this learning process, program participants are encouraged to recognize personal violence as an urgent problem that needs intervention in their own community. More specifically, the bystander approach commonly seeks to engage all community members to safely intervene when they witness risky situations (Banyard et al., 2004; Edwards, 2009; Katz et al., 2011). To that end, programs are designed to address the steps of bystander intervention suggested by Latané and Darley (1970): noticing and interpreting the event as an emergency, feeling personally responsible to intervene, and possessing the skills and resources to act.

In order for bystanders to act, they must be able to recognize the opportunity to intervene. To help participants *notice situations and interpret them as emergency*, Green Dot, for instance, portrays a pattern of behavior typically seen in sexual assault perpetrators, including target selection, approach and evaluation, separation, and pressuring for sex, from the work of Stephen M. Thompson (Edwards, 2009). Although program participants are not necessarily victims, perpetrators, or those who are at risk of becoming one, the programs are designed for all them to feel *personally responsible to intervene*. In many bystander programs, participants are asked to imagine their loved ones being harmed to encourage them to feel personal connection to violence (Edwards, 2009; Katz, 1995). One bystander program designed for male college students shows a video depicting male-on-male rape to solicit empathy for the victim (Langhinrichsen-

Rolling, Foubert, Brasfield, Hill, & Shelley-Tremblay, 2011). As active bystanders, they may intervene when noticing red flags indicating something violent might occur or when the situation actually turns violent, may speak up against comments that support violence, and support victims in the aftermath of violence (Banyard, 2008; Edwards, 2009). These actions do require *skills and confidence*. Bystander programs universally emphasize the importance of skill acquisition and provide opportunities for participants to learn and practice skills they can use as active bystanders. For example, the aforementioned Bringing in the Bystander includes interactive role-plays to help participants practice safe ways to intervene in risky situations and support someone who is hurt (Banyard et al., 2007).

Additionally, another common component of bystander programs is the focus on social norm change in the broader community and societal contexts. Informed by research that identifies norms of the community as a significant factor that leads to occurrence of personal violence (Schwartz & DeKeseredy, 1997; 2000), the bystander approach posits that transforming the social norms of personal violence from supportive to intolerant is key in preventing it (Banyard et al., 2004; Edwards, 2009; Fabiano, Perkins, Berkowitz, Linkenbach, & Stark, 2003). While it is necessary to help individuals change attitudes and gain knowledge and skills, the bystander approach challenges programs to help make changes at different levels of socio-ecology, including individual, relationship, community, and society levels (Banyard, 2011; Banyard et al., 2004; Dahlberg & Krug, 2002).

Bystander Programs in the High School Setting

As described above, bystander programs to prevent personal violence, with sexual violence as a particular focus, were originally developed for college campuses. To date, there are three bystander programs for prevention of personal violence that have been implemented and evaluated in the high school setting: Mentors in Violence Prevention (MVP), Coaching Boys Into Men (CBIM), and Green Dot. Below, MVP and CBIM are briefly reviewed followed by more detailed information on Green Dot, which is the program conducted at the high schools where data were collected for this study.

Mentors in Violence Prevention (MVP). The MVP program was originally developed to educate male college athletes to engage other men on campus in efforts to prevent violence against women (Katz, 1995). In the late 1980s, to develop a bystander-focused prevention program for university students, Katz and his colleagues looked to a middle school violence prevention program which considered bystanders as contributors in both perpetration and prevention of violence (Katz et al., 2011). MVP focused on training male athletes as campus leaders to prevent gender-based violence, such as sexual assault, dating violence, and gay-bashing, but later included female leaders as they expanded the program from colleges to high schools (Katz et al., 2011). The MVP-trained student leaders serve as mentors and facilitate discussions on topics such as dating violence prevention and harassment awareness, and conduct MVP sessions with younger students (Katz et al., 2011). The results of their program evaluation using a non-experimental pre-post design with 9-12th grade students ($n = 209$) revealed that program participants had significantly more knowledge about the topic and less tolerance for sexist and violent behavior as well as increased confidence as active bystanders than the

control group (Ward, 2001). More recent evaluation using pre- and post-tests with matched comparison groups (9-12th grade, $n = 1,744$) also found a positive outcome: Program participants were more likely to identify violence as wrong and to intervene in situations involving gender based violence compared to those who did not attend the program (Katz et al., 2011). The MVP's evaluation studies have not reported actual change in bystander behaviors or rates of violence.

Coaching Boys Into Men (CBIM). The main goal of CBIM is to promote gender equitable attitudes and norms among high school male athletes by using trained coaches as role models of active bystander behaviors (Miller et al., 2012). By encouraging youth to respect both genders and providing models of behavior, the program aims to increase youth's intervention in situations involving peer perpetration of dating violence. The program involved training for coaches (60 minutes) on how to discuss violence against women with student athletes and short (10-15 minutes) weekly discussions with athletes about dating violence and respecting women and girls. The cluster-randomized trial study of CBIM with high school athletes ($n = 2,006$) resulted in a positive outcome for program participants in recognition of abusive behaviors, intention to intervene as bystanders, and active bystander behaviors when witnessing peer dating violence (Miller et al., 2012). A one-year follow-up cluster randomized control trial of CBIM with 9-11th grade male athletes ($n = 1,513$) showed mixed results. The athletes in treatment condition reported less dating violence perpetration and less behavior supportive of their peers' dating violence, such as laughing about abuse, than those in the control group (Miller et al., 2013). However, no difference was observed between

treatment and control groups on intention to intervene, gender-equitable attitudes, recognition of dating violence, and active bystander behaviors (Miller et al., 2013).

Green Dot: Bystander Violence Prevention Program

Green Dot is a research-informed and theory-based bystander violence prevention program developed by Dr. Dorothy Edwards at the University of Kentucky's (UK) Violence Intervention and Prevention (VIP) Center aiming at reducing dating and sexual violence by increasing active bystander behaviors on campus (Coker et al., 2011). According to Edwards (2009), the Green Dot strategy perceives "all community members as potential bystanders, and seeks to engage them, through awareness, education and skills-practice, in proactive behaviors that establish intolerance of violence as the norm, as well as reactive interventions in high-risk situations – resulting in the ultimate reduction of violence"(p.27). The Green Dot bystander program is built on the theoretical foundation comprised of several bodies of research: Bystander effect theory, perpetrator research, diffusion of innovations, and marketing research. In particular, what differentiates Green Dot from other bystander programs such as MVP and CBIM is its use of diffusion of innovations and marketing research as part of the theoretical base of the strategy.

Diffusion of innovations is an idea that new knowledge and practice go through certain channels of communication over time in a social network before being adopted by its members (Rogers, 2003). Based on this theory, Green Dot focuses on providing training to individuals who are influential in a given community, so they will adopt active bystander behavior that can prevent personal violence. The assumption is that the newly adopted practice would spread to others around the influential members, eventually

leading to the larger community change in which the social norm becomes that of intolerance of violence (Edwards, 2009). The Popular Opinion Leader (POL) strategy, which is used in Green Dot to identify influential individuals in social groups, is an effective means through which the pace of diffusion of innovations can be accelerated (Valente & Pumpuang, 2007). This technique has been used in public health practices, such as HIV prevention education using peer POLs (Kelly, 2004).

A body of marketing research informs Green Dot of how to meet the needs of the audience and continue engagement while providing them with crucial message (Davies & Chun, 2002; Merrilees & Miller, 2008). For example, traditional programs that focus on men and boys as perpetrators and women and girls as victims often meet resistance from participants and raise concerns for victim safety (Gidycz et al., 2006). In Green Dot, gender-neutral language is used in order to gain more buy-in from the broader community as violence such as sexual and dating violence have often been termed “violence against women” which result in resistance and lack of participation by men (Edwards, 2009). While gender-neutrality when addressing violence, such as dating violence and sexual assault, is often criticized (Katz et al., 2011; McCauley et al., 2013), Green Dot continues to stay gender-neutral in its general approach to focus on the marketing and outreach methods useful in reaching both males and females.

As described earlier, bystander effect theory explains inhibition to bystander intervention in emergencies and steps to promote active bystander behavior (Darley & Latané, 1968; Fischer et al., 2011; Latané & Darley, 1970) and informs Green Dot in its approach as do many other bystander strategies in prevention of personal violence. Participants in the Green Dot bystander training learn about bystander effects such as

pluralistic ignorance and evaluation apprehension that they commonly experience and learn how to get around these effects so that they can be active bystanders. Bystander effect theory is described in detail later in the section on theories.

Further, past research on perpetrators of intimate partner and sexual violence (Johnson et al., 2006; Lisak & Miller, 2002) helps the Green Dot program to train participants on how to notice potentially risky situations based on perpetrator behavior patterns. For example, by providing information about behavioral cues, such as how perpetrators approach and isolate targets, the individuals trained by Green Dot are likely able to identify red flags that could lead to sexual violence which allows them to proactively intervene before violence occurs (Edwards, 2009).

Green Dot for high schools. Implementation and evaluation of Green Dot in Kentucky high schools were made possible because of a state-wide collaborative effort involving multiple partners on sexual violence prevention. In 2005, Kentucky became one of the unfunded participants in CDC's EMPOWER (Enhancing and Making Programs Work to End Rape) program which assisted the commonwealth with capacity building to engage in primary prevention of sexual violence perpetration (Cook-Craig, Millspaugh et al., 2014). With a 5-year research grant from the CDC in 2009, University of Kentucky, along with the state sexual assault coalition and 13 Rape Crisis Centers (RCCs), began the process of selecting, implementing, and evaluating a primary prevention program in high schools around Kentucky. During the early planning stage, Green Dot was chosen by various stakeholders including researchers, funders, and local practitioners, as a program with a potential to prevent perpetration of sexual violence for high school population (Cook-Craig, Millspaugh, et al., 2014).

In the high school setting, Green Dot consisted of two main parts: persuasive speech for the general audience and bystander training for POLs, both provided by the Green Dot Educators hired by local RCCs. A persuasive speech was presented to students and school personnel to promote awareness of personal violence as an urgent issue for the school community and to motivate them to become involved in Green Dot. The speech was often given at large student assemblies, multiple classrooms, and faculty and staff meetings, depending on the arrangement made with each school.

The in-depth bystander training was conducted for POLs, students who were identified by teachers, staff, and students as leaders in their respective peer groups. The goal of the POL numbers was about 15% of the student population based on the diffusion of innovation literature to test the diffusion of messages and behaviors that encourage bystander intervention (Cook-Craig, Coker et al., 2014). The bystander training utilized various methods of instruction including didactic lectures, small group discussions, interactive exercises, audio-visual presentations, and role-plays, and educated the POLs about pervasiveness of personal violence, their connection to the issue, how to recognize risky situations, bystander effects that inhibit intervention, and how to overcome bystander effects in order to become active bystanders (Edwards, 2009). The POLs practiced how to safely and effectively intervene in potentially violent situations with reactive bystander behavior, such as directly confronting a peer who is sexually harassing someone else or distracting a potential perpetrator from acting aggressively. In the meantime, the POLs also had opportunities to discuss and practice proactive bystander behaviors including actions that promote social norms of safety and intolerance

of violence within the school community, such as talking with friends about safety and posting a Green Dot message in social media (Edwards, 2009).

Additionally, the POLs participated in two booster sessions, 1 month and 3 months following the training. Further, each region also had its own Community Prevention Team (CPT), consisting of representatives of the local community that support the change of student behavior and school climate around the issue of personal violence. The CPT members generally involved representatives from local businesses, social service agencies, educational institutions, religious organizations, and parents of students attending the implementation high school. The CPTs frequently included the implementation high school personnel and occasionally had the control school personnel as well.

Evaluation of Green Dot. So far, evaluation studies have been conducted on Green Dot for both college and high school settings. In a college setting, using a cross sectional sample of randomly selected undergraduate students ($N = 7,945$), Coker et al. (2011) examined if exposure to Green Dot contributed to students' behavior as bystanders. The valid survey responses ($n = 2,504$) included 46% of students who were exposed to a Green Dot speech and 14% reported participating in the bystander training in the 2 years prior to the survey. The study discovered that students trained as bystanders ($F = 6.29, p = .01$) had lower rape myth acceptance than non-trained students, but students with speech exposure only ($F = 2.54, p = .11$) did not differ significantly from non-trained students. In terms of behavior change, students who received the bystander training ($F = 95.97, p < .001$) as well as those who heard Green Dot speech ($F = 18.26, p < .001$) reported significantly more active bystander behaviors in comparison

with students who had no program exposure. Further, comparing a college campus with the Green Dot bystander program ($n = 2,768$) and two campuses without it ($n = 4,258$), a recent study revealed that a campus with Green Dot had significantly lower rates of victimization and perpetration in total personal violence, which included unwanted sexual activities, sexual harassment and stalking, physical dating violence, and psychological dating violence (Coker, Fisher et al., 2015). More specifically, the significant difference was observed between the two groups on sexual harassment and stalking victimization and perpetration as well as total victimization.

From the parent study of this dissertation, there are several manuscripts in preparation and under review related to evaluation of Green Dot in high schools. As briefly discussed in Chapter 1, currently available analysis results reveal a statistically significant reduction in rates of violence perpetration. For example, over the three year period, perpetration of total violence, which included dating violence, sexual violence, sexual harassment, and stalking, was reduced by approximately 40% in schools that received Green Dot compared to control schools where reduction was about 4% (Coker, Bush et al., 2015). When the analysis focused only on sexual violence perpetration, the reduction rate was even more remarkable: 60% over time ($p < .0001$) in implementation schools compared to the slight increase in control schools. While the early results show effectiveness of Green Dot in general, effectiveness for specific groups, including polyvictims and polyperpetrators, is ripe for investigation.

Summary

Learning from the efforts taken on college campuses, bystander programs, such as Green Dot, are conducted in high schools as a new way to stop personal violence from

occurring in the first place. Although limited in number of studies thus far, bystander programs in both college and high school settings commonly show promising results: positive changes in attitudes and knowledge related to personal violence, bystander intentions to intervene, and actual bystander behaviors. Additionally, a small number of evaluation studies revealed reduction in rates of violence, including the 40% reduction in overall personal violence among high school students in the parent study of this dissertation (Coker, Bush et al., 2015).

Theories: Explaining the Link between Experience and Behavior

In this section, bystander effect theory is first described as it has been the foundation of many bystander programs, including Green Dot, as described above. To address the gap of knowledge in bystander effect theory in explaining relationship between active bystander behaviors and individual experience of violence, selected literature from prosocial behavior research is also discussed. Finally, social identify approach is introduced as a framework in the current study to explain the link between active bystander behaviors and polyvictimization, polyperpetration, or victimization-perpetration in personal violence.

Bystander Effect Theory

Bystander effect theory provides an explanation for lack of individual action in emergency situations. Bystander effect theory assumes that individuals are inhibited to intervene in emergency situations when others are present (Latané & Darley, 1968, 1970; Latané & Nida, 1981). The reason why the theory focuses on the inactive rather than active bystander behaviors can be seen in the history of how the thinking around bystander behaviors has evolved.

Historical background. Bystander effect theory traces its origin to the case of Kitty Genovese who was stabbed to death in New York City in 1964 (Darley & Latané, 1968; Manning, Levine, & Collins, 2007). The case received much attention because the New York Times reported weeks afterwards that there were 38 people who watched the woman being attacked but did nothing to help in any way, not even by calling the police (Darley & Latané, 1968). While the norm at the time was to blame the inaction of individual onlookers as deviant and indifferent, Darley and Latané (1968) hypothesized that because each witness was aware of the presence of other witnesses, the responsibility to act was diffused, hence, no action took place. Bystander effect theory was thus developed to explain why individuals fail to help others in emergency situations (Latané & Darley, 1970). More recent scholarly work by Manning et al. (2007) revealed that the story of the 38 witnesses was an urban myth: the actual murder took place out of sight of the public, only a few people witnessed the attack, and some of them actually called the police. Nevertheless, the body of research that stemmed from this case led to bystander effect theory providing the foundation for the current understanding of bystander behaviors and programs that aim at violence prevention.

Primary assumptions. Latané and Darley (1970) suggest that bystanders who witness emergency situations are faced with a decision to act or not to act, weighing the cost of both. In this psychological process, bystander effect theory proposes that there are three influences for bystander inaction when others are present: pluralistic ignorance, evaluation apprehension, and diffusion of responsibility.

The basic premise of *pluralistic ignorance* is that people tend to do what others around them do. When others do not act, it signals to the bystander that the situation is

not that critical or that the expected norm is inaction (Latané & Darley, 1970). Particularly if the situation is ambiguous, although possibly dangerous, bystanders often fail to help as they look to others for cues for action or inaction, and thus pluralistic ignorance occurs. *Evaluation apprehension* suggests that the presence of others can inhibit action because bystanders fear that their actions may be judged negatively by others (Latané & Darley, 1970; Latané & Nida, 1981). The bystander who decides to act may risk embarrassment if the situation is not actually an emergency and thus it shows that the bystander misjudged the need for intervention. Finally, *diffusion of responsibility* can be viewed as a means of reducing the psychological cost associated with inaction. When others are present, such costs are shared and nonintervention becomes more likely. The knowledge that others are present and available to respond, even if the individual cannot see or be seen by them, allows the shifting of some of the responsibility for helping others (Darley & Latané, 1968; Latané & Darley, 1970).

As described below, these assumptions of bystander effect theory attracted many studies in social psychology since the classic Genovese case, providing a foundation to understand bystander behaviors in social contexts.

Bystander effect research. Studies on bystander effects were traditionally conducted to reveal moderating factors that lead to bystander inaction. Over the years, however, researchers also uncovered factors that attenuate bystander effect. The factors extensively examined in numerous studies include group size (Bryan & Test, 1967; Latané & Darley, 1968), level of emergency (Clark & Word, 1974; Piliavin, Rodin, & Piliavin, 1969), level of ambiguity (Schwartz & Gottlieb, 1976; Solomon, Solomon, &

Stone, 1978), costs of helping (Chekroun & Brauer, 2002), and level of bystander competence (Bickman, 1971; Cramer, McMaster, Bartell, & Dragna, 1988).

There are three major gaps in the bystander effect research: lack of youth in study samples, lack of variety in emergency situations, and lack of individual factors of bystanders.

Lack of youth in study samples. A great majority of study samples in bystander effect research have been college students (e.g. Clark & Word, 1974; Latané & Darley, 1978; Levine, Prosser, Evans, & Reicher, 2005), if not naïve adult participants in the community (e.g. Bryan & Test, 1967; Chekroun & Brauer, 2002; Piliavin et al., 1969). Convenience may be the major reason why adults and college students are almost exclusively used in bystander effect research. When study participants are 18 years or older, it removes the complication of considering human subject research protection for children, a vulnerable population, which requires researchers to follow special federal regulatory requirements (Public Welfare Protection of Human Subjects, 2009). In social science research, college students are generally overrepresented in samples because of their accessibility, as they often take courses in the field such as psychology and sociology (e.g. Kury & Winterdyk, 2013). However, generalizability of study findings is limited to the population represented by the samples: If samples include only college students, the findings can be applied only to college student populations. Thus, the lack of high school students in the samples of bystander effect studies demonstrates a dearth of research knowledge on bystander behaviors among this particular population.

Lack of emergency situation varieties. Most bystander studies, particularly before the 1980s, did not use situations involving violence as an emergency scenario in the

experiments. For instance, the emergency included situations such as someone having seizure (Darley & Latané, 1968; Latané & Darley, 1968), smoke starts filling in a room (Latané & Darley, 1968), electric shock and machine overturning (Clark & Word, 1974), a cabinet falling on a person (Solomon et al., 1978), and someone falling while walking (Levine et al., 2005). Only a small number of studies simulated situations that involved personal violence. One such example is the experiment in which male college students were strategically placed to witness a staged sexual assault, which found that significantly more bystander intervention occurred among those in the group of three to four compared to those who were alone (Harari, Harari, & White, 1985). In another experiment, the confrontational situation between a male and female that posed more danger (i.e. larger versus smaller male) resulted in more bystander intervention regardless of presence of others (Fischer, Greitemeyer, Pollozek, & Frey, 2006).

Further, emergency situations that involved personal violence in bystander effect research require that the bystanders be in physical proximity to the emergency. Although bystanders can be present in the midst of personal violence incidents, it is crucial to note that personal violence, in particular dating or partner violence and sexual assault, often occur in private (e.g. Dobash & Dobash, 2003). Additionally, the nature of personal violence makes the emergency appear more ambiguous and thus less likely for bystanders to do something about it. Because of these factors, it may be common for a bystander to witness the effects of personal violence on someone after the incident already happened rather than an actual incident. Therefore, examination of actively helpful behavior of bystanders in the aftermath of harmful and possibly violent situations that leave people in distress may be more practical in order to understand bystander behavior in situations

involving personal violence. As defined earlier, in this study, a bystander is not necessarily physically present in the incident but could learn about it afterwards. It is important to consider this dimension of bystander behavior, as most adolescent victims of personal violence confide in their friends rather than adults, including teachers, parents, and service providers after experiencing personal violence such as dating violence (Ashley & Foshee, 2005; Ocampo, Shelley, & Jaycox, 2007).

Lack of individual factors of the focal bystander. A small number of studies did include individual characteristics of bystanders which largely focused on gender (Latané & Dabbs, 1975; Solomon et al., 1978) and race (Gaertner, Dovidio, & Johnson, 1982; Sucier, Miller, & Doucet, 2005). Another major individual characteristic, sexual orientation, has not yet been examined.

Additionally, extant bystander effect literature has not addressed association between individuals' experience of personal violence and their active bystander behaviors in situations involving personal violence. Being personally connected to the victimization experience, either by being victimized directly, by knowing someone who was victimized, or by knowing the potential victim, seems to contribute to one's likelihood to act to prevent violence. For example, studies with college samples found that bystanders were more likely to intervene if they knew the potential victim (Burn, 2009) and if they knew someone who was victimized (Banyard, 2008; McMahon, 2010). These studies did not explore participants' direct experience of victimization or perpetration. To date, there is one study that examined direct experience of victimization and active bystander behavior. A community sample of adults who were abused as children were more likely than non-victims to intervene as active bystanders when faced

with situation involving a child being maltreated (Christy & Voigt, 1994). What has not yet been explored is the relationship between active bystander behavior and experience of violence perpetration as well as multiple experiences of violence.

Prosocial Behavior Research

Reviewing literature on prosocial behavior research is necessary to consider what has not been addressed in bystander effect research. Prosocial behaviors studies attempt to explain bystanders being helpful to someone in distress outside of the actual incident in which someone is assaulted or in imminent danger. These situations are primarily examined in often based on altruism and empathy as motivations to help rather than bystander effect as inhibition to help.

Victims of trauma and their prosocial behaviors. Researchers agree that people who have suffered from trauma show tendencies to be helpful to others (Staub, 2003; Staub & Vollhardt, 2008). In order to better understand the association between human suffering and victims' resilience, studies of traumatic events, particularly mass trauma such as the terrorist attack in the East Coast on September 11, 2001 (e.g. Bonanno, Galea, Bucciarelli, & Vlahov, 2007), and Hurricane Katrina that devastated the Deep South (e.g. Rodriguez, Trainor, & Quarantelli, 2006), attracted research efforts in the United States over the last decades. These studies resulted in understanding that people who have experienced trauma are more helpful to others compared to those without. The prosocial behavior of people with traumatic experience is often motivated by altruism born of suffering (ABS) according to Staub (2003) who studied prosocial behavior of survivors of mass suffering, particularly genocide. Staub (2003) asserts that people who have lived through great pain, such as genocide, try to make sense of the senseless pain

by helping others, often committing themselves in activities in their efforts to eradicate violence. Research on ABS and prosocial behavior of trauma survivors tend to focus on trauma suffered collectively, leaving the gap of knowledge on privately suffered pain and ABS (Vollhardt, 2009). Empathy theory focuses and explains individually experienced trauma and survivors' prosocial behavior.

Some researchers argue that prosocial behavior is commonly motivated by empathy (e.g. Eisenberg & Miller, 1987; Hoffman, 1984). Empathy is one's ability to become aware of someone else's internal signals, such as feelings and perceptions, and to give affective response (Hoffman, 1984). Hoffman (1984) further states that the only requirement for one to have empathy for others is "*past* experiences of pain and discomfort" (p.105). Some studies found that the most commonly experienced positive life-change for rape survivors was being able to empathize with others with similar traumatic experience (Frazier, Conlon, & Glaser, 2001; Frazier & Berman, 2008). Thus, it can be argued that individuals who survived traumatic events develop empathy for others in similar situations, leading them to be supportive and helpful.

Examination of relationship between individuals who have personally suffered trauma and their prosocial behavior is extremely scarce in current literature. One rare study by Friedman and Leaper (2010) found that, among a sample of college women who identified themselves as gay/lesbian, bisexual, or queer, those who suffered from more incidents of individual trauma of sexist and heterosexist discrimination reported more likelihood to participate in activities concerning women and sexual minorities.

Perpetrators of violence and their prosocial behaviors. Past research has consistently found a negative correlation between prosocial behaviors and aggression in

various age groups (Crick, 1996; Eron & Huesmann, 1984; McGinley & Carlo, 2007; Persson, 2005). For example, a study which asked about aggressive tendencies and behaviors as well as prosocial tendencies and behaviors of middle and high school students (n=138) found negative correlation between prosocial and aggressive behaviors regardless of types of motivation (i.e. sympathy or compliance) (Carlo, Hausmann, Christiansen, & Randall, 2003). The contexts of these aggressive tendencies and actions were not specified, and thus may or may not include personal violence such as dating violence and sexual assault for individual respondents.

Social Identity Approach as a Theoretical Framework

In this study, the social identity approach will be used as a theoretical foundation to examine the relationship between high school students' own experience of personal violence and their active bystander behaviors. Because a substantial number of high school students are involved in personal violence as victims, perpetrators, or both, considering effects of those experiences on their behaviors as bystanders may provide new insights in prevention efforts using now- flourishing bystander programs. From this framework, bystanders' self-identification as victims or perpetrators likely influences whether or not they act when personal violence is involved. In this section, social identity approach is introduced as a framework to better explain active bystander behavior among youth who have experienced violence in multiple ways.

Historical background. The social identity approach consists of social identity theory (SIT) and self-categorization theory (SCT), and is considered one of the most prominent theories in social psychology (Hornsey, 2008; Turner & Reynolds, 2001). Social psychology is the study of human behavior in social contexts and has advanced

knowledge of human nature within the context of relationships. The social identity approach explains how one's self-identity influences one's behavior through group membership, group processes, and intergroup relations (Hogg, 2006). The concept of self is a cognitive construct, and is the subjective description and evaluation of the individual (Hogg & Abrams, 1998). Turner (1982) asserts that self-concept is not merely a list of subjective descriptions of self but rather a more complicated structure and involves how one perceives the self at the personal level of relationships with certain individuals (e.g. friend, child, and spouse) and at the social level of relationships with certain groups (e.g. nationality, gender, and profession). The primary focus of social identity approach is the social level of identity. Social identity approach contends that:

...belonging to a group (of whatever size and distribution) is largely a psychological state which is quite distinct from that of being a unique and separate individual, and that it confers social identity, or a shared/collective representation of who one is and how one should behave. It follows that the psychological processes associated with social identity are also responsible for generating distinctly "groupy" behaviors, such as solidarity within one's group, conformity to group norms, and discrimination against outgroups. (Hogg & Abrams, 1998, p.3).

First, SIT was developed after the World War II in an effort to understand intergroup relations and processes as an explanation of the horrific human actions that took place during the war, such as Holocaust (Hornsey, 2008). SIT was born out of the frustration felt by a group of mainly European social psychologists who considered the traditional social psychology as too reductionistic, studying the social group only as the

“properties of individuals” (Hogg & Abrams, 1998; Israel & Tajfel, 1972). Henri Tajfel, a psychologist and survivor of the Holocaust, was the main force in developing SIT as psychology of groups during the 1960s and 1970s, and contributed greatly to understand prejudice and conflicts between groups (Hogg, 2006; Hornsey, 2008). The inter-group conflicts that brought about massive and historic human suffering during the war could not be explained by individual psychological maladies or inter-individual issues.

After the death of Tajfel in 1982, SCT emerged out of a scholarly effort to enhance and expand on the explanation of cognitive processes in SIT (Hornsey, 2008). While SIT originally focused on examination of groups and their large-scale processes, SCT, by focusing on cognitive processes such as depersonalization and uncertainty reduction (Hogg & Terry, 2000), extended the theory to describe the subtler influence social identity has on individual behaviors.

Social identity theory (SIT): Primary assumptions. According to SIT, people are born into different groups, or social categories, such as nationality, race, and sex, which cast differential power and status in society (Hogg & Abrams, 1998). These differences, when individuals identify themselves with others in the same category through similar experiences, generate social identity. In his French publication in 1972, Tajfel defines social identity as “the individual’s knowledge that he belongs to this social group together with some emotional and value significance to him of this group membership” (as cited in Hogg & Abrams, 1998, p.7). The emotional sense of belonging can be interpreted as the sense of connection people feel to other members of their group because of the shared experience. In particular, an experience that brings strong emotion, such as trauma, may be a strong bond for any given social category. It may also apply to

a membership that has strong tie to one's beliefs, ethics, and values which can be emotional or otherwise evoke strong opinions and feelings.

The theory proposes that the “us vs. them” mentality of in-group and out-group distinctions occurs when one identifies with similar others (Hogg, 2006). According to SIT, human interactions range from being purely interpersonal on one extreme end to purely intergroup on the other (Hornsey, 2008). This process develops the group distinctions of “us and them” which help individuals identify themselves interpersonally with a specific group from which they derive internal experiences, such as attitudes and emotions. On the other hand, what makes a person distinct from others is the self-concept in intergroup contexts that derives from group membership and resulting emotional and evaluative consequences (Hornsey, 2008). Many earlier studies of SIT found that people act more favorably toward in-group compared to out-group members even when the group formation was based on something insignificant or temporary, such as being in the same group for an experiment (e.g. Tajfel, Billig, Bundy, & Flament, 1971). Social identity processes are motivated by self-enhancement in which individuals compare their group with out-groups and evaluate the value of their own group, often more positively (Hogg, 2006). This process helps explain large-scale group behaviors, including discrimination, inter-group conflicts, and wartime conducts, which signifies the contribution of SIT to the field of social psychology.

Self-categorization theory (SCT): Primary assumptions. Self-categorization theory, as an extension of SIT, further explains the cognitive process of social categorization which generates group-based individual behavior. The concepts crucial to SCT include *prototype*, *depersonalization*, *uncertainty reduction*, and *saliency*.

According to SCT, individual behaviors are influenced by social categorizations, which stem from “prototype-based depersonalization” (Hogg & Terry, 2000, p.123). *Prototypes* are context-based characteristics of a group that often represents the ideal members of that group and distinguish a group as unique from other groups by maximizing within-group similarities and between-group differences (Hogg & Terry, 2000). The process of *depersonalization* removes one’s unique individual characteristics and brings group characteristics to the forefront when the individual identifies with similar others (Levine, Cassidy, Brazier, & Reicher, 2002). Through the process of depersonalization, individuals align their behaviors with the norm of the group. From the SCT perspective, the process of *depersonalization* occurs because of the human need to *reduce uncertainty*. Hogg and Terry (2000) argue that people act due to their need to “reduce subjective uncertainty about one’s perceptions, attitudes, feelings, and behaviors, and ultimately, one’s self-concept and place within the social world” (p.124). As described earlier, self-enhancement, which leads to one’s positive assessment of in-group compared to out-group, is the main motivation for group-based behavior according to SIT. The SCT adds uncertainty reduction as another motivation for group-based individual behavior.

Finally, *saliency* is a key factor in understanding flexibility of individual behavior based on self-categorization. Self-identity is a fluid concept that varies based on the social situation at hand (Turner, Oakes, Haslam, & McGarty, 1994). One’s self-identity is adjusted based on the extent to which a given category is ready for activation (accessibility) and how the social reality is reflected in the category (fit) (Oakes, Turner, & Haslam, 1991). When individuals perceive a high level of fit in a given category, the

intragroup similarities and differences are emphasized while the accessibility combined with the fit would make the category more salient for the moment (Hornsey, 2008).

Certain group membership may become more accessible than others if it is important, frequently used, or perceived to be salient for the particular situation (Hornsey, 2008).

The individual factors such as past experiences and current needs are influential in the categorization process that establishes the social group membership, but they were not addressed in SIT. The process of categorization is

dynamic, varying according to the context, and always defined relative to the perceiver. ...Categories may be fleetingly accessible if they are primed in the situation, or they may be chronically accessible if frequently activated or if people are motivated to use them.

(Hornsey, 2008, p.208)

Understanding the flexibility of self-identity in SCT helps explain how human cognition makes sense of the complex reality in which one lives. One's sense of self can be influenced by various aspects of complicated life experiences which include the experience of violence for some.

The following section attempts to merge understanding of personal violence and bystander behavior based on social identity approach.

The social identity approach, personal violence, and bystander behavior.

Combining SIT and SCT, the social identity approach can explain a mechanism through which people from different social groups in ordinary situations may actually identify with the same category in other contexts.

Because of the in-group-out-group dynamic, a bystander with perpetration experience may see the aggressor in the situation as an in-group member who shares the same experience, beliefs, and attitudes and is thus less likely to stop the aggression from progressing. For the victims, the in-group membership created by shared experiences, particularly trauma such as personal violence victimization, can be a strong motivation to stop escalation of aggression and provide support for someone who may be hurt. For example, a senior female athlete in a high school may not, under ordinary circumstances, socially identify herself with a male freshman with no interest in sports. In an ordinary context, the female senior is likely see this male freshman as an outgroup member. However, if she is a survivor of dating violence, for instance, and witnesses this boy being yelled at by his girlfriend, the accessibility and fit may be activated for her to see him as an in-group member. On the other hand, if she is an aggressor in her dating relationships and witnesses the same situation, she may identify herself with the aggressor and therefore form an in-group membership, and ignore the situation at hand.

Scholars agree that perceived similarity and identification with other victims of trauma promote a greater sense of responsibility that leads to more helping behavior among trauma survivors (Dividio et al., 1997; Staub & Vollhardt, 2008). Some studies found significant association between perceived similarities and helping behavior. For example, in their experiment, Levine et al. (2002) found that college students reported more likelihood to intervene in violent situations when they considered the victim to be an in-group member (students from the same college) when compared to an out-group member (someone from the general community). Further, having similar stressful events was found to be a significant predictor in willingness to help a potential victim in a

hypothetical scenario in one study (Dunkel-Schetter & Skokan, 1990). Another study found that greater perceived similarity was related to greater likability or favorability to the victim which significantly predicted more supportive action (Westmaas & Silver, 2006).

It is also important to note that the shared experience of violence between the bystander and the victim does not have to be the same event, such as surviving the collective violence of the Holocaust or the 9/11 attack. Vollhardt (2009) argues that

perceptions of similarity with victims of events that differ from own experiences will probably not occur as readily, and may depend on the cognitive representation or construal of one's own and the other victim's suffering.

Specifically, depending on the level of abstractness with which suffering is construed, other types of adverse experiences can still be perceived as similar, and understood as common fate. (p.69)

In this way, the bystander who is in the position to help may focus on the more abstract fact that there is pain caused by human acts rather than the specifics of the events in order to perceive someone else in the same category. Although understanding the experience of trauma at this abstract level may require a higher level cognitive process (Vollhardt, 2009), a study has found that trauma survivors extended more help to former out-group members after a new common group identity as survivors was introduced (Dovidio et al., 1997). Thus, a bystander who would otherwise see the victim as someone outside of their own group is likely to help the victim once a new shared group membership is identified.

In regards to perpetrators of personal violence, from the social identity perspective, individuals who perpetrate personal violence would perceive similarities with the potential perpetrator rather than the victim, leading to lack of active bystander behavior that interferes with the violence. As discussed earlier in this chapter, aggressive individuals are less likely to engage in prosocial behavior (Carlo et al., 2003). The theoretical explanation based on the social identity approach can provide a reason for this lack of prosocial behavior: they identify themselves with aggressors and thus see no need to intervene to stop what they are about to do or are already doing. Further, perpetrators of personal violence may be in the same peer groups with the like-minded individuals which makes it difficult for them to confront each other (Sorenson, Joshi, & Sivitz, 2014). When people who are like-minded associate with each other and form peer groups, they also create social norms which may include support for use of aggression. One study revealed that active bystander behaviors in cases of dating violence likely depends if the bystander is a friend with the perpetrator or not (Rayburn et al., 2007).

Further, for the purpose of this study, co-occurrence of violence must be considered. It can be argued that the more experiences of violence one has, either as victims, perpetrators, or both, the more impact they have on his or her behavior. For example, multiple experiences of victimization were found to be positively related to helping behavior in one study. Frazier et al. (2013) found that people with more traumatic experience, compared to those with fewer trauma experiences, engaged in more prosocial behavior including helping someone in need, providing emotional support, and volunteering. While this particular study reported that the majority of participants experienced trauma such as death of loved ones and witnessing family violence in

childhood, it did not specify the number of people who were victims of personal violence such as dating violence, sexual violence, sexual harassment, and stalking. It is possible, however, that the same effect – the more victimization, the more helping – may be revealed for victims of personal violence. If one has been a victim of two types of violence rather than one, the sense of membership in the victim category is even more emphasized so that it may lead to more active bystander intervention. Similarly, if one has perpetrated not only sexual violence but also stalking, perhaps the individual is less likely to respond to a classmate who laughs about hurting a date or less likely to assist someone who is distraught about the sexual assault at a party the night before.

Finally, social identity approach can also explain the link between victimization-perpetration and active bystander behavior. As discussed earlier, one's social-identity is flexible and adjusts based on the evaluation of accessibility and fit (Oaks, Turner, & Haslam, 1991). For a high school student who has been a victim as well as a perpetrator of personal violence, their action or inaction as a bystander depends on which social-identity becomes salient in the given situation.

Summary

Bystander effect theory has been used to explain bystander inaction. Many bystander programs have been developed to prevent personal violence and encourage actions based on knowledge about what inhibits active bystander behavior. Bystander effect research thus far has not been conducted with youth samples and has not examined situations involving personal violence as well as post-emergency scenarios. Unlike bystander effect research, prosocial behavior research has examined what motivates people to act in helping others and has often examined traumatic experience of

bystanders. Upon review of bystander effect and prosocial behavior literature, lack of several factors is clear: high school students as bystanders, personal violence as a context in need of bystander intervention, and experience of co-occurring personal violence among youthful bystanders as an influential factor.

Social identity approach is introduced as a framework for this study to explain the connection between active bystander behavior and bystanders' own experience of personal violence as victims, perpetrators, or both. A prominent theory in social psychology, social identity approach combines SIT and SCT in understanding the role of one's self-identity in social contexts. SIT contends that individuals identify with similar others and distinguish this in-group from out-groups while associating positive values with in-groups. Extending SIT, SCT adds that the self-identity is a fluid concept that allows one to identify with others based on the context at hand. This allows one to identify with others similar to self in one context while may not identify with them in another context.

Socially identifying with others as belonging to the same group has behavioral implications: Past research shows that people are more likely to help others who are perceived to be similar to themselves. Thus, from the perspective of social identity approach, a youth with experience of personal violence victimization may socially identify with a victim and thus try to help as an active bystander. A youth who have been a perpetrator of personal violence, on the other hand, may socially identify with a perpetrator and thus not intervene. A youth with both experience of perpetration and victimization may identify with either victim or perpetrator of the situation depending on what is salient to him or her in that particular context. Further, poly-victims may hold

stronger sense of similarity with other victims and may act more as bystanders than non poly-victims. Similarly, poly-perpetrators may identify with the perpetrator of the given situation more strongly and act less as bystanders compared to non poly-perpetrators.

Conceptual Model of the Study

Figure 2.1 represents a conceptual model with four components that are involved in understanding active bystander behaviors among high school students: co-occurrence of personal violence, individual characteristics, active bystander behaviors, and exposure to the bystander program.

Co-occurrence of personal violence was included as the predictor of active bystander behaviors in this model. This study included several types of violence: psychological dating violence, physical dating violence, sexual violence, sexual harassment, and stalking. The experiences of two types of violence as victims or perpetrators were examined as they contribute to active bystander behaviors based on the social identity approach. These two types of violence victimization and perpetration were identified using network visualization techniques as described in Chapter 4.

The outcome of this model was active bystander behaviors. In this study, the outcome consisted of two types of bystander behaviors: reactive and proactive. Reactive behaviors were bystanders' helpful response to a situation, such as someone harassing another or a friend being hurt by a dating partner. Proactive behaviors did not need any preceding situations but actions that could lead to creating social norms against personal violence, such as having a conversation with friends about healthy dating relationships and participating in a violence prevention event in the community.

The arrow between co-occurring personal violence and active bystander behaviors indicates a direct relationship between the two constructs based on the social identity approach. Victims of personal violence should have higher scores in active bystander behaviors, because they identify themselves with the victims in the same social category even if they do not belong to the same group otherwise. On the other hand, perpetrators of personal violence should have lower scores of active bystander behaviors as they socially identify with the perpetrator.

The exposure to the bystander program, Green Dot, which was conducted at intervention high schools, was modeled as a moderator between co-occurrence of personal violence and active bystander behaviors. Evaluation studies of Green Dot with university students have found students with program exposure to be significantly more active as bystanders (Coker et al., 2011; Coker, Fisher et al., 2015). The program exposure for this study included listening to the program overview speech and participation in bystander training. The bystander trainings were provided to select groups of students who were identified as influential within their peer groups while the speeches were presented to larger audiences to introduce Green Dot to the school community at each implementation site.

Individual characteristics were modeled as confounding variables. They were factors identified in past research as associated with personal violence or active bystander behaviors and included sex, grade, sexual attraction, and exposure to parental partner violence. The dotted arrow from the characteristics to co-occurring personal violence indicates the potential influence on violence by one's unique characteristics, such as being male or female, younger or older, exclusively heterosexual or not, and being

exposed to intimate partner violence between parents or not. Limited research has demonstrated being female as a significant factor for active bystander behavior in a college undergraduate sample (Banyard, 2008). Further, rape myth acceptance and dating violence acceptance were added in the model as individual characteristics that may contribute to bystander behaviors as motivating factors. Past studies have reported that lower rape myth acceptance was related to higher willingness to act as bystanders (McMahan, 2010) and to more active bystander behaviors (Banyard, 2008). Although dating violence acceptance was not significantly associated with program participation in the evaluation study of the Green Dot program for university students (Coker et al., 2011), it was included due to the exploratory nature of the study. Thus, this study focused on sex and these two types of attitudes as additional contributors to active bystander behaviors.

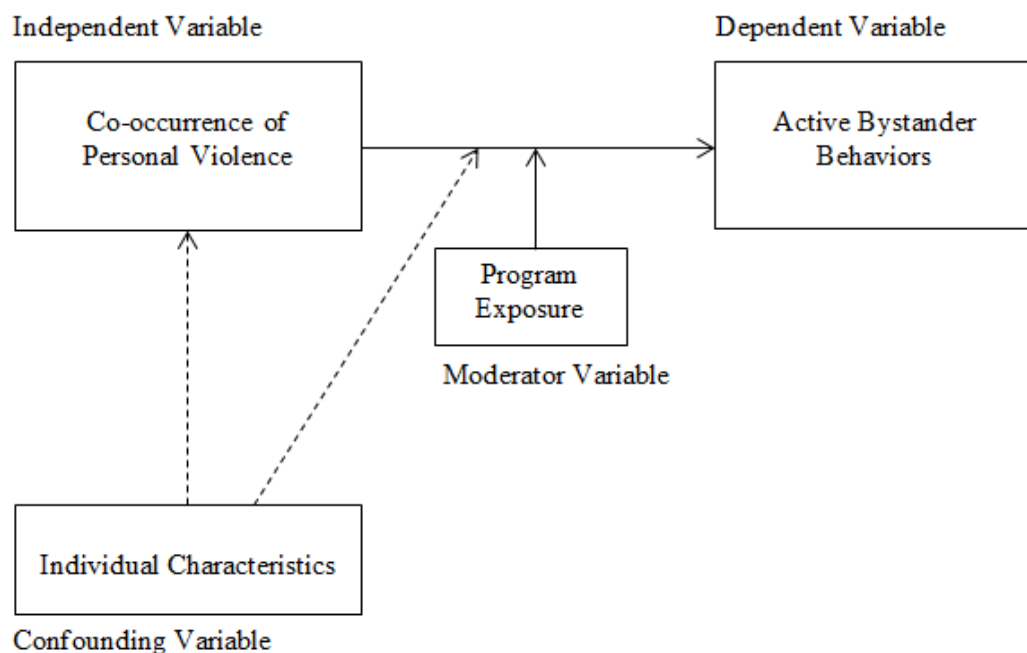


Figure 2.1. Conceptual model of the study

Chapter Summary

This chapter provided a detailed review of literature on prevalence of personal violence among high school students. While the review demonstrated personal violence as an urgent problem, it also uncovered significant gaps in literature on prevalence of personal violence co-occurrence among high school population, in particular, based on some individual characteristics such as sexual attraction and exposure to parental partner violence. Additionally, past and current efforts to prevent personal violence for high school students were presented. Special focus was given to lack of effectiveness in traditional programs that target at-risk groups and promising results emerging from an innovative new approach: bystander programs. With the introduction of the social identity approach as a theoretical framework to explain association between active bystander behaviors and experience of personal violence among bystanders, the conceptual model of the proposed study was presented.

Chapter Three: Methodology

This chapter first identifies the source of the dataset for the current study by describing the data collection and sampling procedures used in the parent study, Green Dot across the Bluegrass. Second, the research questions and hypotheses are stated, followed by the conceptual and operational definitions of all variables and their measures. The last section explains the data analysis used for this study.

Data Collection and Sampling Procedures

The secondary dataset analyzed in this study is part of a larger data collection project, Green Dot across the Bluegrass (See Cook-Craig, Coker et al., 2014). The parent study was a randomized controlled trial (RCT) funded by the Centers for Disease Control and Prevention (CDC) and was conducted by the University of Kentucky between 2010 and 2014. The original study aimed to evaluate the effectiveness of a primary prevention program, Green Dot, in reducing rates of violence among high school students in Kentucky. Green Dot was implemented in 13 high schools by trained prevention educators hired by the local rape crisis centers (RCCs). The 13 delayed implementation control schools did not receive the program during the study period. The schools were located evenly across the state with one intervention and a matching control school in each region of the state.

This dissertation study utilized the data collected between February and May 2012, during the third year of the five-year project period of the parent study. The survey was administered in 13 service delivery regions of the RCCs at one intervention and one control school per each region on dates arranged with each school. The investigators obtained parental passive consent and students' voluntary consent for participation before

administering the survey. The annual survey included 99 questions and took approximately 25 to 40 minutes to complete. The format of the survey, a self-administered anonymous paper-and-pencil survey in which students mark their answers on a computer-scannable sheet, was similar to that of the Youth Risk Behavior Survey (YRBS) (Brener, Eaton, Flint, Hawkins, Kann, Kinchen, & Shanklin, 2013) which the Kentucky high schools participate in.

The survey was administered by the study personnel, including the university faculty members and staff, graduate students, and the RCC personnel who received the training on human subject research through Collaborative Institutional Training Initiative, a web-based training module made available by the Office of Research Integrity of University of Kentucky. The data was collected in either one-period administration or all-day administration. In one-period administration, all students in attendance on that day of school were surveyed during one specific period. A pre-recorded DVD was played for the entire school to provide information on the study and assent. Study personnel were available throughout the school during the period to provide assistance to all classrooms taking part in the survey. In all-day administration, students were surveyed when they were in one specific class, such as English or science, as assigned by the school. The study personnel stayed in each classroom all day to provide information about the study and assent and administer the survey. Each student was provided with a survey booklet, a Scantron form, and a pencil to complete the survey. In the booklet, students received a separate sheet of paper with toll-free numbers and websites for organizations that provide assistance on dating violence, sexual assault, depression, and suicide ideation. The pencil also included the same toll-free numbers. Students were

encouraged to take the information with them and to seek help should they feel distraught after participating in the survey.

Several issues warranted attention in the construction and administration of the survey. First, operational decisions were made to differentiate extent to which different types of violence are experienced. For psychological dating violence, sexual harassment, and stalking, experience of victimization and perpetration was restricted to three or more times in order to capture a pattern or chronicity of behavior. For physical dating violence and sexual violence, reports of at least once defined victimization or perpetration as these are severe types of violations. Second, due to the sensitivity of the topic of sexual violence, the phrase “unwanted sexual activities” was used throughout the survey rather than sexual violence or assault to discourage responses based on social desirability. Third, at the beginning of the sexual violence victimization questions in the survey booklet, statements were included to notify the students that the questions may make them feel uncomfortable and that they may skip questions when uncomfortable. Similarly, before the series of questions addressing perpetration of violence, a short reminder was included that the survey was anonymous. During the survey administration, students were also reminded about voluntary nature of the participation and the anonymity of their survey participation and responses.

The research protocol for the parent study was approved by the University of Kentucky Human Subjects Medical Institutional Review Board (IRB #09-0680-FIV). This dissertation study used the secondary data extracted from the parent study which required no participant recruitment and received the exemption status from the Institutional Review Board of the University of Kentucky (see Appendix A).

The original data were entered, stored, and managed in SAS v.9.3. For analysis in the current study, the secondary data was extracted and converted into SPSS v.22 for the preliminary analysis and SPSS v.23 for the primary analyses.

Research Questions and Hypotheses

This study investigated the following research questions and tested the hypotheses.

RQ1. Does the experience of polyvictimization differ among students based on their sex, grade, sexual attraction, and exposure to parental partner violence?

1H₀. The experience of polyvictimization does not differ among students based on their sex, grade, sexual attraction, and exposure to parental partner violence.

1H₁-1. More females are polyvictims than males.

1H₁-2. More older students are polyvictims than younger students.

1H₁-3. More non-heterosexual students are polyvictims than exclusively heterosexual students.

1H₁-4. More students exposed to parental partner violence are polyvictims than non-exposed students.

RQ2. Does the experience of polyperpetration differ among students based on their sex, grade, sexual attraction, and exposure to parental partner violence?

2H₀. The experience of polyperpetration does not differ among students based on their sex, grade, sexual attraction, and exposure to parental partner violence.

2H₁-1. More males are polyperpetrators than females.

2H₁-2. More older students are polyperpetrators than younger students.

2H₁-3. More non-heterosexual students are polyperpetrators than exclusively heterosexual students.

2H₁-4. More students exposed to parental partner violence are polyperpetrators than non-exposed students.

RQ3. Is there a difference in active bystander behaviors based on different levels of violence victimization?

3H₀. There is no difference in active bystander behaviors based on different levels of violence victimization.

3H₁-1. Polyvictims score higher on active bystander behaviors than others.

RQ4. Is there a difference in active bystander behaviors based on different levels of violence perpetration?

4H₀. There is no difference in active bystander behaviors based on different levels of violence perpetration.

4H₁: Polyperpetrators score lower on active bystander behaviors than others.

RQ5. Is there a difference in active bystander behaviors based on different levels of violence victimization after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance?

5H₀. There is no difference in active bystander behaviors based on different levels of violence victimization after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance.

RQ6. Is there a difference in active bystander behaviors based on different levels of violence perpetration after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance?

6H₀. There is no difference in active bystander behaviors based on different levels of violence perpetration after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance.

The association between no experience and single experience of violence and active bystander behaviors were also examined. However, the main goal was to explore the nature of the co-occurrence of violence, in particular, polyvictimization and polyperturbation. Network visualization of each type of violence determined which types of violence co-occur commonly in this dataset for the study analyses.

Variables and Measures

The constructs in this study included active bystander behaviors, personal violence, exposure to primary prevention program, and demographic characteristics. This section presents conceptual and operational definitions of each construct and its measurements. Appendix B lists all questions and response options used in the survey.

Dependent Variable

Active bystander behavior was modeled as a dependent variable and included two types of active bystander behaviors: reactive and proactive.

Reactive bystander behaviors. Conceptually, reactive bystander behavior is an action taken by a third party in response to something that is perceived by him or her as potentially high risk for violence (Edwards, 2009). It is operationally defined as the number of times a student did something when they perceived a need for action either in a potentially violent situation or an incident already occurred. For example, dealing with the consequences of violence in a helpful manner, such as being supportive to a friend who was physically hurt by a dating partner, and offering help if someone looked upset at

a party, were included in the survey. More direct behaviors and emergency interventions such as telling someone to stop harassing others were also included. Talking down to someone or harassing someone may not usually be defined as violence. However, a continuum of behavior, from talking down to someone to physically forcing sexual activities was considered as personal violence for the current study. As displayed in Appendix B, seven items, which were created for the parent study, were used to measure reactive bystander behavior with six response options: *0 times*, *1-2 times*, *3-5 times*, *6-9 times*, *10 or more times*, and *Didn't see or hear someone doing this*. The last response that indicated no opportunity for active bystander intervention was coded as 0 for the current study. Each response option was coded as 1, 2, 3, and 4, respectively.

Proactive bystander behaviors. The proactive bystander behavior, unlike the reactive one, is not based on preceding situations. According to Edwards (2009), proactive bystander behaviors set a social norm that resist violence and promotes a sense of responsibility among all community members to cultivate a safe environment. When bystanders behave in a proactive manner, they are engaging others in violence prevention in their daily interactions. For this study, the proactive bystander behavior was operationalized as the number of times a student engaged in a conversation with someone about how to stop dating violence or the number of times they discussed with friends about joining violence prevention activities in the community. To measure proactive bystander behavior, five items and five response options were developed for the parent study. The response options were 0 times, 1-2 times, 3-5 times, 6-9 times, and 10 or more times which were coded as 1 through 4.

Active bystander behaviors. The two variables above were combined to create one dependent variable. With the total of 12 items included in this variable, the total score ranged between 0 and 48, higher scores indicating more active bystander behaviors by the respondents.

Independent Variables

Co-occurrence of violence was modeled as the independent variable for this study. Five types of violence were included in the survey questions for both victimization and perpetration: physical dating violence, psychological dating violence, sexual violence, sexual harassment, and stalking. The network visualization technique that identified co-occurring violence types is explained in the data analysis section later in this chapter. Here, each violence type that was included in the preliminary analysis is described.

Physical dating violence. Conceptually, physical dating violence is a physically hurtful behavior of one current or ex-dating partner against the other. In this study, victimization was operationalized as the number of times the respondent reported a current or ex-partner intentionally hit or otherwise physically hurt the respondent. For this variable, one item was used to measure the experience. Reports of being victimized three or more times in the past 12 months was considered victimization and coded as 1, and all other responses were considered non-victimization and coded as 0, creating a dichotomous variable. The question was rephrased to reflect perpetration of physical violence toward current or ex-dating partner by the respondent. A dichotomous variable was created with 1 for three or more times of perpetration and 0 for other responses.

Psychological dating violence. Psychological dating violence is a pattern of mentally and emotionally hurtful behavior by one person against another in a current or

ex-dating relationship. In this study, psychological dating violence victimization was operationalized by the number of times the respondent's partner tried to control by checking on, damaging something important to, yelling at, or making threats to physically harm the respondent. Perpetration was defined by the number of times a student reports their own psychologically harmful behavior against their current or ex-partner. Four items, as displayed in Appendix B, were included in the measure of this type of violence. In order to create a dichotomized variable, response of *three or more times* was coded as 1 while responses of *0 times*, *1-2 time, yes, but not in the past 12 months*, and *not in dating or romantic relationship in the past 12 months* were coded as 0. The experience of psychological dating violence victimization was coded as 1 and no victimization was coded as 0. The same coding scheme was employed for the perpetration variable that asked about respondents' own psychologically hurtful behavior toward current or previous boyfriend or girlfriend. The experience of perpetration was coded as 1 and no perpetration as 0.

Sexual violence. Sexual violence is any sexual activity committed without freely obtained consent (Basile et al., 2014). This study operationally defined sexual violence victimization by the respondent's report of another high school student forcing unwanted sexual activities onto the respondent with threats to end relationship or friendship, with threats of or actual physical force, and while intoxicated. The respondent's report of committing these actions on another high school student was considered as the perpetration. Three items with six response options for each were used to measure both victimization and perpetration as displayed in Appendix B. The variable was dichotomized with a response of at least one experience of sexual violence victimization

as 1 and 0 times and *yes, but not in the past 12 months* as 0. All three items were summed to create a total variable. When a respondent reported perpetrating sexual violence at least once, it was coded as 1 for presence of perpetration and all other responses were coded as 0.

Sexual harassment. Sexual harassment is generally defined as an unwelcomed conduct that is sexual in nature (Hill & Kearl, 2011; USDE, 2008). This study operationally defined sexual harassment victimization as number of times another high school student told sexual jokes, made sexual gestures, or persistently asked to hookup even after refusal, making the respondent to feel uncomfortable and upset. For perpetration, it is the same type of action by the respondent toward another high school student. In this study, sexual harassment did not include any touching. Rather they are all verbal or graphical intrusion of sexual nature or sexual insinuation that makes the targeted student feel upset or uncomfortable. The sexual harassment victimization and perpetration measures included three items, as shown in Appendix B, that were created based on the Sexual Experiences Questionnaire (SEQ: Fitzgerald, Magley, Drasgow, & Waldo, 1999). This dichotomized variable coded reports of sexual harassment victimization of three or more times in the past 12 months as 1. Other responses were coded as 0, including *yes, but not in the past 12 months* as the study was concerned about the yearly experience. For the perpetration measure, the same items were rephrased to reflect the respondent's act of harassment toward another student with the same response options of three or more times within the year coded as 1 and all other responses coded as 0.

Stalking. Stalking is a pattern of intrusive and unwanted pursuit toward a specific individual, causing fear in the target (Fox, Nobles, & Fisher, 2011; Westrup & Fremouw, 1998). For victimization in this study, it was operationalized as the number of times the respondent felt fear for personal safety due to, for example, being followed or spied on using technology, someone showing up, and receiving unwanted items such as gifts and text messages. The same behavior was used to operationalize perpetration by the number of times the student had acted in these ways toward someone they had romantic interest in during the past year. Three items were used to measure stalking victimization with six response options as shown in Appendix B. When the behavior was experienced three or more times, it was considered stalking victimization and was coded as 1, and all others, including *yes, it happened before but not in the past 12 months*, were coded as 0. A dichotomized variable was computed to represent either experience (= yes or 1) or non-experience (= no or 0) of stalking victimization. For perpetration, these three items and same response options were used to ask about respondents' own stalking behavior toward another, creating a dichotomized variable in the same manner about the stalking behavior committed by the respondent. The dichotomous variable for stalking perpetration indicated the presence of stalking behavior with 1 and absence of stalking behavior with 0.

Confounding Variables

In order to assess the differences in experience of violence based on individual characteristics, the following constructs were included in the analysis: sex, grade, sexual attraction, and exposure to parental partner violence. Also included were two composite variables that measured respondents' level of endorsements of rape and dating violence.

Sex. Sex is a biologically assigned attribute of male or female. It was operationalized by the self-report of being either female (=0) or male (=1).

Grade. Grade is the class-standing of the high school students. This study operationally defined the grade by respondent's report of their grade (9th, 10th, 11th, 12th grades, and other) in high school at the time of the survey. The variable was dichotomized into freshman (= 1) and all others (= 0).

Sexual attraction. Sexual attraction was defined as being interested in someone on the basis of sexual desire. One item measured this variable with six response options as shown in Appendix B. Male students who reported being attracted to females only and female students reporting their attraction only to males were coded as being exclusively heterosexual (= 1). All others, including students of either sex who reported being mostly attracted to one sex, and equally attracted to both sexes as well as those who were not sure about their sexual attraction, were coded as not exclusively heterosexual (= 0).

Exposure to parental partner violence. Conceptually, witnessing of physical altercation between parents by sight or sound indicated exposure to parental partner violence. Partner violence between parental figures may take the form of one partner controlling the other by use of physical, sexual, psychological, and economic abuse. This study included only physical violence in the definition. Parental physical partner violence was defined as one parental figure hitting, slapping, or otherwise physically hurting the other in the household. This construct was operationalized by the student's report of number of times seeing or hearing this type of incident. One item was used for this variable with five response options as shown in Appendix B. Report of at least one exposure was coded as 1 and the response of *never* was coded as 0, creating a

dichotomous variable that indicates whether or not the student had been exposed to parental partner violence.

Illinois Rape Myth Acceptance Scale-Short Form (IRMA-SF). The construction of the original 40-item scale, IRMA, was based on the concept of myths and cultural theory of rape which defined rape myths as “attitudes and beliefs that are generally false but are widely and persistently held, and that serve to deny and justify male sexual aggression against women” (Lonsway & Fitzgerald, 1994, p.134). Its 20-item version, IRMA-SF, measures the level of endorsement of general myths related to rape rather than specific myths addressing specific components such as denial of rape as a problem and victim blaming (Payne, Lonsway, & Fitzgerald, 1999). The current study operationalized the rape myth acceptance as the extent to which the respondent agreed or disagreed with statements indicating rape myths. As displayed in Appendix B, five items from IRMA-SF and two additional items were used to capture this construct with four response options, ranging from 0 (strongly disagree) to 3 (strongly agree). The scale was computed to have a total score between 0 and 21, with the higher score indicating more endorsement of rape myths. According to Payne and colleagues (1999), the original 20-item IRMAS-SF (short form) has good internal consistency ($\alpha = .87$). The modified scale was used in a college study and showed adequate reliability ($\alpha = .80$) (Coker et al., 2011). In the high school setting, the parent study of this dissertation used the same modified scale and had a similar alpha at .79 (Cook-Craig, et al., 2014). In this study, the Cronbach alpha coefficient was .76.

Dating Violence Acceptance (DVA). The original 11-item scale, Acceptance of Couple Violence, was developed by Foshee, Fothergill, and Stuart (1992) to assess level

of acceptance of violence between dating couples in 8th and 9th grades (Dahlberg, Toal, Swahn, & Behrens, 2005). The operational definition for the current study was the extent to which the student agreed or disagreed with statements that depicted endorsement of dating violence. Five items shown in Appendix B were selected from the original scale. The response options ranged between 0 (strongly disagree) to 3 (strongly agree) with the total score ranging from 0 to 15. As in the rape myth acceptance, the higher score indicated more acceptance of dating violence. The 5-item DVA was used in the parent study and reported an acceptable level of reliability ($\alpha = .73$) (Cook-Craig, et al., 2014). For this study, the Cronbach's alpha resulted in an adequate level of .80.

Moderator Variable

Exposure to the primary prevention program is modeled as a moderator for its potential to influence the relationship between students' experience of violence and active bystander behaviors. The exposure indicated that the student has had some contact with Green Dot, the program which was being evaluated in the parent study. Students in implementation schools had potential exposure through the bystander training or the speech as described separately below.

Green Dot bystander training. Green Dot bystander training, approximately 5 hours in duration, was an interactive program delivered by the local rape crisis center (RCC) prevention educator to train high school students who are selected as popular opinion leaders (POLs). The training aims to educate participants about each type of personal violence and barriers to intervention, and to build skills so they become active bystanders (Edwards, 2009). It was operationally defined by students reporting hours of training received. As shown in Appendix B, one item was used to measure the exposure

to the training. To create a dichotomous variable to indicate training exposure, 4 of the seven response options, including *1 hour* or *2 hours* of training, and *never heard of Green Dot* and *did not receive Green Dot training* were coded as 0. Only the training attendance of more than 3 hours was coded as 1, indicating substantive training exposure.

Green Dot speech. A Green Dot speech was a 20 to 45 minute talk given by the RCC prevention educator at each implementation school for students, faculty, staff, and administrators. The speech aimed to raise awareness of personal violence as the problem for all and motivate the audience to engage in activities to end violence (Edwards, 2009). It was operationally defined by the respondent's report of having heard the Green Dot speech ever. It was measured with one item with five response options. Two of the response options, *never heard of Green Dot*, and *did not hear the speech* were coded as 0, while the remaining three responses were coded as 1, creating a dichotomous variable. Additionally, from the Green Dot bystander training responses, 1 hour or 2 hours of training attendance were included as a speech exposure and thus coded as 1.

Program exposure. For the purpose of this study, the training and speech variables were combined to create one variable as all who were exposed to the training were almost all likely to have been exposed to speech. The dichotomous variable indicated either exposure (= 1) or non-exposure (= 0) to the Green Dot message.

Data Analyses

This section first explains the analytic technique, network visualization, which was used to identify co-occurring violence, the independent variable of the study. It was followed by the descriptions of methods used for the study analyses.

Network Visualization

In this study, the network visualization was conducted with all violence victimization and perpetration variables in order to identify polyvictimization, polyperpetration, and victimization-perpetration. NetDraw (Borgatti, 2002), a visualization software, which was distributed with the network analysis software UCINET (Borgatti, Everett, & Freeman, 2002) was used for visualization. Following the plots of violence types in NetDraw, non-metric multidimensional scaling (MDS) was performed in UCINET to project a pattern of interconnectedness among violence types, providing another tool to interpret the network visualization.

The graphics in network research are generally used to display ties among individual persons, organizations, events, and such. Network analysis aims to examine relationship between social entities that create a larger network (Borgatti, Everett, & Johnson, 2013). It is often used in applied research settings, such as examining support and risk networks among homeless youth (Wenzel et al., 2012) and diffusion of information by peer advocates in the drug using community (Li, Weeks, Borgatti, Clair, & Dickson-Gomez, 2012). The use of the visualization techniques allows for qualitative exploration of otherwise complicated data if only quantitatively presented (Borgatti et al., 2013). The plots can potentially uncover patterns of connections that may be missed if only observing traditional numerical summaries.

For the network visualization, the data were converted from SPSS version 22 to UCINET version 6.512 (Borgatti et al., 2002) for use within UCINET and NetDraw version 2.139 (Borgatti, 2002).

The Study Analyses

Table 3.1 displays all research questions, hypotheses, and analyses for the study. All of the analyses were conducted using SPSS version 23.

Research Questions 1 and 2. Bivariate analysis was conducted using Cross-tabulations to examine the relationship between individual characteristics and experience of violence. Each cell of the table and the results of chi-square tests were reviewed for the hypotheses on each relationship.

Research Question 3. One-way analysis of variance (ANOVA) was used to examine the difference in active bystander behaviors based on different levels of experience in personal violence victimization. ANOVA was conducted with each type of victimization as an independent variable and active bystander behaviors as a dependent variable. Prior to conducting the analysis, the data was screened for statistical assumptions of ANOVA are fulfilled. The assumptions for ANOVA include independent observations, normal distribution, and homogeneity of variance (Mertler & Vannatta, 2010). The dependent variable was computed to ensure mutually exclusive categories. In general, ANOVA is robust to violations of normality and homogeneity of variance (Mertler & Vannatta, 2010). Due to the large sample size in this study, the impact of the potential assumption violations was expected to be minimal.

Research Question 4. ANOVA was conducted to examine if there is a difference in active bystander behaviors based on different levels of violence perpetration experience. The same procedure as Research Question 3 described above was followed for the data screening and analysis.

Research Question 5. One-way analysis of covariance (ANCOVA) was conducted using each co-occurring violence victimization as an independent variable and active bystander behaviors as a dependent variable. Four covariates were entered into the model: Sex, program exposure, rape myth acceptance, and dating violence acceptance. Because of its known association with the dependent variable (Tabachnick & Fidell, 2001), sex was selected as a covariate. As noted in Chapter 2, females are often more likely to be active bystanders than males (Banyard, 2009). Program exposure was also selected as a covariate. Several studies have shown that students who participated in programs reported increase in their active bystander behaviors (Banyard et al., 2007; Coker et al., 2011; Miller et al., 2012). Two composite variables, rape myth acceptance and dating violence acceptance were added as covariates to examine if these attitudes have influence on dependent variable, active bystander behaviors. Before conducting ANCOVA, the data were screened for accuracy and for statistical assumptions. In addition to meeting the assumptions of ANOVA, ANCOVA requires reliable covariates, linear relationship between covariates as well as covariates and dependent variable, and homogeneity of regression slopes (Mertler & Vannatta, 2010; Tabachnick & Fidell, 2001).

Research Question 6. Following the same process as Research Question 5, ANCOVA was conducted using co-occurring violence perpetration as an independent variable and active bystander behaviors as a dependent variable. The same four covariates used for Research Question 5 were entered. Data screening and statistical assumption testing were conducted also in the same manner.

Table 3.1

Research Questions, Hypotheses, and Analyses for the Study

Research Questions and Hypotheses	Analyses
<p>RQ1. Does the experience of polyvictimization differ among students based on their sex, grade, sexual attraction, and exposure to parental partner violence?</p> <p>1H₀. The experience of polyvictimization does not differ among students based on their sex, grade, sexual attraction, and exposure to parental partner violence.</p> <p>1H₁-1. More females are polyvictims than males.</p> <p>1H₁-2. More older students are polyvictims than younger students.</p> <p>1H₁-3. More non-heterosexual students are polyvictims than exclusively heterosexual students.</p> <p>1H₁-4. More students exposed to parental partner violence are polyvictims than non-exposed students.</p>	<p>Cross-tabulation Chi-square test</p>
<p>RQ2. Does the experience of polyperpetration differ among students based on their sex, grade level, sexual attraction, and exposure to parental partner violence?</p> <p>2H₀. The experience of polyperpetration does not differ among students based on their sex, grade, sexual attraction, and exposure to parental partner violence.</p> <p>2H₁-1. More males are polyperpetrators than females.</p> <p>2H₁-2. More older students are polyperpetrators than younger students.</p> <p>2H₁-3. More non-heterosexual students are polyperpetrators than exclusively heterosexual students.</p> <p>2H₁-4. More students exposed to parental partner violence are polyperpetrators than non-exposed students.</p>	<p>Cross-tabulation Chi-square test</p>
<p>RQ3. Is there a difference in active bystander behaviors based on different levels of violence victimization?</p> <p>3H₀. There is no difference in active bystander behaviors based on different levels of violence victimization.</p> <p>3H₁. Polyvictims score higher on active bystander behaviors than others.</p> <p>RQ4. Is there a difference in active bystander behaviors based on different levels of violence perpetration?</p>	<p>One-Way ANOVA</p>

<p>4H₀. There is no difference in active bystander behaviors based on different levels of violence perpetration.</p> <p>4H₁. Polyperpetrators score lower on active bystander behaviors than others.</p>	<p>One-Way ANOVA</p>
<p>RQ5. Is there a difference in active bystander behaviors based on different levels of violence victimization after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance?</p> <p>5H₀: There is no difference in active bystander behaviors based on different levels of violence victimization after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance.</p>	<p>One-Way ANCOVA</p>
<p>RQ6. Is there a difference in active bystander behaviors based on different levels of violence perpetration after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance?</p> <p>6H₀: There is no difference in active bystander behaviors based on different levels of violence perpetration after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance.</p>	<p>One-Way ANCOVA</p>

Chapter Summary

This chapter explained methods employed for this study. This study used a secondary data from the larger study, Green Dot across the Bluegrass, collected between February and May of 2012 in 26 high schools across Kentucky. Six research questions examined in this study as well as all variables were described in this chapter. Further, data analyses used for this study. Network visualization which identified independent variables of this study, co-occurring violence combination, was explained. The study analyses included cross-tabulation, one-way ANOVA, and one-way ANCOVA.

Chapter Four: Data Analyses and Results

This study examined the relationship between high school students' experience of polyvictimization and polyperpetration among certain types of personal violence, and their active bystander behaviors. To identify types of violence to include in the study, the preliminary analysis was first illustrated using network visualization, followed by the processes and results of the study analyses.

Preliminary Analysis: Network Visualization Explanation

The year-3 data collected in the parent study, Green Dot across the Bluegrass, ($N = 22,079$) were stored and managed in SAS version 9.3. The cases meeting the inclusion criteria for the parent study were selected ($n = 15,772$), at the response rate of 71.4%, and were imported into SPSS version 22.0 to prepare the data for network visualization. The exclusion criteria included: (a) parental or student refusal, (b) students in control schools indicating attendance in the bystander training, (c) students missing more than one third of all survey responses, (d) students missing five or more of the reactive bystander responses, (d) cases missing proactive bystander behavior items, (e) cases missing rape myth acceptance questions, and (f) those missing any dating violence questions.

The network visualization techniques for this preliminary analysis included network plots and multidimensional scaling (MDS) as described below.

Network Plots

In order to identify strong ties between violence victimization and perpetration variables, the normalized network data were converted from two-mode (case by violence) to one-mode (violence by violence) in UCINET (Borgatti et al., 2002) and plotted in NetDraw (Borgatti, 2002). In order to identify co-occurring violence types, only the

cases with two or more violence experiences were selected into the data as detailed in the data set-up section of Appendix C.

In the network plot displayed in Appendix C, Figure 4, a node represented each type of violence victimization and perpetration. The size of each node showed the size of the group where a larger node, such as psychological dating violence (PSDVOV2), indicated that a large number of respondents experienced the particular violence. The tie between two nodes indicated that the two types of violence were experienced by individuals reporting these types of violence, creating visualization of polyvictimization, polyperpetration, and victimization-perpetration. The stronger ties, represented by thicker lines, indicated more prevalent co-occurrence of both types of violence. As shown in Appendix C, Figure 3, the tie-strength values were the number of ties that extended from one node to another. For example, the tie-strength between physical dating violence victimization (PHDIOV) and sexual violence victimization (USEXV) was 884, indicating that 884 students reported being victimized in both types of violence. The thickness of the lines may indicate that some experiences are more common than others, thus dominating the plot. In order to correct this problem, the one-mode matrix was normalized as described in Appendix C (see Appendix C, Figure 5 normalized values).

Upon visual inspection, some common themes emerged as displayed in the color-coded network plot in Appendix C, Figure 7. Psychological dating violence victimization (PSDVIOV2) and sexual harassment victimization (SHARV2) appeared to co-occur with other types of violence most frequently among all types. In addition, all types of dating violence experience display strong ties among themselves, indicating high prevalence of co-occurrence in dating violence sub-types. The total of 45 ties ranged between 0.348

and 0.940 in normalized tie-strength, with mean value of 0.628, median 0.623, and approximately 15% of the violence combinations above 0.75. Because there was no recommended criterion (H. Bush, personal communication, May 14, 2015), decision was made to select seven violence pairs with normalized tie-strength value above 0.75 (see Appendix C, Table 2) for inspection in a multidimensional scaling (MDS) plot for inclusion in the analyses for this dissertation.

Multidimensional Scaling

In network plots, the location of each node and distance between nodes are arbitrary. Using MDS, it is possible to provide another dimension to graphic representation: The goal of MDS is to visually present proximities among nodes in the network (Borgatti et al., 2013). The MDS technique allows for nodes to be placed within multi-dimensional space (i.e., two-dimensional for drawing plots on paper) in ways that the nodes similar to each other are located in closer proximities (Hanneman & Riddle, 2005). The MDS algorithm aims to minimize the amount of distortion in the graph, which is presented as stress (Borgatti et al., 2013). For this study, similarities based on co-occurrence of violence indicated that the closer the violence types were to each other on the MDS plot, the stronger the ties were between them. In other words, closely located violence types co-occurred more often compared to types that were located further away.

The normalized network matrix was used to perform non-metric MDS as described in Appendix C. The stress level for this plot was 0.198 as shown in Appendix C, Figure 8, and was slightly higher than the generally acceptable level of 0.12 (Borgatti et al., 2013). Because the longer distances are more accurate than shorter distances based

on the MDS algorithms which mostly minimize squared residuals (Borgatti et al., 2013), the plot in Appendix C, Figure 9, still represents the overall characteristics of the network proximities.

The clusters and node pairs in the MDS plot are displayed in Appendix C, Figure 10. Three clusters were observed: clusters with sexual violence nodes, dating violence nodes, and stalking and sexual harassment nodes. The node pairs included violence combinations of sexual harassment victimization (SHARV2) and stalking perpetration (STALKP2), sexual violence victimization (USEXV) and perpetration (USEXP), psychological dating violence victimization (PSDVIOV2) and perpetration (PSDVIOV2), and psychological dating violence perpetration (PSDVIOV2) and physical dating violence perpetration (PHDVIOP). These results were incorporated into the results of the network plot as described below to determine co-occurring violence types to examine in this study.

Co-occurring Violence Types

The results of the network plot added onto the MDS plot are displayed in Appendix C, Figure 11, combining both social network visualization techniques in one. Among the seven ties identified in the network plot, three were also located in close proximities in MDS: PSDVIOV2-PSDVIOV2 (psychological dating violence victimization and perpetration), PSDVIOV2 -P HDVIOP (psychological dating violence perpetration and physical dating violence perpetration), and SHARV2-STALKP2 (sexual harassment victimization and stalking perpetration). It must be noted that the remaining four pairs, PSDVIOV2-PHDVIOV (psychological dating violence victimization and physical dating violence victimization), PSDVIOV2-PHDVIOP (psychological dating violence victimization and physical dating violence perpetration), STARV2-SHARP2

(stalking victimization and sexual harassment perpetration), and SHARV2-STAOKV2 (sexual harassment victimization and stalking victimization), still had strong ties. In particular, it is noteworthy that SHARV2-SHARP2 and SHARV2-STALKV2 (.77) both had almost identical tie-strength with SHARV2-STALKP2 (.76).

In order to select violence pairs for the analyses, the social identity approach, a theory described in Chapter 2, was consulted. Briefly, social identity approach asserts that individual behaviors are influenced by one's identification with others similar to themselves (Hogg & Abrams, 1998). Limited research suggests that having more traumatic experiences are associated with increased behaviors that help others (Frazier et al., 2013). Thus, for this study, it was hypothesized that having more experience in victimization should lead to more active bystander behaviors based on greater identification with the victim of the immediate situation. In the same manner, it was hypothesized that having more experience in perpetration should result in less behavior in helping victims based on greater identification with the perpetrator of the given situation. For victim-perpetrators, social identity approach would suggest that individual behavior is based on the social identity that is salient for the moment (Hornsey, 2008; Oaks et al., 1991; Turner et al., 1994). Because there was no data to determine the saliency of the moment, victimization-perpetration pairs were not selected for this study. Thus, the following combinations of violence victimization and perpetration were examined: (a) psychological dating violence victimization and physical dating violence victimization; (b) sexual harassment victimization and stalking victimization; and (c) psychological dating violence perpetration and physical dating violence perpetration.

Analyses of the Study

This section described results of hypothesis testing as well as the process of data screening and preparation of the analyses.

Data Screening and Preparation

First, accuracy of data entry ($N = 22,079$) was inspected on an item that indicated consent or refusal to survey participation. Those who did not participate in the survey due to student refusal ($n = 2,803$) and parental refusal ($n = 86$) were removed from the dataset. Out of all consented ($n = 19,190$), 72 students including those with disabilities needed assistance to complete the survey, such as by having someone read the questions, yielding the overall response rates of 86.9% (see Table 4.1).

Table 4.1

Rates of Refusal and Consent to Participate in the Survey

Participation Type		<i>n</i>	%
Refusal	Student	2,803	12.7
	Parental	86	0.4
	Total	2,889	13.1
Consent	Self-completed	19,118	86.6
	Needed help	72	0.3
	Total	19,190	86.9

Note. $N = 22,079$.

Table 4.2 displayed the self-reported demographic background of this sample ($n = 19,190$). The sample included 53.9% females and 45.9% males. The largest grade group was the 9th grade (30.3%), and the smallest was the 12th grade (18.2%). Seventy-nine

percent of the respondents identified themselves as White. Race was not included in the analyses and was only included here for descriptive purpose. The sample included 43.3% of students who were attracted only to females and 45.3% attracted only to males. There were 4,137 students (21.6%) who were exposed to parental partner violence. This base dataset ($n = 19,190$) was screened for the study analyses as described below.

Table 4.2

Descriptive Statistics of the Base Dataset

Variables	Categories	<i>n</i>	%
Sex	Female	10,337	53.9
	Male	8,805	45.9
	Missing	18	0.1
	Invalid	30	0.1
Grade	9 th	5,803	30.2
	10 th	5,227	27.2
	11 th	4,555	23.7
	12 th	3,485	18.2
	Other grade	79	0.4
	Missing	17	0.1
	Invalid	24	0.1
Race	Am. Indian or Alaska Native	330	1.7
	Asian	342	1.8
	Black or African American	1,742	9.1
	Hispanic or Latino/Latina	657	3.4

	White	15,195	79.2
	Other	822	4.3
	Missing	76	0.4
	Invalid	26	0.1
Sexual Attraction ^a	Attracted to only female	8,332	43.4
	Mostly female	350	1.8
	Both male and female	675	3.5
	Mostly male	804	4.2
	Only male	8,684	45.3
	Not sure	287	1.5
	Missing	28	0.1
	Invalid	30	0.1
Parental Partner Violence	Not exposed	14,815	77.2
	Exposed	4,137	21.6
	Missing	128	0.7
	Invalid	110	0.5

Note. $n = 19,190$.

^aThe categories of the sexual attraction variable were response options provided in the survey. Later in the data preparation, it was combined with sex to create a dichotomous variable that included exclusively heterosexual or not.

Second, the base dataset ($n = 19,190$) was screened for accuracy of the data entry by examining missing and invalid cases. Out of 99 questions in the survey, there was one question that had over 5% missing cases ($n = 1,001$; 5.2%). This 83rd of the 99-question survey asked “How many times have you and your friends ever talked about activities

you could do or join them in activities that might help prevent dating violence or unwanted sex in your school or your community?” This was a compound and heavily information-loaded question. Upon further inspection, a pattern revealed that later items in the survey had more missing cases (see Table 4.3). Out of 99 questions, 18 missing cases (0.1%) occurred with the first question. More missing cases were observed in the middle part of the survey, such as 219 cases (1.1%) for a stalking victimization item (Question 34) and 381 cases (2.0%) for a sexual violence victimization item (Question 50). At the end of the survey, 702 cases (3.7%) were missing with Question 99. Since the proactive bystander behavior question with 1,001 (5.2%) missing cases was the 83rd of 99 questions, the large number of missing cases could be anticipated due to its placement and the length and complexity of the question.

Table 4.3

Pattern of Missing Cases in the 99 Question Survey

Question Number	Missing Cases		Question Topic
	<i>n</i>	%	
Q1	18	0.1	Sex of the respondent
Q17	63	0.3	Attitude toward dating violence
Q34	219	1.1	Stalking victimization
Q50	381	2.0	Sexual violence victimization
Q67	454	2.4	Sexual violence perpetration
Q83	1,001	5.2	Proactive bystander behavior
Q99	702	3.7	Help-seeking behavior

Note. $n = 19,190$. The questions were selected based on their location in the 99-question survey. Starting with the first question and ending with the last (99th) question, every 16th or 17th question was included to inspect the pattern at approximately equally spread points.

Invalid cases, or responses marked outside of provided options, were also inspected. Although already excluded prior to this screening, two options assigned for student and parental refusals still appeared due to coding errors on the Scantron forms and were observed across the data, ranging from 1 to 249 (0 to 1.3%) of 19,190 cases. Substantial amount of coding errors were found in one invalid response within all five proactive bystander behavior items, ranging from 4,789 to 5,865 (25 to 31%) of 19,190 cases. The errored responses involved option F, which was an invalid option, for the item responses were from A to E. This selection followed immediately after a series of valid

response sections of A through E. Other invalid responses ranged from 0 to 97 cases (0 to 0.5%).

A concern regarding missing cases is addressed by Tabachnick and Fidell (2001): “If only a few data points, say, 5%, are missing in a random pattern from a large data set, the problems are less serious and almost any procedure for handling missing values yields similar results” (p.59). Thus, although only a small portion of cases were missing out of the large dataset ($n = 19,190$), it was necessary to investigate if those cases were missing randomly. Because all items on proactive bystander behaviors had 3.0% or more cases missing, including one item with 5% missing, and had substantial cases selecting an invalid option of F, the decision was made to investigate both missing and invalid cases on these five variables. Table 4.4 displays each proactive bystander behavior item and numbers of missing cases and cases in option F along with responses in other categories for a more complete representation.

Table 4.4

Missing, Invalid, and Valid Cases for Proactive Bystander Behavior Items

Category	Number of Responses for Proactive Bystander Behavior Items (%)				
	Q82	Q83	Q84	Q85	Q86
Missing	630 (3.3)	1,001 (5.2)	639 (3.3)	643 (3.4)	643 (3.4)
Option F	5,356 (27.9)	4,789 (25.0)	5,037 (26.2)	5,846 (30.5)	5,865 (30.6)
Other Invalid	265 (1.4)	267 (1.4)	262 (1.4)	262 (1.4)	264 (1.4)
Valid	12,939 (67.4)	13,133 (68.4)	13,252 (69.1)	12,439 (64.8)	12,418 (64.7)

Note. $n = 19,190$. See Appendix B for questions and response options for each item. Missing = missing cases; Option F = an option immediately after the last valid response option; Other invalid = invalid cases, including student and parental refusals, that followed option F; and Valid = all cases responded within valid options A through E.

To inspect potential patterns of missing and invalid cases, cross-tabulation was used to examine if the way questions were answered differed based on three variables: intervention status of the school, sex, and grade. As shown in Table 4.5, intervention status of the school indicated if the school received Green Dot program (intervention group) or not (control group) and contained no missing or invalid cases because they were all coded per school by the research team. The sex variable included female and male and had 48 missing and invalid cases removed ($n = 19,142$). For the grade variable, missing and invalid ($n = 41$) and ungraded ($n = 79$) cases were removed, leaving 9th through 12th grades ($n = 19,070$) for the inspection.

Table 4.5

Number of Cases in Variables Used in Missing and Invalid Cases Inspection

Variable	Categories	<i>n</i>	%	Total Cases Included in Inspection
Intervention Status	Control	9,133	47.6	19,190
	Intervention	10,057	52.4	
	Missing	0	0	
	Invalid	0	0	
Sex	Female	10,337	53.9	19,142
	Male	8,805	45.9	
	Missing	18	0.1	
	Invalid	30	0.1	
Grade	9 th	5,803	30.2	19,070
	10 th	5,227	27.2	
	11 th	4,555	23.7	
	12 th	3,485	18.2	
	Ungraded	79	0.4	
	Missing	17	0.1	
	Invalid	24	0.1	

Table 4.6 provides the results of cross tabulation for response categories of all five variables based on intervention status, which indicate if the school received the Green Dot program. For Q82, the chi-square test revealed no significant differences among missing cases or Option F regardless of intervention status. The other four variables produced significant differences in how questions were answered between

students in control schools and intervention schools. The results showed that students in schools with no Green Dot program missed answering four of the questions significantly more than those in schools with Green Dot. Significantly more students in intervention schools marked the F option than those in control schools. This indicated that the patterns of missing cases were not completely at random based on intervention status.

Table 4.6

Cross-tabulation of Response Categories of Proactive Bystander Behavior Questions by Intervention Status

Q	Intervention Status	Response Categories				χ^2
		Missing	Option F	Other Invalid	Valid	
82	Control	316 (50.2)	2,475 (46.2)	122 (46.0)	6,220 (48.1)	7.13*
	Intervention	314 (49.8)	2,881 (53.8)	143 (54.0)	6,719 (51.9)	
83	Control	512 (51.1)	2,171 (45.3)	120 (44.9)	6,330 (48.2)	17.57**
	Intervention	489 (48.9)	2,618 (54.7)	147 (55.1)	6,803 (51.8)	
84	Control	329 (51.5)	2,292 (45.5)	119 (45.4)	6,393 (48.2)	15.44**
	Intervention	310 (48.5)	2,745 (54.5)	143 (54.6)	6,859 (51.8)	
85	Control	332 (51.6)	2,684 (45.9)	119 (45.4)	5,998 (48.2)	1.29***
	Intervention	311 (48.4)	3,162 (54.1)	143 (54.6)	6,441 (51.8)	
86	Control	330 (51.3)	2,701 (46.1)	121 (45.8)	5,981 (48.2)	11.11****
	Intervention	313 (48.7)	3,164 (53.9)	143 (54.2)	6,437 (51.8)	

Note. Q = question; Control = schools without Green Dot program ($n = 9,133$); Intervention = schools where Green Dot program was implemented ($n = 10,057$). Numbers in parentheses indicate column percentages. $N = 19,190$; $df = 3$. Missing patterns of those items were not completely at random.

* $p = .065$. ** $p = .001$. *** $p = .004$. **** $p = .011$.

Next, each question was examined by sex. As shown in Table 4.7, chi-square tests showed a statistically significant difference in the response categories based on sex. For each variable, the pattern revealed where males were represented more than females in the missing and invalid cases. More males also marked invalid options other than F. The analyses found that females were represented more than males in valid cases and Option F. The patterns of missing items were not completely at random.

Table 4.7

Cross-tabulation of Response Categories of Proactive Bystander Behavior Questions by Sex

Q	Sex	Response Categories				χ^2
		Missing	Option F	Other Invalid	Valid	
82	F	254 (41.0)	3,202 (59.8)	87 (35.5)	6,794 (52.6)	160.34*
	M	366 (59.0)	2,149 (40.2)	158 (64.5)	6,132 (47.4)	
83	F	438 (44.2)	2,873 (60.0)	87 (35.4)	6,939 (52.9)	149.56*
	M	553 (55.8)	1,912 (40.0)	159 (64.6)	6,181 (47.1)	
84	F	253 (40.3)	3,036 (60.3)	87 (36.0)	6,961 (52.6)	170.67*
	M	375 (59.7)	1,998 (39.7)	155 (64.0)	6,277 (47.4)	
85	F	254 (40.2)	3,529 (60.4)	88 (36.4)	6,466 (52.0)	194.68*
	M	378 (59.8)	2,313 (39.6)	154 (63.6)	5,960 (48.0)	
86	F	260 (41.1)	3,510 (59.9)	88 (36.1)	6,479 (52.2)	160.34*
	M	372 (58.9)	2,352 (40.1)	156 (63.9)	5,925 (47.8)	

Note. Q = question; F= female ($n = 10,337$); M = male ($n = 8,805$). Numbers in parentheses indicate column percentages. $N = 19,141$; $df = 3$. Missing patterns of those items were not completely random.

* $p = .000$.

Finally, difference in response categories based on grade was statistically significant as displayed in Table 4.8. Cross-tabulation revealed that 9th-grade students missed answering questions significantly more than students in other grades. The pattern also indicated that the missing cases decreased with an increase in grade level. Significantly more respondents in the 9th grade also marked Option F than those in other grades. Missing item patterns were not completely random.

Table 4.8

Cross-tabulation of Response Categories of Proactive Bystander Behavior Questions by Grade

Q	Grade	Response Categories				χ^2
		Missing	Option F	Other Invalid	Valid	
82	9 th	231 (37.4)	1,547 (29.0)	75 (31.0)	3,950 (30.7)	35.79*
	10 th	175 (28.4)	1,465 (28.0)	53 (21.9)	3,534 (27.5)	
	11 th	127 (20.6)	1,307 (24.5)	55 (22.7)	3,066 (23.8)	
	12 th	84 (13.6)	1,024 (19.2)	59 (24.4)	2,318 (18.0)	
83	9 th	368 (37.3)	1,371 (28.7)	74 (30.5)	3,990 (30.5)	42.08*
	10 th	269 (27.3)	1,316 (27.5)	54 (22.2)	3,588 (27.5)	
	11 th	205 (20.8)	1,184 (24.8)	55 (22.6)	3,111 (23.8)	
	12 th	145 (14.7)	907 (19.0)	60 (24.7)	2,373 (18.2)	
84	9 th	232 (37.1)	1,458 (29.0)	73 (30.5)	4,040 (30.7)	31.78*
	10 th	176 (28.2)	1,397 (27.8)	53 (22.2)	3,601 (27.3)	
	11 th	131 (21.0)	1,238 (24.6)	54 (22.6)	3,132 (23.8)	
	12 th	86 (13.8)	932 (18.5)	59 (24.7)	2,408 (18.3)	
85	9 th	234 (37.2)	1,655 (28.4)	73 (30.5)	3,841 (31.1)	44.63*
	10 th	180 (28.6)	1,596 (27.4)	53 (22.2)	3,398 (27.5)	
	11 th	130 (20.7)	1,466 (25.1)	55 (23.0)	2,904 (23.5)	
	12 th	85 (13.5)	1,115 (19.1)	58 (24.3)	2,227 (18.0)	
86	9 th	235 (37.4)	1,694 (28.9)	73 (30.3)	3,801 (30.8)	38.84*
	10 th	181 (28.8)	1,594 (27.2)	54 (22.4)	3,398 (27.5)	
	11 th	130 (20.7)	1,462 (25.0)	55 (22.8)	2,908 (23.6)	
	12 th	83 (13.2)	1,102 (18.8)	59 (24.5)	3,485 (18.3)	

Note. Q = question. 9th grade ($n = 5,803$); 10th grade ($n = 5,227$); 11th grade ($n = 4,555$); 12th grade ($n = 3,485$). Numbers in parentheses indicate column percentages. $N = 19,070$; $df = 9$. Missing patterns of those items were not completely random.

* $p = .000$.

Due to the nature of survey research, patterns in missing cases and invalid cases were expected. This study has followed the pattern reported from past studies where females responded at higher rates than males (Dey, 1997; Porter & Whitcomb, 2005). The higher valid rates for intervention schools in this study may indicate higher interest in the topic by the students as reported in another study (Groves, Singer, & Corning, 2000). Besides, there was only one item that had more than 5% missing. For Option F, the pattern based on intervention status and sex showed that the students responded as if it were a part of provided options. Additionally, the research team of the parent study had already decided to recode F as “no opportunity” for all five proactive bystander behavior items (C. Brancato, personal communication, July 29, 2016). For this study, no opportunity option in bystander behavior items was combined with option of 0 times, meaning no bystander action was taken even when there was an opportunity. Thus, the decision was made to delete all missing and invalid cases and use listwise deletion for all analyses. Further screening of data for statistical assumptions was conducted as part of the analysis for research questions in the respective sections below.

Results of the Study Analyses

Research Question 1. Does the experience of polyvictimization differ among students based on their sex, grade, sexual attraction, and exposure to parental partner violence?

1 H₀. The experience of polyvictimization does not differ among students based on their sex, grade, sexual attraction, and exposure to parental partner violence. In other words, there is no association between the experience of polyvictimization and students’ sex, grade, sexual attraction, and exposure to parental partner violence.

1 H₁₋₁. More females are polyvictims than males.

1 H₁₋₂. More older students are polyvictims than younger students.

1 H₁₋₃. More non-heterosexual students are polyvictims than exclusively heterosexual students.

1 H₁₋₄. More students exposed to parental partner violence are polyvictims than non-exposed students.

Cross-tabulation was used to test all hypotheses of Research Question 1, including victimization in psychological and physical dating violence as well as sexual harassment and stalking. Pearson's chi-square test was used to describe the significance of association between two categorical variables

1 H₁₋₁. More females are polyvictims than males.

Cross-tabulation was conducted to examine if experience of both psychological and physical dating violence victimization in the past 12 months differed between female and male students. With listwise deletion, 18,665 cases were included in this analysis. As shown in Table 4.9, 1,714 (9.2%) of the sample reported polyvictimization of psychological and physical dating violence. As hypothesized, more females (54.1%) were represented in the polyvictim group than males (45.9%). The within-group percentage of polyvictims was approximately the same for both groups. Single victimization of either psychological or physical dating violence was also experienced by more female ($n = 2,068$; 64.0%) than male students ($n = 1,161$; 36.0%). A Pearson's chi-square test revealed that the association between sex and victimization was statistically significant, $\chi^2(2, 18665) = 146.303, p = .000$.

The same procedure was repeated for sexual harassment and stalking victimization with results displayed in Table 4.9. Among 18,574 students, 2,042 (11%) reported polyvictimization of sexual harassment and stalking while 4,652 (25%) reported either sexual harassment or stalking victimization. There were 1,361(66.7%) females among the polyvictims. Females (13.4%) also had a higher within-group rate of polyvictimization compared to males (8.1%). The association between sex and victimization was also statistically significant, $\chi^2 (2, 18574) = 451.316, p = .000$.

Table 4.9

Cross-tabulation of Sex and Victimization in Psychological-Physical Dating Violence and Sexual Harassment-Stalking

		Psychological and Physical DV Victimization			χ^2
Sex		Non-Victims	Single-Victims	Polyvictims	
Female	Count	7,172	2,068	928	146.30*
	Within Sex	70.5%	20.3%	9.1%	
	Total	38.4%	11.1%	5.0%	
Male	Count	6,550	1,161	786	
	Within Sex	77.1%	13.7%	9.3%	
	Total	35.1%	6.2%	4.2%	
		Sexual Harassment and Stalking Victimization			χ^2
Sex		Non-Victims	Single-Victims	Polyvictims	
Female	Count	5,785	2,976	1,361	451.32*
	Within Sex	57.2%	29.4%	13.4%	
	Total	31.1%	16.0%	7.3%	
Male	Count	6,095	1,676	681	
	Within Sex	72.1%	19.8%	8.1%	
	Total	32.8%	9.0%	3.7%	

Note. DV = dating violence. Column percentages are indicated in Total rows.

* $p = .000$

1 H₁-2. More older students are polyvictims than younger students.

The analysis revealed that, among 18,598 in the sample, 947 students in 9th and 10th grades (56.1%) reported polyvictimization in psychological and physical dating violence compared to 741 in 11th and 12th grades (43.9%) (see Table 4.10). A smaller percentage of students within the younger student group (8.8%) reported polyvictimization compared to those in the older student group (9.4%). Single-victimization resulted in similar results where 1,812 (56.3%) of victims were in 9th or 10th grade and 1,407 (43.7%) were in 11th or 12th grade. A chi-square test found that the association between grade and victimization of psychological and physical dating violence was statistically significant, $\chi^2(2, 18598) = 7.04, p = .03$.

As shown in Table 4.10, 18,507 cases were included in the cross-tabulation with sexual harassment and stalking victimization. There were 2,015 (10.9%) students who reported polyvictimization in these types of violence in the past year. Of those, 1,235 (61.4%) were in 9th or 10th grade while 780 (38.7%) were in 11th or 12th grade. The younger students (62.4%) also reported more single-victimization than older students (37.6%). The difference in sexual harassment and stalking victimization based on grade was statistically significant, $\chi^2(2, 18507) = 76.491, p = .000$.

Table 4.10

Cross-tabulation of Grade and Victimization in Psychological-Physical Dating Violence and Sexual Harassment-Stalking

		Psychological and Physical DV Victimization			
Grade		Non-Victims	Single-Victims	Polyvictims	χ^2
9-10 th	Count	7,996	1,812	947	7.04*
	Within Grade	74.3%	16.8%	8.8%	
	Total	43.0%	9.7%	5.1%	
11-12 th	Count	5,695	1,407	741	
	Within Grade	72.6%	17.9%	9.4%	
	Total	30.6%	7.6%	4.0%	
		Sexual Harassment and Stalking Victimization			
Grade		Non-Victims	Single-Victims	Polyvictims	χ^2
9-10 th	Count	6,571	2,894	1,235	76.49**
	Within Grade	61.4%	27.0%	11.5%	
	Total	35.5%	15.6%	6.7%	
11-12 th	Count	5,280	1,747	780	
	Within Grade	67.6%	22.4%	10.0%	
	Total	28.5%	9.4%	4.2%	

Note. DV = dating violence. Column percentages are indicated in Total rows.

* $p = .03$. ** $p = .000$

1 H₁₋₃. More non-heterosexual students are polyvictims than exclusively heterosexual students.

There were 18,372 cases included in the cross-tabulation that examined difference in psychological and physical dating violence victimization based on sexual attraction (see Table 4.11). Out of 1,659 students who reported polyvictimization, 1,227 (74.0%) were those who self-identified as exclusively heterosexual in their sexual attraction. Within the non-heterosexual group, 432 polyvictims represented 17.9% of the group ($n = 2,417$) compared to 1,227 (7.7%) within the exclusively heterosexual group ($n = 15,955$). For single-violence victimization, 2,663 (82.8%) were exclusively heterosexual. The within group percentage of single-violence victims was higher for non-heterosexual students (22.7%) than exclusively heterosexual students (16.5%). The chi-square tests confirmed that these differences were statistically significant, $\chi^2(2, 18372) = 363.397, p = .000$.

The results were similar for victimization of sexual harassment and stalking among 18,285 respondents where 1,969 (10.8%) of them were polyvictims in the past 12 months. Out of those polyvictims, 1,439 (73.1%) were exclusively heterosexual (see Table 4.11). However, the rate within the exclusively heterosexual group was only 9.1% compared to 22.1% in the non-heterosexual group. The association between victimization of sexual harassment and stalking and sexual attraction was statistically significant, $\chi^2(2, 18285) = 474.241, p = .000$.

Table 4.11

*Cross-tabulation of Sexual Attraction and Victimization in Psychological-Physical**Dating Violence and Sexual Harassment-Stalking*

		Psychological and Physical DV Victimization			χ^2
SA		Non-Victims	Single-Victims	Polyvictims	
Non	Count	1,437	548	432	363.40*
	Within SA	59.5%	22.7%	17.9%	
	Total	7.8%	3.0%	2.4%	
Hetero	Count	12,095	2,633	1,227	
	Within SA	75.8%	16.5%	7.7%	
	Total	65.8%	14.3%	6.7%	
		Sexual Harassment and Stalking Victimization			χ^2
SA		Non-Victims	Single-Victims	Polyvictims	
Non	Count	1,146	723	530	474.24*
	Within SA	47.8%	30.1%	22.1%	
	Total	6.3%	4.0%	2.9%	
Hetero	Count	10,597	3,850	1,439	
	Within SA	66.7%	24.2%	9.1%	
	Total	58.0%	21.1%	7.9%	

Note. DV = dating violence; SA = sexual attraction; Non = not exclusively heterosexual; Hetero = exclusively heterosexual. Column percentages are indicated in Total rows.

* $p = .000$

1 H₁₋₄. More students exposed to parental partner violence are polyvictims than non-exposed students.

Out of 18,662 cases included in the analysis, 1,719 (9.2%) were polyvictims of psychological and physical dating violence. As displayed in Table 4.12, there were 878 polyvictims who were non-exposed to parental partner violence (51.1%), representing 6% of the non-exposed group. In comparison, 841 students exposed to parental partner violence represented 20.8% of the group. The same pattern was observed for single-victimization. The chi-square test confirmed that there was statistically significant association between victimization and exposure to parental partner violence, $\chi^2 (2, 18662) = 1153.721, p = .000$.

For sexual harassment and stalking victimization, 18,572 cases were included in cross-tabulation (see Table 4.12). Among all 2,045 polyvictims, 1,145 (56%) were students with no report of parental partner violence. The within-group rate of polyvictimization was much higher for students exposed to parental partner violence (22.4%) than non-exposed students (7.9%). Similarly, the within group rate of single-violence victimization was higher for exposed students (32.5%) than non-exposed students (23.0%). A statistically significant association was found between exposure to parental partner violence and victimization in sexual harassment and stalking, $\chi^2 (2, 18572) = 1002.927, p = .000$.

Table 4.12

Cross-tabulation of Exposure to Parental Partner Violence and Victimization in Psychological-Physical Dating Violence and Sexual Harassment-Stalking

		Psychological and Physical DV Victimization			χ^2
EPV		Non-Victims	Single-Victims	Polyvictims	
No	Count	11,498	2,234	878	1153.72*
	Within EPV	78.7%	15.3%	6.0%	
	Total	61.6%	12.0%	4.7%	
Yes	Count	2,217	994	841	
	Within EPV	54.7%	24.5%	20.8%	
	Total	11.9%	5.3%	4.5%	
		Sexual Harassment and Stalking Victimization			χ^2
EPV		Non-Victims	Single-Victims	Polyvictims	
No	Count	10,063	3,343	1,145	1002.93*
	Within EPV	69.2%	23.0%	7.9%	
	Total	54.2%	18.0%	6.2%	
Yes	Count	1,813	1,308	900	
	Within EPV	45.1%	32.5%	22.4%	
	Total	9.8%	7.0%	4.8%	

Note. DV = dating violence; EPV = exposure to parental partner violence. Column percentages are indicated in Total rows.

* $p = .000$

Summary. The null hypothesis of the first research question was rejected as the results of cross-tabulation found that the experience of polyvictimization was different among students based on their sex, grade, sexual attraction, and exposure to parental partner violence. In other words, there were associations between the experience of polyvictimization and sex, grade, sexual attraction, and exposure to parental partner violence. The first alternative hypothesis, that more polyvictims are females than males, was supported. The second alternative hypothesis was supported but more younger students were polyvictims than older students in both types of polyvictimization. The third alternative hypothesis was also supported where more polyvictims were among exclusively heterosexual students than non-heterosexual students. A much higher percentage of non-heterosexual students reported polyvictimization than exclusively heterosexual students. Similarly, the fourth alternative hypothesis was supported. More students with no parental partner violence exposure were polyvictims of both types of violence than students exposed to parental violence but a much higher percentage of those exposed to parental partner violence were polyvictims than non-exposed group.

Research Question 2. Does the experience of polyperpetration differ among students based on their sex, grade, sexual attraction, and exposure to parental partner violence?

2 H_0 . The experience of polyperpetration does not differ among students based on their sex, grade, sexual attraction, and exposure to parental partner violence. In other words, there is an association between the experience of polyperpetration and students' sex, grade, sexual attraction, and exposure to parental partner violence.

2 H₁₋₁. More males are polyperpetrators than females.

2 H₁₋₂. More older students are polyperpetrators than younger students.

2 H₁₋₃. More non-heterosexual students are polyperpetrators than exclusively heterosexual students.

2 H₁₋₄. More students exposed to parental partner violence are polyperpetrators than non-exposed students.

Cross-tabulation was used to test hypotheses as described below. Pearson's chi-square test was observed to describe the significance of association between two categorical variables

2 H₁₋₁. More males are polyperpetrators than females.

Out of 18,104 students in this analysis, 986 (5.4%) reported perpetrating both psychological and physical dating violence (see Table 4.13). These polyperpetrators included 600 females (60.9%) and 386 males (39.1%). There were 1,246 (65.8%) female students reporting use of either psychological or physical violence in their dating relationship compared to 648 (34.2%) males. Within-group rates of polyperpetration were higher for females (6.1%) than males (4.7%). The association between sex and perpetration of psychological and physical dating violence was statistically significant, $\chi^2(2, 18104) = 129.257, p = .000$.

Table 4.13

Cross-tabulation of Sex and Psychological-Physical Dating Violence Perpetration

Sex		Psychological and Physical DV Perpetration			χ^2
		Non-Perpetrators	Single-Perpetrators	Polyperpetrators	
Female	Count	8,051	1,246	600	129.26*
	Within Sex	81.3%	12.6%	6.1%	
	Total	44.5%	6.9%	3.3%	
Male	Count	7713	648	386	
	Within Sex	87.4%	7.9%	4.7%	
	Total	39.6%	3.6%	2.1%	

Note. DV = dating violence. Column percentages are indicated in Total rows.

* $p = .000$

2 H₁-2. More older students are polyperpetrators than younger students.

As displayed in Table 4.14, perpetration of both psychological and physical dating violence was reported by 960 (5.3%) of 18,036 students in this sample. Among them, 531 (55.3%) were in 9th or 10th grade while 429 (44.7%) were in 11th or 12th grade. The within-group rates of polyperpetration were slightly higher for the older grade group (5.6%) than the younger group (5.1%). For single perpetration, 1,016 (53.7%) students were in the younger group and 875 (46.3%) were in the older group. A Pearson chi-square test confirmed a statistically significant association between perpetration and students' grade, $\chi^2(2, 18036) = 16.750, p = .000$.

Table 4.14

Cross-tabulation of Grade and Psychological-Physical Dating Violence Perpetration

		Psychological and Physical DV Perpetration			χ^2
Grade		Non-Perpetrators	Single-Perpetrators	Polyperpetrators	
9-10 th	Count	8,854	1,016	531	16.75*
	Within Grade	85.1%	9.8%	5.1%	
	Total	49.1%	5.6%	2.9%	
11-12 th	Count	6,331	875	429	
	Within Grade	82.9%	11.5%	5.6%	
	Total	35.1%	4.9%	2.4%	

Note. DV = dating violence. Column percentages are indicated in Total rows.

* $p = .000$

2 H₁₋₃. More non-heterosexual students are polyperpetrators than exclusively heterosexual students.

Among 17,824 cases in this analysis, 933 (5.2%) were perpetrators of both psychological and physical dating violence, including 645 (69.1%) exclusively heterosexual students and 288 (30.9%) non-heterosexual students (see Table 4.15). The within-group rate was only 4.2% for the exclusively heterosexual group of 645 polyperpetrators compared to 12.3% for the non-heterosexual group of 288 polyperpetrators. Similarly, for single perpetration, 1,509 (80.7%) students identified as exclusively heterosexual while 361 (19.3%) identified as not exclusively heterosexual. The within-group rate was much higher for non-heterosexual group (15.4%) than for

heterosexual group (9.7%). A chi-square test confirmed statistically significant association between perpetration and sexual attraction, $\chi^2(2, 17824) = 364.715, p = .000$.

Table 4.15

Cross-tabulation of Sexual Attraction and Psychological-Physical Dating Violence

Perpetration

SA		Psychological and Physical DV Perpetration			χ^2
		Non-Perpetrators	Single-Perpetrators	Polyperpetrators	
Non	Count	1,694	361	288	364.72*
	Within SA	72.3%	15.4%	12.3%	
	Total	9.5% %	2.0% %	1.6% %	
Hetero	Count	13,327	1,509	645	
	Within SA	86.1%	9.7%	4.2%	
	Total	74.8%	8.5%	3.6%	

Note. DV = dating violence; SA = sexual attraction; Non = not-exclusively heterosexual; Hetero = exclusively heterosexual. Column percentages are indicated in Total rows.
* $p = .000$

2 H₁₋₄. More students exposed to parental partner violence are polyperpetrators than non-exposed students.

As displayed in Table 4.16, out of 18,097 respondents, there were 988 polyperpetrators (5.5%) in this analysis. Among them, 538 (54.5%) reported witnessing parental partner violence and 450 (45.5%) did not. The within-group percentage of polyperpetrators was much larger for exposed students (13.8%) than non-exposed students (3.2%). For single perpetration of either psychological or physical dating violence, 660 (34.8%) were witnesses to parental partner violence and 1,238 (65.2%)

were not. The within-group rate was higher for witnesses (16.9%) than non-witnesses (8.7%). The association between perpetration of psychological and physical dating violence and exposure to parental partner violence was statistically significant, $\chi^2(2, 18097) = 951.136, p = .000$.

Table 4.16

Cross-tabulation of Sexual Attraction and Psychological-Physical Dating Violence Perpetration by Exposure to Parental Partner Violence

EPV		Psychological and Physical DV Perpetration			χ^2
		Non-Perpetrators	Single-Perpetrators	Polyperpetrators	
No	Count	12,498	1,238	450	951.14*
	Within EPV	88.1%	8.7%	3.2%	
	Total	69.1%	6.8%	2.5%	
Yes	Count	2,713	660	538	
	Within EPV	69.4%	16.9%	13.8%	
	Total	15.0%	3.6%	3.0%	

Note. DV = dating violence; EPV = exposure to parental partner violence. Column percentages are indicated in Total rows.

* $p = .000$

Summary. The null hypothesis for the second research question was rejected as the cross-tabulation revealed statistically significant differences in polyperpetration based on sex, grade, sexual attraction, and exposure to parental partner violence. The first alternative hypothesis on sex and perpetration was supported where more females reported polyperpetration than males. The second alternative hypothesis was also supported with more younger students reporting polyperpetration than older students.

The third alternative hypothesis on sexual attraction was also supported. Although there were more polyperpetrators who were exclusively heterosexual, within-group statistics revealed that a much larger percentage of non-heterosexual students were polyperpetrators compared to exclusively heterosexual students. The last alternative hypothesis was also supported: Students exposed to parental partner violence were more likely to be polyperpetrators than non-exposed students based on both between- and within-group rates.

Research Question 3. Is there a difference in active bystander behaviors based on different levels of violence victimization?

3 H_0 . There is no difference in active bystander behaviors based on different levels of violence victimization.

3 H_1 . Polyvictims score higher on active bystander behaviors than others.

One-way analysis of variance (ANOVA) was conducted to compare the level of active bystander behaviors across different groups based on students' experience of violence. In order to prepare the data for ANOVA, further screening and manipulation were warranted to test for statistical assumptions, including normal distribution and homogeneity of variance (Mertler & Vannatta, 2010). Inspection of normality was conducted prior to conducting ANOVA and homogeneity of variance as part of ANOVA.

First, the dependent variable, active bystander behaviors, was assessed for normality of distributions. Table 4.17 displays how the distribution improved by removal of outliers and transformation. As described in Chapter 3, the dependent variable was a composite variable consisting of two types of active bystander behaviors, reactive (7 items) and proactive (5 items), and ranged between 0 and 48. The distribution was

positive with a skewness of 2.499 and kurtosis of 8.729. In order to identify outliers, z-scores were calculated. For a dataset larger than 100 cases, a z-score exceeding ± 4.0 is generally considered an outlier (Mertler & Vannatta, 2010). There were 152 outliers in this dataset ($n = 16,961$) with a z-score of 4.0. Removal of these outliers reduced skewness to 1.795 but was still far from the generally accepted level of ± 1 (Mertler & Vannatta, 2010). The square root transformation was applied to this variable and resulted in improved skewness of .479. Thus, the dependent variable with 16,809 cases was used for the analysis. The square root transformation altered the range of the scale to between 0 and 5.39. This same transformed variable was used to investigate the rest of the research questions, 3, 4, 5, and 6. Table 4.17 displays the improved distribution of normality for the variable.

Table 4.17

Active Bystander Behavior Variable Distribution Improvement

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Original	16,961	4.544	6.244	2.499	8.729
Outliers removed	16,809	4.246	5.393	1.795	3.242
Transformed	16,809	1.575	1.329	.479	-.559

3 H_0 . There is no difference in active bystander behaviors based on different levels of violence victimization.

3 H_1 . Polyvictims score higher on active bystander behaviors than others.

ANOVA was conducted to compare victimization on levels of active bystander behaviors. Two separate analyses were conducted for victimization of psychological and physical dating violence and for sexual harassment and stalking.

First, the analysis was conducted with psychological and physical dating violence victimization as the independent variable. Three categories in this variable were no victimization ($n = 12,450$), either psychological or physical victimization ($n = 2,873$), and polyvictimization ($n = 1,403$). According to Tabachnick and Fidell (2001), “problems created by unequal group sizes are relatively minor” (p. 46) when conducting ANOVA. Additionally, unequal group sizes were unavoidable due to the nature of the topic where victims or perpetrators are much less among participants in the community sample as seen in other studies (e.g., Fisher et al., 2014; Hamby et al., 2012; Haynie et al., 2013). Thus, the analysis proceeded as planned.

The remaining assumption of homogeneity of variance was first examined using Levene’s test, which indicated violation of this assumption, $F(2, 16723) = 65.674, p = .000$. When the homogeneity of variance assumption is violated, adjusted F should be obtained. Field (2013) suggests to consult with two options of F -ratios available in SPSS “which have been derived to be robust when homogeneity of variance has been violated” (p. 443). Both of these tests of equality of means were significant at the .05 alpha level: Welch’s test, $F(2, 3031.739) = 788.754, p = .000$; and Brown-Forsythe test, $F(2,$

4023.265) = 771.051, $p = .000$. Thus, it was permissible to conduct ANOVA (Field, 2013).

As shown in Table 4.18, the mean score on active bystander behaviors increases as the number of victimization experiences increase from zero, one, to two. The difference was statistically significant at the $p < .05$ level in the behavior scale for three categories of victimization, $F(2, 16723) = 918.44, p = .000$ (see Table 4.19). The effect size was calculated based on the following formula:

$$\frac{\text{SS Between Groups}}{\text{Total SS}} = \text{Eta Squared}$$

This resulted in $\eta^2 = .099$, which is medium to large effect according to Cohen's classification (Cohen, 1988).

Table 4.18

Descriptive Statistics of Active Bystander Behaviors by Psychological-Physical Dating Violence Victimization Category

Category	<i>n</i>	<i>M</i>	<i>SD</i>	95% CI	
				Lower Limit	Upper Limit
Non-victims	12,450	1.34	1.22	1.32	1.36
Single-victims	2,873	2.11	1.30	2.06	2.16
Polyvictims	1,403	2.57	1.48	2.49	2.65
Total	16,726	1.57	1.33	1.55	1.59

Note. Active Bystander Behaviors variable ranged from 0 to 5.39 (min.-max., and observed).

Table 4.19

*Results of ANOVA for Active Bystander Behaviors by Psychological-Physical Dating**Violence Victimization Category*

Source	SS	df	MS	F	p	η^2
Between Groups	2915.02	2	1457.51	918.44	.000	.10
Within Groups	26538.41	16723	1.59			
Total	29453.44	16725				

Post-hoc comparisons were conducted using the Games-Howell test because the variance of scores for the three groups was not equal (Field, 2013). The result revealed that the mean scores were significantly different at $p < .05$ for the three groups: non-victims ($M = 1.337$, $SD = 1.224$) single-victims ($M = 2.112$, $SD = 1.297$), and polyvictims ($M = 2.567$, $SD = 1.479$).

Next, victimization by sexual harassment and stalking was entered as the independent variable in ANOVA. This variable also included unequal sample sizes for non-victims ($n = 10,853$), victims of either sexual harassment or stalking ($n = 4,146$), and polyvictims ($n = 1,716$). Since the Levene's test was statistically significant, $F(2, 16712) = 61.317$, $p = .000$, Welch's test and Brown-Forsythe test were used to obtain the adjusted F -statistic. Both tests resulted in statistical significance at the alpha level of .05, indicating that ANOVA could be conducted: Welch's $F(2, 4095.387) = 1335.408$, $p = .000$; and Brown-Forsythe $F(2, 5585.122) = 1295.300$, $p = .000$.

The mean scores of active bystander behaviors differed among all victim groups as shown in Table 4.20. ANOVA revealed that the differences were statistically

significant, $F(2, 16715) = 1502.786, p = .000$, with a large effect size ($\eta^2 = .152$) (see Table 4.21). Post-hoc comparisons using the Games-Howell test resulted in statistical significance at $p < .05$ for all combinations: non-victims ($M = 1.212, SD = 1.164$) single-victims ($M = 2.060, SD = 1.294$), and polyvictims ($M = 2.677, SD = 1.388$).

Table 4.20

Descriptive Statistics of Active Bystander Behaviors by Sexual Harassment-Stalking Victimization Category

Category	N	M	SD	95% CI	
				Lower Limit	Upper Limit
Non-victims	10,853	1.21	1.64	1.19	1.23
Single-victims	4,146	2.06	1.29	2.02	2.10
Polyvictims	1,716	2.68	1.39	2.61	2.74
Total	16,715	1.57	1.33	1.55	1.59

Note. Active Bystander Behaviors variable ranged from 0 to 5.39 (min.-max., and observed).

Table 4.21

Results of ANOVA for Active Bystander Behaviors by Sexual Harassment-Stalking Victimization Category

Source	SS	df	MS	F	p	η^2
Between Groups	4485.08	2	2242.54	1502.79	.000	.15
Within Groups	24938.54	16712	1.49			
Total	29423.62	16714				

Summary. The null hypothesis that there is no difference in active bystander behaviors based on different levels of violence victimization was rejected. The alternative hypothesis was supported as polyvictims did show the higher level of active bystander behaviors than other two groups in both types of victimizations (psychological and physical dating violence, sexual harassment and stalking).

Research Question 4. Is there a difference in active bystander behaviors based on different levels of violence perpetration?

4 H_0 . There is no difference in active bystander behaviors based on different levels of violence perpetration.

4 H_1 . Polyperpetrators score lower on active bystander behaviors than others.

The same procedure as Research Question 3 was followed for ANOVA with perpetration of dating violence in psychological and physical forms as the independent variable. The same active bystander behavior variable was entered as the dependent variable. The independent variable for this analysis included three groups: non-perpetrators ($n = 13,955$), single-perpetrators ($n = 1,707$), and polyperpetrators ($n = 812$).

Levene's test of homogeneity of variance was used to test the assumption of no difference and resulted in unequal variances, $F(2, 16471) = 30.897, p = .000$. Two tests of equality of means were consulted for adjusted F -ratio and both were significant at the .05 alpha level: Welch's $F(2, 1649.135) = 565.316, p = .000$; and Brown-Forsythe $F(2, 2148.604) = 554.896, p = .000$. Thus, it was permissible to conduct ANOVA (Field, 2013).

Table 4.22 shows that the mean score increased as the number of perpetration experience increased from zero to one, and from one to two. The ANOVA results were

statistically significant, $F(2, 16471) = 645.14, p = .000, \eta^2 = .073$ (see Table 4.23).

Based on post-hoc comparisons using the Games-Howell test, the difference of mean scores between each pair was statistically significant for each combination of all groups: non-perpetrators ($M = 1.428, SD = 1.265$), single-perpetrators ($M = 2.2465, SD = 1.268$), and polyperpetrators ($M = 2.703, SD = 1.489$).

Table 4.22

Descriptive Statistics of Active Bystander Behaviors by Psychological-Physical Dating Violence Perpetration Category

Category	<i>n</i>	<i>M</i>	<i>SD</i>	95% CI	
				Lower Limit	Upper Limit
Non-perpetrators	13,955	1.43	1.27	1.41	1.45
Single-perpetrators	1,707	2.25	1.27	2.19	2.31
Polyperpetrators	812	2.70	1.49	2.60	2.81
Total	16,474	1.58	1.33	1.56	1.60

Note. Active Bystander Behaviors variable ranged from 0 to 5.39 (min.-max., and observed).

Table 4.23

Results of ANOVA for Active Bystander Behaviors by Psychological-Physical Dating Violence Perpetration Category

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Between Groups	2104.54	2	1052.27	645.14	.000	.07
Within Groups	26865.32	16471	1.63			
Total	28969.87	16473				

Summary. The null hypothesis that there is no difference in active bystander behaviors based on different levels of violence perpetration was rejected. ANOVA revealed that active bystander behaviors differed for each level of dating violence perpetration. The alternative hypothesis that polyperpetrators score lower on active bystander behaviors was not supported. Students who self-identified as polyperpetrators demonstrated the highest level of active bystander behaviors among the three groups.

Research Question 5. Is there a difference in active bystander behaviors based on different levels of violence victimization after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance?

5 H_0 . There is no difference in active bystander behaviors based on different levels of violence victimization after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance.

Data preparation for ANCOVA. ANCOVA was conducted to determine whether the factors of sex, program exposure, and rape myth acceptance and dating violence affect the extent of active bystander behaviors.

As described earlier, the dependent variable was a composite score of active bystander behaviors which was transformed into a scale with a range of 0 to 5.39. The independent variables were combinations of different personal violence victimization: psychological and physical dating violence, and sexual harassment and stalking. Each victimization pair had three categories: no-victimization, single-victimization (either type of violence), and polyvictimization.

The number of covariates to be included in the analyses was confirmed. According to Huitema (1980), the number of covariates should be based on the sample

size and the number of categories and can be calculated using the formula below where C is the number of covariates, J is the number of groups, and N is the number of cases in the sample (Mertler & Vannatta, 2010).

$$\frac{C + (J - 1)}{N} < .10$$

This study proposed to use four covariates (i.e., sex, program exposure, rape myth acceptance, and dating violence acceptance) and one independent variable with three categories in each ANCOVA. The total number of cases was estimated to be over 15,000 in any given analyses, leading to the result below:

$$\frac{4 + (3 - 1)}{15000} < .0004$$

Since .0004 is lower than the criterion of .10, the number of covariates was acceptable.

Thus, four covariates could be entered into the analyses.

The four covariates included two dichotomous variables and two scales. Sex was a dichotomous variable with female (0) and male (1) and had 18 (0.1%) missing and 30 (0.1%) invalid cases out of the base dataset with all consented participants ($n = 19,190$). Program exposure was a dichotomous variable that indicated wither exposure (1) or no exposure (0), consisting of one item on exposure to program speech and another on participating in bystander training. The speech variable had 796 (4.1%) missing and 320 (1.7%) invalid cases. Missing cases in the training variable were 667 (3.5%) while invalid cases were (1.4%). The two program exposure questions were placed toward the end of the survey and expected to have pattern observed in proactive bystander behavior items as explained in the data screening and preparation section earlier in this chapter. Two other covariates, IRMAS and DVA, were abbreviated versions of attitude scales: the

Illinois Rape Myth Acceptance Scale-Short Form (IRMAS-SF; Payne et al., 1999) and Acceptance of Couple Violence (Dating Violence Acceptance or DVA; Dahlberg et al., 2005). For the current study, IRMAS was computed by adding all 7 items, resulting in composite scores ranging from 0 to 21 with higher score indicating more acceptance of rape myth. DVA was a composite score of 5 items, ranging from 0 to 15 with higher score reflecting more acceptance of dating violence. All items had missing cases of < 0.9% and invalid cases of < 0.7%. See Chapter 3 for descriptions of variables and Appendix B for survey questions and response options.

Statistical assumptions. The ANCOVA requires meeting several statistical assumptions: Normality of data distributions, homogeneity of variance, reliability of the covariates, linear relationship between covariates as well as covariates and dependent variable, and homogeneity of regression (Mertler & Vannatta, 2010; Tabachnick & Fidell, 2001). Prior to conducting ANCOVA, both univariate and multivariate examination of the data were conducted to test if these statistical assumptions were fulfilled for each analysis that included two different independent variables: psychological and physical dating violence victimization, and sexual harassment and stalking victimization

Psychological and physical dating violence victimization as an independent variable. First, two composite covariables were inspected for assumptions. Z-scores were calculated to identify outliers where z-scores of ± 4 were considered outliers for the large dataset ($n > 100$) (Mertler & Vannatta, 2010). There were 155 outliers (0.95 %) that fit the criteria and were removed from the dataset. Table 4.24 shows improvement of distribution for IRMAS and DVA. After the outliers were removed, the skewness improved for IRMAS from .984 to .620, which is within the acceptable range of ± 1

(Mertler & Vannatta, 2010). For DVA, the skewness improved from 1.327 to 1.012, which was still slightly above the acceptable level. However, “in a large sample, a variable with statistically significant skewness often does not deviate enough from normality to make a substantive difference in the analysis. ...the impact of departure from zero kurtosis also diminishes” (Tabachnick & Fidell, 2001, p.74). Thus, the variables were not transformed.

Table 4.24

Distribution Improvement for IRMAS and DVA Variables

Variable		<i>n</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
IRMAS	Original	16,359	5.623	3.618	.984	2.064
	Outliers Removed	16,204	5.494	3.364	.620	.671
DVA	Original	16,359	2.687	2.882	1.327	2.198
	Outliers Removed	16,204	2.580	2.665	1.012	.696

Next, the dependent variable was inspected for normal distribution in each group of psychological and physical dating violence victimization. The Kolmogorov-Smirnov test indicated that active bystander behavior scores for non-victims, $D(12145) = .199, p = .000$; for single-victims, $D(2790) = .092, p = .000$; and for polyvictims, $D(1269) = .80, p = .000$, were not distributed normally, violating the assumption. Because violation of the normality assumption is not a serious issue for a study with a large sample (Field, 2013) and skewness was within the acceptable level of ± 1 (Mertler & Vannatta, 2010) for all categories as shown in Table 4.25, the variable was not transformed. The data were then screened for grouped univariate homogeneity of variance. For the active

bystander behavior scores, the variances were unequal for all groups of psychological and physical dating violence victimization, $F(2, 16201) = 37.517, p = .000$.

Table 4.25

Distribution for Psychological and Physical Dating Violence Victimization Variable

Category	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Non-Victims	1.336	1.220	.615	-.289
Single-Victims	2.096	1.290	.065	-.599
Polyvictims	2.610	1.423	-.274	-.767

Note. $n = 16,204$. Dependent variable (active bystander behaviors) scores ranged from 0 to 5.39 (min.-max., and observed) in each category.

Further, multivariate data screening was conducted to examine continuous variables (bystander behaviors, IRMAS, DVA, sex, and program exposure) by group within the independent variable. In order to identify multivariate outliers, Mahalanobis distances were first calculated. Based on the critical value of $\chi^2 = 18.465$ at $p < .001$ and $df = 4$, cases with Mahalanobis distances greater than 18.465 were considered multivariate outliers. There were 144 such cases across three categories in the psychological and physical dating violence victimization variable. Removal of the multivariate outliers resulted in $n = 16,063$ for the analysis.

Next, multivariate normality and linearity were assessed through observation of scatterplots. “If both variables are normally distributed and linearly related, the scatterplot is oval-shaped” (Tabachnick & Fidell, 2001, p.77). The resulting graph indicated nonnormal distribution and nonlinear relationships for each combination of variables. However, serious impact can be minimized based on the size of the dataset as

“the central limit theorem suggests that, with large samples, sampling distributions are normal even if raw scores are not” (Tabachnick & Fidell, 2001, p.281).

To be included in ANCOVA as covariates, variables should have significant correlation with the dependent variable and low correlation among themselves (Mertler & Vannatta, 2010). All covariates had significant but weak correlation with the dependent variable, ranging from $r = .06$ to $.11$. Correlations between IRMAS and DVA covariates were significant and moderately strong ($r = .57$). Correlation among other combinations of covariates were significant but very weak, ranging from $r = .03$ to $.19$. Because of the exploratory nature of this study, the decision was made to include all covariates in the analysis.

Finally, the homogeneity of regression line statistics were inspected for interaction between independent variable and each covariate. This assumption calls for equal regression slopes between the covariate and the dependent variable for each group within the independent variable (Mertler & Vannatta, 2010). “If an IV-covariate interaction exists, the relationship between the covariate and DV is different at different levels of the IV(s)” (Mertler & Vannatta, 2010, p.98). When psychological and physical dating violence victimization was entered as the independent variable, sex was the only covariate that resulted in significant interaction, $F(2, 16063) = 10.194, p = .000$. This indicates that the relationship of sex (covariate) with active bystander behaviors (dependent variable) is different at different categories of victimization. ANCOVA is not recommended when F results in statistical significance (Mertler & Vannatta, 2010). However, because the effect size was extremely small ($\eta_p^2 = .001$), the variable of sex was included in ANCOVA.

Sexual harassment and stalking victimization as independent variable. Following the same procedure from above, inspection of outliers and normal distribution were first conducted for two composite covariates. In order to identify outliers, z -scores were calculated. Using the z -score of ± 4 as a threshold, 154 outliers (0.94%) were identified. As shown in Table 4.26, removal of these outliers improved the skewness for IRMAS from .983 to .622 while, for DVA, it improved from 1.328 to 1.011, slightly above the ± 1 generally accepted level of skewness (Mertler & Vannatta, 2010). Because the impact of the skewness is not serious with a large dataset (Tabachnick & Fidell, 2001), no transformation was performed.

Table 4.26

Distribution Improvement for IRMAS and DVA Variables

Variable		<i>n</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
IRMAS	Original	16,347	5.619	3.616	.983	2.061
	Outliers Removed	16,193	5.490	3.364	.622	.682
DVA	Original	16,347	2.690	2.883	1.328	2.207
	Outliers Removed	16,193	2.582	2.666	1.011	.694

The distribution of dependent variable scores for categories of the independent variable was inspected with Kolmogorov-Smirnov test for normality. The results indicated statistical significance for non-victims, $D(10596) = .220, p = .000$; single-victims, $D(4092) = .092, p = .000$; and $D(1568) = .060, p = .000$, violating the assumption of normality. Additionally, grouped univariate homogeneity of variance with Levene's test also resulted in violation of the homogeneity assumption, $F(2, 16190) =$

37.984), $p = .000$. No significant impact was expected in the study analyses based on these violations due to the large sample size (Field, 2013).

Next, multivariate data screening was conducted to examine continuous variables (bystander behaviors, IRMAS, DVA, sex, and program exposure) by categories within the independent variable (non-victim, single-victim, and polyvictims of sexual harassment and stalking). Based on the critical value of $\chi^2 = 18.465$ ($p < .001$, $df = 4$), 143 cases (0.88%) with Mahalanobis Distance greater than 18.465 were removed, making the analytical sample $n = 16,050$.

Grouped multivariate normality and linearity were then inspected using scatterplots, which should display an elliptical shape if the distribution was normal (Mertler & Vannatta, 2010). Upon observation of scatterplots, normal distribution and linear relationships were questionable. However, they were expected to have minimal impact on the analyses because the sample size was large (Tabachnick & Fidell, 2001).

Correlation among covariates and between each covariate and dependent variable was examined. All covariates had a significant but weak correlation with the dependent variable, ranging from $r = .06$ to $.10$. Correlations between IRMAS and DVA covariates were significant and moderately strong ($r = .57$). Correlation among other combinations of covariates were significant but weak, ranging from $r = .03$ to $.26$. Due to the exploratory nature of this study, the decision was made to include all covariates in the analysis.

The homogeneity of regression line assumption was tested for interaction between the independent variable and each covariate. The tests resulted in no statistically significant interactions between covariates and the independent variable. This indicated

that sex, program exposure, IRMAS, and DVA all had a homogeneous relationship with the active bystander behavior variable at all levels of the victimization variable, which allowed use of ANCOVA (Mertler & Vannatta, 2010).

5 H_0 . There is no difference in active bystander behaviors based on different levels of violence victimization after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance.

ANCOVA with the psychological and physical dating violence victimization variable. ANCOVA was conducted on active bystander behaviors. The independent variable was psychological and physical dating violence victimization which included three groups: non-victimization, single-victimization, and polyvictimization. Four covariates, sex, program exposure, IRMAS, and DVA, were entered at once. To account for unequal sample sizes using ANCOVA for non-experimental research, Type I sum-of-squares method in SPSS version 23 was used (Tabachnick & Fidell, 2001).

After controlling for four covariates at once, active bystander behaviors varied significantly by victimization categories, $F(2, 16056) = 759.833, p = .000$ (see Table 4.27). The strength of the association between adjusted active bystander behaviors and victimization was medium to large with $\eta_p^2 = .086$. As shown in Table 4.29, the mean active bystander behavior score was adjusted by IRMAS significantly, $F(1, 16056) = 273.62, p = .000, \eta_p^2 = .017$. Sex also showed significant influence, $F(1, 16056) = 199.84, p = .000$, but with a smaller effect size, $\eta_p^2 = .012$. Program exposure was also significant with small influence, $F(1, 16056) = 168.97, p = .000, \eta_p^2 = .010$. DVA was significant but with hardly any effect, $F(1, 16056) = 10.06, p = .002, \eta_p^2 = .001$.

Table 4.27

Results of ANCOVA for Active Bystander Behaviors by Psychological-Physical Dating Violence Victimization

Source	SS	df	MS	F	p	η_p^2
Psy-Phy DV Victimization	2294.00	2	1147.00	759.83	.000	.086
IRMAS	413.05	1	413.05	273.62	.000	.017
Sex	301.66	1	301.66	199.84	.000	.012
Program Exposure	255.06	1	255.06	168.97	.000	.010
DVA	15.19	1	15.19	10.06	.002	.001
Error	24237.26	16056	1.51			
Total	66608.00	16063				

Notes. DV = dating violence; IRMAS = rape myth acceptance; DVA = dating violence acceptance.

As displayed in Table 4.28, polyvictims had the highest unadjusted mean score of active bystander behaviors followed by the single-victims. Non-victims had the lowest mean score. The same pattern was observed after controlling for all four covariates, but the mean active bystander behavior score increased for non-victims while it decreased for single-victims and polyvictims. To examine the influence further, three covariates with the effect size of $\eta_p^2 > .010$ were entered separately (see Table 4.28). When the program exposure variable was held constant, there was no difference between unadjusted and adjusted mean active bystander behavior scores for all groups—indicating that the program did have influence on the change. With IRMAS only, there was no change in the mean score for non-victims while there was slight decrease for single and polyvictim

groups. With sex only as a covariate, the group mean remained the same for non-victims and polyvictims but slightly decreased for single-victims. When each covariate was entered separately, compared to when all four covariates were entered simultaneously, the effect size remained the same for sex covariate ($\eta_p^2 = .012$) while it slightly increased for program exposure from $\eta_p^2 = .010$ to $.012$ and decreased for IRMAS from $\eta_p^2 = .017$ to $.009$. As displayed in Table 4.30, polyvictims had the highest mean active bystander behavior score followed by single- and non-victims in each model of ANCOVA.

Table 4.28

Adjusted and Unadjusted Group Means for Active Bystander Behaviors by Psychological-Physical Dating Violence Victimization

Category	Unadjusted <i>M</i>		Adjusted <i>M</i>		
		All 4 CVs	IRMAS	Sex	Program ^a
Non-Victims	1.34	1.35	1.34	1.34	1.34
Single-Victims	2.09	2.05	2.08	2.07	2.09
Polyvictims	2.60	2.56	2.58	2.60	2.60

Notes. $n = 16,063$. All 4 CVs = All four covariates, including sex, rape myth acceptance, dating violence acceptance, and program exposure. IRMAS = rape myth acceptance. Program = program exposure.

^aBased on student report of program exposure rather than schools' intervention status.

Post-hoc comparison of means was conducted to examine the group difference further. Bonferroni correction was used because it controlled for familywise error rate (Field, 2013) which was needed for this study that compared more than two group means. The results indicated a statistically significant difference in each pair compared with all four covariates ($p = .000$). The largest difference was between the non-victim and poly-

victim group with a mean difference of 1.21, followed by non-victims and single-victims (0.70), and then single-victims and polyvictims (0.51). When sex, program exposure, and IRMAS were entered as covariate separately, the post-hoc results were all significant with slightly increased difference between the mean score in each pair compared.

ANCOVA with the sexual harassment and stalking victimization variable.

ANCOVA was also conducted on active bystander behaviors with victimization of sexual harassment and stalking as the independent variable. The same covariates, sex, program exposure, IRMAS, and DVA, were entered as covariates simultaneously.

As displayed in Table 4.29, after controlling for the four covariates, active bystander behaviors varied significantly by victimization, $F(2, 16043) = 1257.71, p = .000$. The association was strong between active bystander behaviors and sexual harassment and stalking victimization with $\eta_p^2 = .136$. The mean active bystander behavior score was adjusted by IRMAS significantly, $F(1, 16043) = 288.52, p = .000, \eta_p^2 = .018$. Sex had significant but a smaller effect, $F(1, 16043) = 207.14, p = .000, \eta_p^2 = .013$. Program exposure also showed significant influence despite small, $F(1, 16043) = 181.36, p = .000, \eta_p^2 = .011$. Although DVA had significant influence, the effect was extremely small, $F(1, 16043) = 10.50, p = .001, \eta_p^2 = .005$.

Table 4.29

*Results of ANCOVA for Active Bystander Behaviors by Sexual Harassment-Stalking**Victimization*

Source	SS	df	MS	F	p	η_p^2
SexH-Stalk Victimization	3593.26	2	1796.63	1257.71	.000	.136
IRMAS	412.15	1	412.15	288.52	.000	.018
Sex	295.89	1	295.89	207.14	.000	.013
Program Exposure	259.07	1	259.07	181.36	.000	.011
DVA	15.00	1	15.00	10.50	.001	.005
Error	22917.31	16043	1.43			
Total	27492.67	16049				

Notes. IRMAS = rape myth acceptance; DVA = dating violence acceptance.

Table 4.30 displays changes in mean active bystander behavior scores before and after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance. Polyvictims showed the highest mean scores in active bystander behaviors, followed by the single-victims. Non-victims had the lowest mean score. After controlling for the four covariates, the same pattern was observed. With the covariates, an increase in the mean active bystander behavior score was observed only for non-victims and a decrease in the score was observed for both single-victims and polyvictims. To examine these changes further, covariates with effect size of $\eta_p^2 > .010$ were entered alone. As shown in Table 4.30, with program exposure held constant, the mean active bystander behavior score slightly increased for non-victims, remained the same for single-victims, and slightly decreased for polyvictims. The same pattern was observed

with IRMAS only as a covariate. With sex only as a covariate, the mean score slightly decreased for single- and polyvictims. In all models, the mean score was the highest for polyvictims, and decreased as the number of victimization experience decreased. The change in effect sizes were observed between ANCOVA with all four covariates and with each of the three covariates separately. IRMAS had its effect size reduced from $\eta_p^2 = .018$ to $.009$ while it remained the same for sex ($\eta_p^2 = .013$) and slightly increased for program exposure from $\eta_p^2 = .011$ to $.012$.

Table 4.30

Adjusted and Unadjusted Group Means for Active Bystander Behaviors by Sexual Harassment-Stalking Victimization

Category	Unadjusted <i>M</i>		Adjusted <i>M</i>		
		All 4 CVs	IRMAS	Sex	Program ^a
Non-Victims	1.21	1.23	1.22	1.22	1.22
Single-Victims	2.05	2.03	2.05	2.04	2.05
Polyvictims	2.69	2.64	2.68	2.68	2.64

Notes. $n = 16,050$. All 4 CVs = All four covariates, including sex, rape myth acceptance, dating violence acceptance, and program exposure. IRMAS = rape myth acceptance. Program = program exposure.

^aBased on student report of program exposure rather than schools' intervention status.

The Bonferroni test was used for post-hoc comparison of means. When all four covariates were entered, the results indicated a statistically significant difference for each pair compared ($p = .000$). The difference between the non-victim and poly-victim group had the largest mean difference (1.41), followed by non-victims and single-victims (0.80), and single-victims and polyvictims (0.60). When the covariates IRMAS, sex, and

program exposure were entered separately, the mean differences were all significant and slightly larger but in the same order.

Summary. Due to the exploratory nature of the study, the decision was made to conduct ANCOVA despite violations of statistical assumptions, including homogeneity of variance, multivariate normality of distributions and linear relationships, and homogeneity of regression line for one covariate. Because a large sample was used for the study, concerns related to violation of assumptions were minimized. All covariates had weak but significant correlation with the dependent variable. Among the covariates, one combination, rape myth acceptance and dating violence acceptance had a moderately strong relationship. However, all covariates were included in the analysis based on the exploratory nature of the study. After all of the screening procedures, the number of cases included in the analytical dataset for ANCOVA resulted in 16,063 for psychological and physical dating violence victimization, and 16,050 for sexual harassment and stalking victimization. The null hypothesis was rejected as there were differences in active bystander behaviors based on victimization groups after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance.

Research Question 6. Is there a difference in active bystander behaviors based on different levels of violence perpetration after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance?

6 H_0 . There is no difference in active bystander behaviors based on different levels of violence perpetration after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance.

Data preparation for ANCOVA. ANCOVA was conducted to determine whether or not variables including sex, program exposure, rape myth acceptance, and dating violence acceptance influenced active bystander behaviors among high school students based on their different levels of perpetration experience. The dependent variable was active bystander behaviors, a composite score which was transformed into a scale of 0 to 5.39. Psychological and physical dating violence perpetration, which was categorized earlier into no perpetration, either psychological or physical perpetration, and polyperpetration, was the independent variable. The same four variables used in research question 5 were entered as covariates.

Statistical assumptions. Assumptions for ANCOVA include normality of data distributions, homogeneity of variance, reliability of the covariates, linear relationship among covariates and between covariates and dependent variable, and homogeneity of regression lines (Mertler & Vannatta, 2010; Tabachnick & Fidell, 2001).

Using z -scores of ± 4 as a cutoff criterion for a dataset larger than 100 (Mertler & Vannatta, 2010), 151 outliers (.94%) were identified in the sample of 16,115 cases and were removed from IRMAS and DVA, resulting in 15,964 cases for the analysis. This listwise deletion improved the distribution shape for both scales: IRMAS improved its skewness statistic from .985 to .627 while DVA improved from 1.329 to 1.013 (see Table 4.31). The variables were not transformed because the skewness coefficients were either acceptable or close to the acceptable level and the nonnormal distribution was not expected to seriously impact the analyses when using a large sample (Tabachnick & Fidell, 2001).

Table 4.31

Distribution Improvement for IRMAS and DVA Variables

Variable		<i>n</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
IRMAS	Original	16,115	5.614	3.612	.985	2.061
	Outliers Removed	15,964	5.487	3.362	.627	.694
DVA	Original	16,115	2.683	2.879	1.329	2.205
	Outliers Removed	15,964	2.576	2.663	1.013	.692

The distribution of dependent variable scores in each category of dating violence perpetration was then assessed. The Kolmogorov-Smirnov test of normality indicated non-normal distribution for each group: non-perpetration, $D(13622) = .186, p = .000$; single-perpetration, $D(1646) = .077, p = .000$; and polyperpetration, $D(696) = .073, p = .000$. However, skewness was at the acceptable range for each group, including non-perpetration (.567), single-perpetration (-.047), and polyperpetration (-.334). Thus, no transformation was necessary.

The data were also screened for grouped univariate homogeneity of variance. The result of Levene's test indicated unequal variances in active bystander behaviors for all groups of psychological and physical dating violence perpetration, $F(2, 15961) = 6.731, p = .001$, violating the assumption.

Next, multivariate data screening was conducted to inspect all continuous variables (active bystander behaviors, IRMAS, DVA, sex, and program exposure) by categories of the independent variable. First, multivariate outliers were identified based on the critical value of $\chi^2 = 18.465$ at $p < .001$ and $df = 4$. Removal of 139 multivariate outliers of 15,964 cases (.87%) reduced the number of the sample size to $n = 15,825$.

Scatterplots were inspected for multivariate normality and linearity. Normal distribution and linear relationships among the variables should produce an “oval-shaped” scatterplot (Tabachnick & Fidell, 2001, p.77). The resulting scatterplot did not display normal distribution and linear relationships. Due to the large sample size used for this study, however, serious impact on the analyses is avoidable (Tabachnick & Fidell, 2001).

All covariates had significant but weak correlation with the dependent variable, ranging from $r = .06$ to $.10$. Correlations between IRMAS and DVA covariates were significant and moderately strong ($r = .57$). Correlation among other combinations of covariates were significant but weak, ranging from $r = .03$ to $.26$. Because of the exploratory nature of this study, the decision was made to include all covariates in the analysis.

Finally, the data were assessed for the assumption of homogeneity of regression lines, which assumes that “the regression slopes for a covariate are homogeneous (i.e., that the slope for the regression line is the same for each group)” (Mertler & Vannatta, 2010, p.98). Two covariates showed significant interaction with psychological and physical dating violence perpetration: sex, $F(2, 15825) = 32.326, p = .000$; and IRMAS $F(2, 15825) = 8.238, p = .006$. This indicated that these two variables’ relationship with the dependent variable were different at different categories of perpetration. However, the effect size was quite small for both sex ($\eta_p^2 = .004$) and IRMAS ($\eta_p^2 = .001$). Thus, violation of the homogeneity of regression line assumption was minimal and so was its impact on the analyses. The decision was made to conduct ANCOVA including these variables as covariates.

6 H₀. There is no difference in active bystander behaviors based on different levels of violence perpetration after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance.

ANCOVA with psychological and physical dating violence perpetration variable.

ANCOVA was conducted with perpetration of psychological and physical dating violence as the independent variable. The four covariates used in research question 5 (i.e., sex, program exposure, IRMAS, and DVA) were also entered in this analysis.

As displayed in Table 4.32, when controlled for sex, program exposure, IRMAS, and DVA, active bystander behaviors varied significantly by perpetration groups, $F(2, 15818) = 486.359, p = .000$. The association had a medium effect with $\eta_p^2 = .058$. The mean active bystander behavior scores were adjusted by IRMAS significantly, $F(1, 15818) = 153.28, p = .000, \eta_p^2 = .016$. Sex showed significant influence with a small effect, $F(1, 15818) = 144.16, p = .000, \eta_p^2 = .012$. Program exposure also had significant but smaller influence, $F(1, 15818) = 90.16, p = .000, \eta_p^2 = .010$. DVA's impact on the variance of means was significant but with very little effect ($\eta_p^2 = .004$).

Table 4.32

*Results of ANCOVA for Active Bystander Behaviors by Psychological-Physical Dating**Violence Perpetration*

Source	SS	df	MS	F	p	η_p^2
Psy-Phy DV Perpetration	1512.85	2	756.43	486.36	.000	.058
IRMAS	392.75	1	392.75	252.53	.000	.016
Sex	294.23	1	294.23	189.18	.000	.012
Program Exposure	257.27	1	257.27	165.42	.000	.010
DVA	13.81	1	13.81	8.88	.003	.004
Error	24601	15818	1.56			
Total	65705	15825				

Notes. DV = dating violence; IRMAS = rape myth acceptance; DVA = dating violence acceptance.

As shown in Table 4.33, polyperpetrators had the highest unadjusted mean, followed by the single- and non-perpetrators. The same pattern was observed with all four covariates in the model. When the effects of the four covariates were removed, the mean behavior score increased only for non-perpetrators but decreased for single- and polyperpetrators. IRMAS, sex, and program exposure, which had the effect size of $\eta_p^2 > .010$, were entered separately to observe their impact on the mean score change (see Table 4.33). When each one of the three covariates was held constant, there was no change in the mean active bystander behavior score for non-perpetrators but a decrease in means was observed for both perpetrator groups. The effect sizes changed from ANCOVA with all four covariates to ANCOVA with each of the three covariates

separately. The effect size for IRMAS reduced to from $\eta_p^2 = .016$ to $.008$, stayed the same for sex ($\eta_p^2 = .012$), and slightly increased for program exposure from $\eta_p^2 = .010$ to $.011$. As displayed in Table 4.36, the mean score was the highest for polyperpetrators followed by single-perpetrators and non-perpetrators regardless of the model.

Table 4.33

Adjusted and Unadjusted Group Means for Active Bystander Behaviors by Psychological-Physical Dating Violence Perpetration

Category	Unadjusted <i>M</i>	Adjusted <i>M</i>			
		All 4 CVs	IRMAS	Sex	Program ^a
Non-Perpetrators	1.43	1.44	1.43	1.43	1.43
Single-Perpetrators	2.23	2.17	2.22	2.20	2.22
Polyperpetrators	2.77	2.67	2.73	2.74	2.75

Notes. $n = 15,825$. All 4 CVs = All four covariates, including sex, rape myth acceptance, dating violence acceptance, and program exposure.

^aBased on student report of program exposure rather than schools' intervention status.

Post-hoc comparison of means was conducted using Bonferroni test. The results indicated statistically significant differences in each perpetration pair when all four covariates were entered ($p = .000$). The difference between non-perpetrator and polyperpetrator groups displayed the largest mean difference (1.23), followed by non-perpetrators and single-perpetrators (0.73), and single-perpetrators and polyperpetrators (0.50). With each covariate individually controlled for, the mean differences were all significant, slightly larger than with four covariates, and in the same order.

Summary. ANCOVA was conducted despite violations of statistical assumptions, including homogeneity of variance, multivariate normality of distribution and linear

relationships among variables, and homogeneity of regression lines. Based on the large sample size used for the study, impact of assumption violations on the analyses were minimal. All covariates had weak but significant correlation with the dependent variable. Among the covariates, one combination, rape myth acceptance and dating violence acceptance had a moderately strong relationship while all others had significant but very weak correlation. Due to the exploratory nature of the study, all covariates were included in the analysis. After the data were screened and prepared for the analysis, the number of cases included for ANCOVA resulted in 15,825 for the model with psychological and physical dating violence perpetration as the independent variable. The null hypothesis was rejected. Active bystander behaviors differed based on perpetration categories after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance.

Chapter Summary

This chapter described the processes and results of the study analyses. Using network visualization, three co-occurring violence types were selected to include in the analysis as independent variables: (a) psychological and physical dating violence victimization, (b) sexual harassment and stalking victimization, and (c) psychological and physical dating violence perpetration.

The null hypothesis for the first research question was rejected, indicating that the experience of polyvictimization is different based on students' sex, grade, sexual attraction, and exposure to parental partner violence. Similarly, the null hypothesis for the second research question was also rejected. This indicated that there was association

between experience of polyperpetration and students' sex, grade, sexual attraction, and exposure to parental partner violence.

The null hypothesis for the third research question was rejected, indicating that active bystander behaviors differ based on categories of violence victimization, including no-victimization, single-victimization, and polyvictimization. The null hypothesis for the fourth research question was also rejected. The results of the analysis showed that difference existed between active bystander behaviors and different levels of violence perpetration.

The null hypothesis of the fifth research question was also rejected. This indicated that active bystander behaviors differed based on victimization groups when controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance.

Finally, the null hypothesis for the sixth research question was also rejected, indicating that there were differences in active bystander behaviors based on different levels of perpetration when controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance.

Chapter Five: Discussion

The purpose of this dissertation was to examine the relationship between high school students' experience of personal violence and their active bystander behaviors using a dataset from the study that examined effectiveness of a bystander violence prevention program, Green Dot. First, this chapter briefly describes the problems and the gap in the current literature that prompted this study. Second, it discusses the findings and conclusions of the study, followed by limitations of the study. Finally, the implications for future research, practice, and policies are addressed.

Summary of the Problems and the Gap in Literature

High school students are at high risk for victimization in personal violence such as dating violence (Haynie et al., 2013; Kann et al., 2014; Orpinas et al., 2012), sexual harassment (Finkelhor et al., 2013; Hill & Kearl, 2011), and stalking (Black et al., 2011; Tjaden & Thoennes, 1998). Limited perpetration research on this population indicates that these types of pervasive violence are perpetrated by high school-age youth (Turner et al., 2011). Past research has found that polyvictimization is common among high school-age youth, such as victimization in physical dating violence and sexual assault (Hamby et al., 2012). One of the rare studies on polyperpetration found that high school students reported using multiple tactics of violence in dating relationships (Sears et al., 2007).

Bystander programs have been used increasingly in the United States in college campuses but more recently in high schools as an innovative new approach to stop the initial occurrence of personal violence, including sexual and dating violence (Hamby et al., 2014). The programs aim to educate community members to act when witnessing

risky situations and also to create a social norm intolerant of violence (Banyard et al., 2007; Edwards, 2009; Katz et al., 2011). These programs are generally grounded in bystander effect theory as a theoretical framework which explains why people do not act in emergency situations (Latané & Darley, 1968, 1970; Latané & Nida, 1981). This study used the social identity approach as a theoretical framework in its attempt to explain why people act to prevent violence. Social identity approach explains individual behavior through group-based identity (Hornsey, 2008; Tajfel, Billing, Bundy, & Flament, 1971). From this perspective, it was hypothesized that youth with experiences of personal violence victimization, particularly with polyvictimization experience, identify with the victims of potentially violent situations and do something to prevent it. In other words, they become active bystanders. On perpetration, it was hypothesized that youth with multiple experiences of personal violence perpetration identify with perpetrators and do not act, being inactive bystanders.

Overall, the literature review revealed that there was dearth of knowledge on co-occurrence of personal violence among high school students. Research thus far also lacks knowledge on active bystander behaviors, including its relationship to youth's individual characteristics such as sex and their attitudes as well as to bystander programs. The purposes of this study aimed to fill these gaps.

This study used a dataset from its parent study, Green Dot across the Bluegrass, funded by the Center for Disease Control and Prevention (CDC) which evaluated the effectiveness of the bystander violence prevention program, Green Dot. Originally developed for college students at University of Kentucky, Green Dot was adapted for implementation in Kentucky high schools as part of the effectiveness study that

investigated if the program reduced rates of personal violence (Cook-Craig, Coker, et al., 2014).

Findings and Conclusions

This study included a sample of 19,090 Kentucky high school students who participated in the survey during the third year of the five-year study, Green Dot across the Bluegrass. Using network visualization, the following combinations of violence were identified as commonly co-occurring personal violence types in the sample: a) psychological dating violence and physical dating violence victimization; b) sexual harassment and stalking victimization; and c) psychological dating violence and physical dating violence perpetration (see Chapter 3 for description of the techniques and Chapter 4 for the process of visualization).

This study tested six research hypotheses. The section below describes the findings of each research hypothesis followed by conclusions.

Research Hypothesis 1. Polyvictimization and Individual Characteristics

1H₀. The experience of polyvictimization does not differ among students based on their sex, grade, sexual attraction, and exposure to parental partner violence.

Findings. Cross-tabulation was conducted to test this hypothesis. The null hypothesis was rejected because the experience of polyvictimization differed significantly among students based on their sex, grade, sexual attraction, and exposure to parental partner violence. In other words, there was a statistically significant association between polyvictimization and individual characteristics.

The first alternative hypothesis on association of sex and polyvictimization was supported. The cross-tabulation revealed that more female ($n = 928$; 54.1%) than male (n

= 786; 45.9%) students experienced polyvictimization in psychological and physical dating violence. Also for sexual harassment and stalking, more females ($n = 1361$; 66.7%) than males ($n = 681$; 33.3%) reported polyvictimization. For dating violence polyvictimization, within-group rate differed only slightly between females (9.1%) and males (9.3%). In contrast, the within-group rate for sexual harassment and stalking polyvictimization was much higher for female students (13.4%) compared to male students (8.1%).

The second alternative hypothesis on grade and polyvictimization was also supported but the result indicated that, for dating violence, more students in 9th and 10th grades ($n = 947$; 56.1%) were polyvictims than those in 11th and 12th grades ($n = 741$; 43.9%). In the same way, younger students ($n = 1,235$; 61.3%) were represented more as polyvictims of sexual harassment and stalking victimization compared to older students ($n = 780$; 38.7%). For sexual harassment and stalking polyvictimization, the within-group rate was higher for younger (11.5%) than older students (10.0%).

The third alternative hypothesis was supported as there was significant association between polyvictimization and sexual attraction. Cross-tabulation revealed that a significantly larger number of polyvictims of psychological and physical dating violence were exclusively heterosexual ($n = 1227$; 74.0%) than exclusively non-heterosexual ($n = 432$; 26.0%). This was largely due the fact that a large majority of the students in the sample were exclusively heterosexual ($n = 15,955$; 86.8%) compared to exclusively non-heterosexual ($n = 2,417$; 13.2%). A noteworthy result was observed when within-group rates were considered: Significantly more students in the exclusively non-heterosexual group ($n = 432$; 17.9%) reported being polyvictims in psychological and physical dating

violence than those in the exclusively heterosexual group ($n = 1,227$; 7.7%). In the same manner, significantly more polyvictims of sexual harassment and stalking were exclusively heterosexual ($n = 1439$; 73.1%) compared to exclusively non-heterosexual ($n = 530$; 26.9%). However, again, within-group rate was much higher for non-heterosexual students (22.1%) than exclusively heterosexual students (9.1%).

The fourth alternative was also supported because more students exposed to parental partner violence were polyvictims than non-exposed students. There were slightly more dating violence polyvictims who were not exposed to parental partner violence ($n = 878$; 51.1%) than those who were ($n = 841$; 24.5%). However, only 6% of the non-exposed students were polyvictims compared to 20.8% of students exposed to parental partner violence. The pattern was similar for polyvictims of sexual harassment and stalking: More students who were not exposed to parental partner violence ($n = 1,145$; 56.0%) were polyvictims than exposed students ($n = 900$; 44.0%). A notable finding is that the within-group rate comparison indicated a much higher rate of polyvictimization for exposed students (22.4%) than non-exposed students (7.9%). Examination of the single violence victimization revealed the same pattern.

Conclusions. The results indicated that female students were significantly more polyvictims than male students. This finding contradicted the findings by Hamby et al. (2012) which revealed no significant difference between female and male youth aged between 12 and 17 in polyvictimization of physical dating violence and sexually-based abuse such as rape and sexual harassment. The results were aligned more with past studies on polyvictimization of personal violence in adults which found more women as polyvictims than men (Black et al., 2011; Hamby & Grych, 2013; Pimlott-Kubiak &

Cortina, 2003). This study also found that victimization of single-type personal violence was experienced by more female than male students. Past study supported this finding on victimization of single-type personal violence among youth (Kann et al., 2014; Wolitzky-Taylor et al., 2008; Hill & Kearl, 2011; Fisher et al., 2014).

When grade differences were examined, more students in 9th and 10th grades were found in the psychological and physical dating violence polyvictim group. However, the rate of polyvictimization was higher for students in 11th and 12th grades. For sexual harassment and stalking polyvictimization, younger students were significantly more likely to be polyvictims and also had a higher rate within-group. This contradicted a rare study which revealed that polyvictimization of many different types of violence increased with age among children and youth (Turner et al., 2010). Further, studies of single-type personal violence victimization also indicated increased victimization with age in dating violence (Kann et al., 2014) and in sexual harassment (Young et al., 2009). The results of this study may support another study which found the peak of polyvictimization onset at 9th grade, implying a possibility that entering high school could increase opportunities for more victimization for youth in their new social environment (Finkelhor, Ormrod et al., 2009).

Sexual attraction also had a significant association with polyvictimization. For psychological and physical dating violence victimization as well as sexual harassment and stalking victimization, the within-group rates clearly showed that more polyvictims were represented within exclusively non-heterosexual students compared to exclusively heterosexual students. Although the number may be smaller, the exclusively non-heterosexual students as a group were affected much more by these victimizations than

those in the exclusively heterosexual group. There has been no study examining the relationship between polyvictimization and sexual attraction among high school youth. Past research on single victimization found that non-heterosexual youth were more vulnerable to victimization than heterosexual youth in dating violence (Dank et al, 2014) and sexual harassment (Gruber & Fineran, 2008; Mitchell et al., 2014). The findings from this study add to much needed research literature on polyvictimization among non-heterosexual youth.

Finally, polyvictimization was also significantly associated with exposure to parental partner violence. More non-exposed students were polyvictims than exposed students because non-exposed students represented the large majority of the sample (78.3%). However, within-group rates revealed a much higher rate of students exposed to parental partner violence represented in polyvictims than non-exposed students. The results suggest that exposure to parental partner violence is significantly related to children's vulnerability in violence victimizations in multiple ways as indicated by past research (Arriaga & Foshee, 2004; Hamby et al., 2010).

Research Hypothesis 2. Polyperpetration and Individual Characteristics

2H₀. The experience of polyperpetration does not differ among students based on their sex, grade, sexual attraction, and exposure to parental partner violence.

Findings. Cross-tabulation was used to examine the associations. The null hypothesis was rejected because the experience of polyperpetration differed among students based on their sex, grade, sexual attraction, and exposure to parental partner violence. In other words, there was a statistically significant association between polyperpetration and these individual characteristics.

The first alternative hypothesis on association of sex and polyperpetration was supported as the null hypothesis was rejected. However, it must be noted that more females rather than males reported using both psychological and physical dating violence. Not only was the number of females in the polyperpetrator category much greater ($n = 600$; 60.9%) than males ($n = 386$; 39.1%) but also the within-group rate was higher for females (6.1%) than males (4.7%).

The second alternative hypothesis was also supported on the association between grade and polyperpetration. The results indicated that more students in 9th and 10th grades ($n = 531$; 55.3%) were represented in the polyperpetrator category compared to those in 11th and 12th grades ($n = 429$; 44.7%). However, the within-group rate revealed that the higher percentage of older students represented polyperpetrators (5.6%) and single perpetrators (11.5%) compared to younger students (polyperpetrators 5.1%; single perpetrators 9.8%).

The third alternative hypothesis was also supported because there was significant difference between polyperpetration and sexual attraction. The number of exclusively heterosexual students ($n = 645$; 69.1%) were larger than exclusively non-heterosexual students ($n = 288$; 30.9%) among polyperpetrators. This was likely due to the fact that the great majority of the students in the sample were exclusively heterosexual ($n = 15,481$; 86.9%). It should be noted that the within-group ratio of polyperpetrators for exclusively non-heterosexual students (12.3%) was much greater than that for exclusively heterosexual students (4.2%). The same pattern was observed for perpetration of either psychological or physical dating violence in this sample.

The fourth alternative hypothesis was supported. More students exposed to parental partner violence ($n = 538$) were polyperpetrators than those not exposed ($n = 450$). Further, the within-group ratio was much larger for exposed students (13.8%) than their non-exposed counterparts (3.2%). Although the number of single perpetrators was greater for non-exposed students ($n = 1,238$) compared to exposed students ($n = 660$), the same pattern of a larger within-group rate for exposed students (16.9%) than non-exposed counterparts (8.7%) was found.

Conclusions. Research on perpetration generally is sparse but particularly so on polyperpetration. Additionally, as discussed in Chapter 2, research on personal violence perpetration generally focuses on adults in the criminal justice system and college population. Knowledge about perpetration and polyperpetration in the general youth population is needed to increase understanding of the phenomenon.

The results revealed that female students had a larger representation in the polyperpetrator group than male students. These results do not resolve the inconclusive findings in limited literature on polyperpetration where one study found more girls to be polyperpetrators than boys in dating violence (Sears et al., 2007) while the opposite was true for another (Ozer et al., 2004).

Because older students should have more dating experience, the alternative hypothesis stated that more older students were polyperpetrators. However the results revealed that younger students had a significantly larger representation in the polyperpetrator group. The result of this study contradicts a Canadian study that found more older students in single and polyperpetrators among 7th, 9th, and 11th grade students (Sears et al., 2007). Research to date lacks knowledge on the association between

polyperpetration, single-perpetration, and grade level among high school students. The results from this study contribute to the dearth yet nascent literature on polyperpetration of personal violence among youth.

For sexual attraction, because the large majority of the respondents was exclusively heterosexual (86.9%), the number of polyperpetrators were overwhelmingly exclusively heterosexual. It is noteworthy that the rate of polyperpetration within exclusively non-heterosexual students was much greater than the exclusively heterosexual group. Because the research literature on exclusively non-heterosexual youth and their perpetration of personal violence is scarce, the results of this study may contribute to understanding this phenomenon further.

No research so far has examined the specific relationship between polyperpetration of personal violence and exposure to parental partner violence. This study revealed that youth exposed to parental partner violence were represented significantly more in polyperpetrator group than non-exposed youth. The results support the past research showing a significant association between exposure to parental partner violence and use of single type of violence including dating violence (Coker et al., 2014), sexual harassment (Clear et al., 2014; Fineran & Bolen, 2006), and stalking (Fisher et al., 2014).

Research Hypothesis 3. Victimization and Active Bystander Behaviors

3H₀. There is no difference in active bystander behaviors based on different levels of violence victimization.

Findings. ANOVA was employed to test this hypothesis. The null hypothesis was rejected because the results revealed statistically significant differences in active

bystander behaviors based on levels of victimization in psychological and physical dating violence, $F(2, 16723) = 918.11, p = .000, \eta^2 = .099$. The difference was also significant for sexual harassment and stalking victimization, $F(2, 16715) = 1502.79, p = .000, \eta^2 = .152$. The alternative hypothesis that polyvictims would score higher on active bystander behaviors than other victimization levels was also supported. The mean score of active bystander behaviors for polyvictims of psychological and physical dating violence was the highest compared to single-victims and non-victims and the difference was statistically significant. Polyvictims of sexual harassment and stalking also had the highest mean score of active bystander behaviors than single- and non-victim groups. The mean score difference of each pair was statistically significant at the $p < .05$ level.

Conclusion. The results indicated that youth who experienced victimization of personal violence were active bystanders more than those without victimization. They reported behaviors such as telling someone to stop harassing a peer or discussing with friends about activities that prevent personal violence. In particular, it should be noted that polyvictims showed the highest mean score of active bystander behaviors than those with single or no experience of victimization. The findings reveal that experience of victimization does make a difference in active bystander behaviors that aim to prevent personal violence.

Research Hypothesis 4. Perpetration and Active Bystander Behaviors

4H₀. There is no difference in active bystander behaviors based on different levels of violence perpetration.

Findings. ANOVA was conducted to test this hypothesis on perpetration and active bystander behaviors. The null hypothesis was rejected as the results indicated a

statistically significant difference in active bystander behaviors for different categories of perpetration of psychological and physical dating violence perpetration, $F(2, 16471) = 645.14, p = .000, \eta^2 = .073$. Although the null hypothesis was rejected, the alternative hypothesis that polyperpetrators score lower on active bystander behaviors than others was not supported. The analysis revealed the opposite result: Polyperpetrators had the highest mean score of active bystander behaviors followed by single- and no-perpetration groups. The mean score difference for each pair was statistically significant at .05 alpha level.

Conclusion. The results of ANOVA with perpetration revealed the same pattern as for victimization: Perpetrators were more active as bystanders than non-perpetrators. Similar to polyvictims, polyperpetrators had the highest mean score of active bystander behaviors followed by single- and non-perpetrators. Unlike the case for victims, the results do not follow the expected lines of the social identity theoretical perspective where perpetrators are supposed to be less active as bystanders because they identify with perpetrators. The results possibly suggest a more complicated experience of personal violence perpetration.

Research Hypothesis 5. Victimization, Active Bystander Behaviors, and Individual Characteristics

5H₀. There is no difference in active bystander behaviors based on different levels of violence victimization after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance.

Findings. The null hypothesis was rejected as the results of ANCOVA at the $p < .05$ level indicated statistically significant differences in active bystander behaviors

for non-victims, single-victims, and polyvictims after controlling for sex, rape myth acceptance, dating violence acceptance, and program exposure.

The independent variable of psychological and physical dating violence victimization was associated significantly with active bystander behaviors with a medium to large effect size ($p = .000$, $\eta_p^2 = .086$). All covariates had significant but small influence on variance of means. IRMAS had the most effect ($\eta_p^2 = .017$), followed by sex ($\eta_p^2 = .012$), program exposure ($\eta_p^2 = .010$), and DVA ($\eta_p^2 = .001$). With or without covariates, polyvictims had the highest mean behavior score followed by single- then non-victims. With all four covariates held constant, the mean bystander behavior score increased for non-victims but decreased for single-victims and polyvictims.

To examine the changes in mean active bystander behavior scores further, IRMAS, sex, and program exposure were controlled for separately. Between the model with four covariates and with each covariate, the effect size reduced for IRMAS from $\eta_p^2 = .017$ to $.009$, remained the same for sex ($\eta_p^2 = .012$), and slightly increased for program exposure from $\eta_p^2 = .010$ to $.012$. When IRMAS alone was held constant, the mean remained the same for non-victims, reflecting its impact, but decreased for both victim groups. With only sex held constant, means for non-victims and polyvictims were unchanged, reflecting the impact of sex differences, while the mean decreased for single-victims. When only the program exposure was controlled for, the mean scores remained the same for all levels of psychological and physical dating violence victimization, indicating its impact on the changes seen from the unadjusted means to the means adjusted with four covariates.

The results were similar when entering sexual harassment and stalking victimization as the independent variable. The association between the independent variable and active bystander behaviors was significant and strong ($\eta_p^2 = .086$). All covariates had significant but small influence on variance of means. IRMAS had the most effect ($\eta_p^2 = .018$), followed by sex ($\eta_p^2 = .013$), program exposure ($\eta_p^2 = .011$), and DVA ($\eta_p^2 = .005$). With or without covariates, polyvictims of sexual harassment and stalking had the highest mean score of active bystander behaviors followed by single- and non-victims. With all covariates, the mean score increased only for non-victims while the score decreased for single-victims and polyvictims.

Again, to examine the changes, IRMAS, sex, and program exposure were controlled for separately. Compared to the model with all four covariates, the effect size was reduced for IRMAS from $\eta_p^2 = .018$ to $.009$, remained the same for sex ($\eta_p^2 = .013$), and slightly increased for program exposure from $\eta_p^2 = .011$ to $.012$. With IRMAS alone as a covariate, the mean remained the same for single-victims, indicating its impact on the decreased bystander behavior mean. The mean increased slightly for non-victims and decreased also slightly for polyvictims. When only sex was controlled for, the mean score changed across the groups: slight increase for non-victims, slight decrease for both victim groups. With program exposure, the mean bystander score also remained the same for single-victims, reflecting its influence on the negative change in the bystander behavior mean. The mean score slightly increased for non-victims and decreased for polyvictims.

Conclusions. The association was statistically significant between victimization and active bystander behaviors when covariates were entered; thus, the null hypothesis

was rejected. For both victimization of psychological-physical dating violence and sexual harassment-stalking, polyvictims were the most active as bystanders followed by single- and non-victims. When effects of covariates, including sex, IRMAS, DVA, and program exposure, were removed together, active bystander behaviors increased for non-victims but decreased single-victims and polyvictims. Further examination by controlling for one covariate separately provided more insights into the changes. The logic of ANCOVA can explain the changes in active bystander behavior scores based on each covariate's value where "any group with an above-average mean on the covariate has its mean on the dependent variable adjusted downward, while any group with a below-average mean on the covariate has its mean on the dependent variable adjusted upward" (Huck, 2008, p.384).

For psychological and physical dating violence victimization groups, IRMAS as the only covariate had impact on increased active bystander behavior score for non-victims. This indicated that the lower rape myth acceptance was a statistically significant factor in increased active bystander behaviors for non-victims. Sex influenced the mean increase for non-victims and the decrease for polyvictims, reflecting that being female (0) was a significant factor in increased active bystander behaviors for non-victims while being male (1) significantly influenced decrease in the behaviors among polyvictims. Program exposure influenced the mean active bystander behavior score increase for non-victims and the decrease for both victim groups. In other words, no exposure to Green Dot (0) was a significant factor in increased active bystander behaviors for non-victims while exposure to Green Dot (1) was a statistically significant factor in decreased means for single-victims and polyvictims. However, the magnitude of changes in mean active

bystander behavior scores was extremely small and not of clinical significance (H. Bush, personal communication, April 13, 2017; Jacobson, Roberts, Berns, & McGlinchey, 1999; Page, 2014).

For sexual harassment and stalking victimization, comparison of unadjusted and adjusted active bystander behavior means based on one covariate at a time provided a few insights. The only clear impacts occurred for single-victims of either sexual harassment or stalking. Both IRMAS and program exposure were separately had significant influence for the decreased behavior mean. This indicated that higher rape myth acceptance as well as exposure to Green Dot was a significant factor for decrease in active bystander behaviors for single-victims in this category.

The ANCOVA results support the idea that victims should be more active as bystanders in preventing harm or in being part of social norm change to promote nonviolence. The theoretical view from the social identity approach seem to apply: Individuals identify with others with similar experiences as members of the same social group and act to help them. It is notable that polyvictims were the most active in bystander behaviors and significantly so in comparison to single-victims and non-victims. The pattern did not change when effects of some variables (sex, level of rape myth acceptance, and exposure to the Green Dot program) were removed. It is concerning that program exposure was an influence in decreased active bystander behaviors for victims. It is also puzzling that having no exposure to the program was a factor for increased behavior for non-victims. Again, it is important to recognize that the extremely small changes observed in the ANCOVA results are not clinically relevant (H. Bush, personal communication, April 13, 2017; Jacobson, Roberts, Berns, & McGlinchey, 1999; Page,

2014). More rigorous analysis of the impact of bystander programs on active bystander behaviors is warranted.

Research Hypothesis 6. Perpetration, Active Bystander Behaviors, and Individual Characteristics

$6H_0$. There is no difference in active bystander behaviors based on different levels of violence perpetration after controlling for sex, program exposure, rape myth acceptance, and dating violence acceptance.

Findings. The null hypothesis was rejected as the results of ANCOVA showed significant differences in active bystander behaviors across perpetration categories after the effects of covariates were removed at the $p < .05$ level. Psychological and physical dating violence perpetration was related to active bystander behaviors significantly with medium effect size ($p = .000$, $\eta_p^2 = .058$). All covariates had significant but small effects on variance of means. IRMAS had the most effect ($\eta_p^2 = .016$), followed by sex ($\eta_p^2 = .012$), program exposure ($\eta_p^2 = .010$), and DVA ($\eta_p^2 = .004$). The active bystander behavior mean was the highest for polyperpetrators, followed by single- and non-perpetrators with or without covariates. When all four covariates were held constant, the mean active bystander behavior score increased for non-perpetrators while it decreased for single-perpetrators and polyperpetrators.

To further examine these changes, IRMAS, sex, and program exposure were controlled for separately. Between the model with four covariates and with each covariate, the effect size reduced for IRMAS from $\eta_p^2 = .016$ to $.008$, stayed the same for sex ($\eta_p^2 = .012$), and slightly increased for program exposure from $\eta_p^2 = .010$ to $.012$. When each covariate was entered individually, the mean score did not change for non-

perpetrators, indicating impact of each variable on increased active bystander behavior. For single-perpetrator and polyperpetrator groups, the mean score slightly decreased.

Conclusions. The null hypothesis was rejected, following the results similar to that of the previously discussed victimization groups and their active bystander behaviors in research question 5. The polyperpetrator group was the most active bystanders followed by single- and non-perpetrator groups regardless of covariates. When all four covariates of sex, rape myth acceptance, dating violence acceptance, and program exposure were controlled for, active bystander behaviors increased for non-perpetrators while it decreased for both perpetrator groups. The results were similar to those of the victimization groups.

When controlled for separately, IRMAS, sex, and program exposure influenced increase of active bystander behaviors for non-perpetrators. In other words, based on the ANCOVA logic described earlier (Huck, 2008), lower rape myth acceptance, being female, and having no exposure to program were significantly associated with increased active bystander behaviors for those who reported no perpetration of psychological or physical dating violence.

The results do not support assumptions from the social identity approach that perpetrators would identify with other perpetrators and thus would be less active as bystanders in preventing personal violence. In fact, polyperpetrators were the most active in bystander behaviors. Although the mean score was the lowest, non-perpetrator group was the only one that showed increased active bystander behaviors when covariates were held constant. This indicates that lowering of rape myth acceptance among those who report no perpetration of psychological and physical dating violence may help increase

active bystander behaviors. The results support other studies that found positive relationship between lower rape myth acceptance and active bystander behaviors (Banyard, 2008; McMahan, 2010). As in the case for victimization groups, it is concerning that having no program exposure was related to increased active bystander behaviors for the non-perpetrator group. However, it needs to be recognized that the statistically significant results are not necessarily relevant to practice. While the ANCOVA found statistically significant changes in active bystander behavior scores, the magnitude of the changes was extremely small and cannot be considered clinically significant (H. Bush, personal communication, April 13, 2017; Jacobson, Roberts, Berns, & McGlinchey, 1999; Page, 2014).

Limitations of the Study

This study has several limitations that warrant discussions.

General Issues Associated with Use of a Survey Methodology

First, the data were collected from high school students in Kentucky only. As displayed in the descriptive statistics in Chapter 4, racial diversity in this sample was particularly limited with 79% of the sample being White. While the data were gathered from various regions of Kentucky, it must be noted that Kentucky is mostly a rural state with 27.3% of the state population in 2010 residing in the Appalachian region (Pollard & Jacobsen, 2011). When attempting to generalize the findings of this study to high school students in different settings in the United States or in another country, extreme caution must be paid to these unique features of this study sample.

Second, these data were collected through self-reported survey. Self-reporting is commonly employed in social science research as a means to collect various information

including demographic information, attitudes, and behavior (Chan, 2009). Although social desirability in self-reporting survey is often considered a concern when asking questions on sensitive topics such as violence and sexual activities, past research also suggests that self-reporting is a desirable strategy that can provide accurate information from participants (Krumpal, 2013).

Third, part of the survey questions relied on respondents' retrospective memory, which is an additional issue with self-reporting (Breiding, 2014; Gabbe, Finch, Bennell, & Wajswelner, 2003). Among the variables used in this study, several asked students to recall and choose a range of times, such as 3-5 times and 10 or more times, of certain experiences in the past 12 months (e.g., seeing or hearing physical violence between parental figures, being victimized by and perpetrating personal violence, and using active bystander behaviors). Also, for the program exposure variables, respondents were asked to recall if they have heard a Green Dot speech in the last 6 months or 12 months, and to choose a range of hours that they received Green Dot training, such as 1 hour, 3 hours, and 5 or more hours. However, because the sample size was large and the responses on these experiences were dichotomized for this study as described in Chapter 3, the impact of the potential recall bias was considered small, if any.

Finally, these retrospective responses present an additional issue because they pose time limits on students' experience. For example, asking students to report victimization in the past 12 months would fail to detect victimization experienced 18 months ago, or three years ago. Using the social identity approach as a theoretical foundation, this study connected students' social identity as victims or perpetrators and their behavior as active bystanders. However, the study did not capture respondents'

personal violence victimization and perpetration experience more than 12 months before the survey administration.

Issues Related to Survey Construction

As described in Chapter 4 in the data screening and preparation section, the data contained a large number of invalid responses in all five questions on proactive bystander behaviors, ranging from 25.0% to 30.5% of 19,190 cases. This might have been because proactive bystander behavior items followed immediately after the reactive bystander behavior items. Both reactive and proactive items asked about the number of times students acted in certain ways. Proactive behavior questions provided response options only from A (*0 times*) to E (*10 or more times*) while reactive items, which preceded proactive items, also provided F (*Didn't see or hear someone doing this*). The F option indicated lack of opportunity to react to a situation such as intervening in someone's harassing behaviors or helping a friend who was assaulted. Researchers have suggested the importance of acknowledging degrees of opportunities available in investigating active bystander behaviors in efforts to prevent personal violence (McMahon, Palmer, Banyard, Murphy, & Gidycz, 2015; Palmer, 2016). Thus, the no opportunity response option intended to distinguish between lack of opportunity and lack of active bystander behaviors in the presence of opportunity to act. Proactive bystander behaviors are actions anyone can take to cultivate a culture of non-violence in their community (Edwards, 2009), thus eliminating the need for a specific opportunity to respond to. This was reflected in the series of questions on proactive bystander behaviors where option F was not included.

Chapter 4 described how all five proactive bystander behavior items were screened for potential patterns based on sex, grade, and school's intervention status. The pattern observed on Option F followed that of valid options in which students who attended schools with Green Dot programs and female students were represented more than others. In other words, the pattern indicated the possibility that respondents treated as if F was a valid option. Considering the fact that there was no clear indication where valid options ended on the Scantron form, the possibility is substantial.

Further, the research team of the parent study had decided to recode F as a no-opportunity option for all five proactive bystander behavior items (C. Brancato, personal communication, July 29, 2016). For this study, the no opportunity option in all bystander behavior items was combined with option of 0 times, meaning no bystander action was taken regardless of the opportunity. Thus, there was no impact on the statistical results while interpretation may need caution.

Other issues discovered when screening for patterns of missing and invalid cases were patterns based on sex and grade as well as the pattern of increasing missing values toward the end of the survey. Significantly more male students than female students were represented in the missing and invalid cases. As stated in the data screening and preparation section in Chapter 4, this is a pattern seen in past studies (Dey, 1997; Porter & Whitcomb, 2005). When the variables were screened based on grade for this study, there were more 9th-grade students than 10th, 11th, and 12th grades in missing and invalid cases. This may indicate that younger age and immaturity may influence willingness to answer all questions. Also, it could be that younger students' ability to complete a long survey within a given timeframe, and ability to understand long and complicated

questions could be at issue. Although these patterns were observed in missing cases, they were unavoidable issues in survey research and their impact on analyses was considered minimal because only 5.2% or less was missing from the large sample.

Additionally, the pattern of more missing cases later in the survey may indicate response fatigue. A meta-analysis of studies on response fatigue suggests that lower response rates may be attributed not only to the relative length of the survey but also to the contents of the survey, such as complexity and relevance (Rolstad, Adler, & Rydén, 2011). Since this study included 99 survey questions with some complicated and long items toward the end of the survey, the pattern may be attributed to survey fatigue. Again, because of the sample size, impact of missing values is not serious in this study. However, response fatigue is an issue to be considered for survey construction in future studies.

Issues Related to the Program Exposure Variable

In this study, the program exposure variable was a dichotomous variable that combined two different types of exposure to the program. As described in Chapter 3, one type was exposure by listening to a program speech as part of a large audience which generally lasted 20 to 45 minutes while the other type meant receiving up to five hours of training as a select-group of students. Although these two items were very different in nature, for this study, they were combined as one dichotomous variable that indicated either exposed or not exposed to the program. It is possible that, if they were not combined, there would have been differences in the active bystander behaviors based on the extent of program exposure. Further, the program exposure variable in this study did not accurately decipher if the lower active bystander behaviors indicated lack of action,

lack of opportunities, or lack of awareness of opportunities to act upon. More precise distinctions of levels of program exposure are suggested for future investigations.

Additionally, the program exposure variable was created based on the students' report of exposure to the program rather than whether or not they attended intervention schools where the program was conducted or control schools with no program. This could have had an impact on the statistically significant yet very small differences in changes in mean active bystander behavior scores when the program exposure was used as a covariate.

Issues of Victims as Perpetrators

A critical issue that adds to the limitations of this study is the complexity of investigating perpetration, in particular, of dating violence. Past research has noted the complex nature of collecting information on perpetration of violence in intimate relationships. For example, theory-, research-, and practice-based literature has well-documented the phenomena of adult female victims of intimate partner violence fighting back, retaliating, and using violence preemptively against their abusive partners (Larance, 2006; Miller, 2005; Perilla, Frndak, Lillard, & East, 2003). Some researchers and practitioners argue that all forms of violence are not the same in intimate relationships and the context must be considered (Johnson, 2006; Pence & Das Dasgupta, 2006). These researchers and practitioners have suggested that survey questions that capture use of force in numbers run the risk of mislabeling victims as if they were perpetrators.

Another possibility may be that earlier experience of victimization may impact individual behavior as active bystanders. The social identity approach, the theoretical foundation for this study, asserts that the saliency of the identity at the moment is key in

human behavior (Hornsey, 2008; Turner et al., 1994). Thus, it is possible that a perpetrator with earlier victimization experience may identify more with the victim than anticipated. This may lead the perpetrator to do something to prevent the violence from continuing in the particular moment while he or she may not act in other situations. These complexities and potential reasons behind perpetrators' active bystander behaviors must be taken into account when interpreting the results from this study.

Implications for Future Research

This study was innovative in using network visualization as a technique to display connections between different types of violence experienced among high school students. The network analysis is usually employed to examine connections among social entities, such as individual persons, organizations, and events (Borgatti et al., 2013). By converting the data into a matrix of violence by violence rather than of cases by violence, the network visualization allowed for easier identification of connections between violence types which failed earlier in latent class analysis using the dataset from the parent study (H. Bush, personal communication, September 6, 2013). Although this study selected only two victimization pairs and one perpetration pair that had higher tie strength, by observing the network and multidimensional scaling (MDS) plots, it is possible to choose other pairs for future research.

This study only examined victimization and perpetration experience in dichotomized variables of either having the experience or not. Future research may examine the extent or severity of the experience and its relationship to active bystander behaviors.

Future studies should include contextual variables to more accurately identify difference between victims and perpetrators particularly in dating violence. Including contextual information in the survey, such as presence and seriousness of injuries, intent of the act, and history of violence, may help sort out differences between victims and perpetrators of dating violence. Besides including new variables for quantitative analyses, future studies may consider qualitative data using methods such as written narrative responses, individual interviews, and focus groups.

With the data spanning five years, the Green Dot across the Bluegrass study provides ample opportunities for further research on high school students' experience with personal violence and prevention efforts. The relationship between co-occurring violence and active bystander behaviors may be compared between the baseline data and subsequent years to observe change over time. Another potential analysis includes multiple regression to predict the level of active bystander behaviors from combinations of violence experienced. In particular, more research on perpetration is urgently needed.

This study found that having no exposure to Green Dot was a statistically significant influence on increased active bystander behaviors among non-victims and non-perpetrators. In contrast, being exposed to Green Dot was a statistically significant factor on decreased active bystander behaviors for victims and perpetrators. As explained earlier, because the magnitude of changes in active bystander behavior scores was extremely limited, this should not be interpreted as clinical significance that apply directly to practice and policies. More rigorous investigation of the impact of the Green Dot program on youth with experience of victimization and perpetration is warranted. Future studies may use intervention status (i.e., if the student attended schools with or

without the program) as a variable instead of students report of program exposure. Further, differentiating the extent of program exposure based on hours of training received and when they heard the program speech may provide additional perspectives.

Additionally, the study found statistically significant influence of lower rape myth acceptance in increase of active bystander behaviors for non-victims and non-perpetrators. Again, due to the small changes in the mean behavior scores, the results' clinical significance is questionable. The relationship between the program exposure and changes in rape myth acceptance should be examined more thoroughly.

Implications for Practice and Policies

The findings from this study shed a light on the specific groups of high school students: polyvictims and polyperpetrators of personal violence. The results showed that individual characteristics including sex, grade, sexual attraction, and exposure to parental partner violence had a significant relationship with polyvictimization of psychological and physical dating violence as well as sexual harassment and stalking. Polyperpetration of psychological and physical dating violence revealed the same significant results. In particular, all combinations of polyvictimization and polyperpetration were experienced at much higher rates among students exposed to parental partner violence compared to their non-exposed counterparts. The efforts to intervene in adult intimate partner violence must continue to reduce its impact on children and stop the cycle of violence.

Additionally, the study found that non-heterosexual students were represented at significantly higher rates among all combinations of polyvictimization and polyperpetration than their exclusively heterosexual counterparts. Past research has reported on the vulnerability of non-heterosexual youth in personal violence victimization

(Dank et al., 2014; Halpern et al., 2004; Kosciw et al., 2012; Young et al., 2009).

However, hardly any research is published on perpetration of personal violence among this population. As discussed in the limitations section of this chapter, distinguishing perpetrators from victims is challenging. Thus, interpretation of the study results and translating it into policies and practice must be done with extreme caution. Efforts are needed to assist youthful victims of personal violence regardless of their sexual attraction. Given the results of this study that highlighted high rates of victimization and perpetration among exclusively non-heterosexual students, efforts are necessary to make the bystander prevention programs relevant to this group of students. Practitioners implementing bystander programs should engage with organizations that represent this population to reflect their culture and needs. Policies related to the prevention programs in high schools should reflect this as well. Further, school policies must be in place to create safe environments for all students and provide inclusive programs aiming to prevent personal violence and encourage school cultures that embraces nonviolence for all.

The study revealed that polyvictims were the most active in bystander behaviors followed by single- and non-victims. This pattern remained the same after the effects of sex, rape myth acceptance, dating violence acceptance, and program exposure were held constant all at once or separately. The fact that the victims, particularly polyvictims, had the highest mean score of active bystander behaviors show that they play an active and central role in prevention efforts, both on reactive and proactive ways. It suggests the importance of focusing on the strength of those who survive personal violence in the prevention efforts. Following the long-standing service philosophy of strengths

perspectives in working with survivors of personal violence (Black, 2003; Bricker-Jenkins & Hooyman, 1986; Bybee & Sullivan, 2002), prevention efforts should incorporate youth with victimization experience as leaders and active members.

The results showed that the program exposure had a statistically significant effect in reducing active bystander behaviors among victims. Youth with experience of personal violence victimization in the past year might be overwhelmed by the discussion of personal violence in the program speech and training, leading to reduction of active bystander behaviors. As discussed earlier, statistical significance should not be equated with practical significance. However, bystander programs are still recommended to take into account needs of victims among participants. In fact, considering the potential impact of the program for victims in the audience is a necessary aspect of a trauma-informed approach, which is increasingly embraced in the recent decade by intervention service organizations, including domestic violence programs (Wilson, Fauci, & Goodman, 2015) and child protective services (Fraser et al., 2014). Although the trauma-informed approach was originally developed as an intervention service philosophy that encouraged service providers to acknowledge impact of trauma at various aspects of service delivery (Harris & Fallot, 2001), the same philosophy should be adapted in working with youth in bystander programs aiming to stop initial occurrence of personal violence.

In the meantime, it is crucial to note that polyperpetrators were also the most active bystanders followed by single- and non-perpetrators. Just as was the case for the victimization groups, this pattern did not change after sex, rape myth acceptance, dating violence acceptance, and program exposure were controlled for. When examined individually, lower rape myth acceptance, being female, and having no program exposure

showed statistically significant effect on increased active bystander behaviors for non-perpetrators. Again, it should be noted that statistical significance is not necessarily relevant for practice. Also, as discussed in the limitations section, the complex nature of perpetration of personal violence should be considered. It may make sense for school-based programs to pay attention to the past histories of victimization even when the student is the perpetrator in the immediate incident. Practitioners should implement the program content with these complexities in mind.

This study provided critical findings that help to understand high school students' experience of personal violence, in particular, polyvictimization and polyperpetration, and their active bystander behaviors to prevent personal violence. The results revealed that students who had been victims of co-occurring psychological and physical dating violence were the most active in bystanders. The same was found for students who reported experience of co-occurring sexual harassment and stalking. Additionally, students who had reported perpetration of co-occurring psychological and physical dating violence were also the most active bystanders. These are important information to recognize as bystander programs are increasingly implemented in high schools. The study did not find positive effects of the Green Dot program on active bystander behaviors. However, given positive program effects on reduction of personal violence among high school students found in recent studies (Coker, Bush et al., 2015; Miller et al., 2013), prevention programs along with evaluation efforts should continue.

Appendices

Appendix A: Institutional Review Board Letter of Review Exemption



IRB Review

TO: Reiko Ozaki
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Speed sort 0027

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FROM: Chairperson / Vice Chairperson / Office of Research Integrity
Institutional Review Board

SUBJECT: IRB Review

DATE: September 15, 2014

On September 9, 2014, the Institutional Review Board (IRB) reviewed your project titled, *Exploration of co-occurrence of violence victimization and perpetration and its relationship to bystander behavior among high school students*.

The IRB determined that your proposal does not meet the Department of Health and Human Services (DHHS) definition of human subjects and thus does not require IRB review. The IRB made this determination because:

- You are receiving existing de-identified data;
- The data will not allow subjects to be identified;
- You will not receive a code/link to re-identify subjects;
- Study personnel cannot identify subjects; and
- The data were not collected specifically for your project;

Although your project does not need IRB review, please call the Office of Research Integrity before making any changes to your project because some changes may make the project eligible for IRB review.

If you have any questions regarding the IRB's decision or if any the information listed above are incorrect, please give the Office of Research Integrity a call at 859-257-9084.

Appendix B: Survey Questions and Response Options

Constructs (number of items)	Survey Questions	Response Options
Active Bystander Behaviors		
Reactive Bystander Behaviors (7 items)	<p><i>In the past 12 months, how often did <u>you</u>:</i></p> <ul style="list-style-type: none"> -Tell someone to stop talking down to, harassing, or messing with someone else. -Speak up when you heard that someone who was forced to have sex or hurt by a boyfriend/girlfriend was to blame. -Talk to friend who was being physically hurt by a boyfriend/girlfriend. -Ask someone that looked very upset at a party if they were okay or needed help. -Ask a friend if they needed to be walked or driven home from a party if they looked upset. -Speak up to someone who was bragging or making excuses for forcing someone to have sex with them. -Get help for a friend because they had been forced to have sex or were physically hurt by a boyfriend/girlfriend. 	<ul style="list-style-type: none"> 0 times 1-2 times 3-5 times 6-9 times 10 or more times No opportunity
Proactive Bystander Behaviors (5 items)	<p><i>In the past 12 months:</i></p> <ul style="list-style-type: none"> -How many times has someone talked with you about what you can do to stop dating violence or unwanted sexual activity? -How many times have you and your friends ever talked about activities you could do or join them in activities that might help prevent dating violence or unwanted sex in your school or your community? -How many times have you and your friends ever text messaged, instant messaged, blogged, emailed each other or used other 	<ul style="list-style-type: none"> 0 times 1-2 times 3-5 times 6-9 times 10 or more times

technology to discuss activities or things you could do to prevent dating violence or unwanted sexual activity?

-How many times have you talked with your friends about what you can do to keep yourself or others safe from dating violence or unwanted sexual activity?

-How many times have you talked with your friends about being safe in dating relationships?

Violence Types^a (Victimization)

Stalking (3 items)

In the last 12 months, how many times were you afraid for your personal safety because the following happened?:

-You were followed, spied on, or monitored using computer software, cameras, listening tools or global positioning system (GPS).

-Someone showed up at your home, school, or work, or waited for you when you did not want them to.

-You received unwanted phone calls, gifts, emails, text messages, or notes/pictures posted on social networking sites for example, Facebook, MySpace, or Twitter.

0 times

1-2 times

3-5 times

6-9 times

10 or more times

Yes, this happened before but not in the past 12 months

Psychological Dating Violence (4 items)

In the last 12 months, how many times has a current or previous boyfriend/girlfriend:

-Tried to control you by always checking up on you, telling you who your friends could be, or telling you what you could do and when?

-Damaged something that was important to you on purpose?

-Shouted, yelled, insulted, or swore at you?

-Threatened to hit, slap, or physically hurt you?

0 times

1-2 times

3-5 times

6-9 times

10 or more times

Yes, this happened before but not in the past 12 months

Not in dating or romantic relationship in the past 12 months

Physical Dating Violence
(1 item)

In the last 12 months, how many times has a current or previous boyfriend/girlfriend:
-Hit, slapped, or physically hurt you on purpose?

0 times
1-2 times
3-5 times
6-9 times
10 or more times
Yes, this happened before but not in the past 12 months
Not in dating or romantic relationship in the past 12 months

Sexual Harassment
(3 items)

In the past 12 months, how many times did another high school student:
-Tell you sexual stories or jokes that made you uncomfortable?
-Make gestures, rude remarks, or use sexual body language to embarrass or upset you?
-Keep asking you out on a date or asking you to hookup even though you said “No”?

0 times
1-2 times
3-5 times
6-9 times
10 or more times
Yes, this happened before but not in the past 12 months

Sexual Violence^b
(3 items)

The next questions are about sexual activities. Some of the questions might make you uncomfortable. Remember that this survey is anonymous. Your name will not be linked to your answers. You may also skip questions that make you uncomfortable. In the past 12 months, how many times did another high school student:
-Had sexual activities even though you didn’t really want to because they threatened to end your friendship or romantic relationship if you didn’t or because you felt pressured by the other person’s constant arguments or begging?
-Had sexual activities when you didn’t want to because the other person threatened to use or used physical force (like twisting your arm, holding you down)?
-Had sexual activities when you didn’t want to because you were

0 times
1-2 times
3-5 times
6-9 times
10 or more times
Yes, this happened before but not in the past 12 months

Violence Types ^a (Perpetration)	drunk or using drugs?	
Stalking (3 items)	<p><i>In the last 12 months, how many times have YOU done the following to someone that you may have been interested in dating or hooking up with in the past or now: Remember this survey is anonymous.</i></p> <ul style="list-style-type: none"> -Followed, spied on, or observed someone using computer software, cameras, listening tools, or global positioning system (GPS). -Showed up at someone's home, school or work, or waited for them when they asked you not to. -Sent unwanted gifts, emails, text messages, phone calls, notes, or pictures posted on social networking sites for example, Facebook, MySpace, or twitter. 	<p>0 times 1-2 times 3-5 times 6-9 times 10 or more times Yes, this happened before but not in the past 12 months</p>
Psychological Dating Violence (4 items)	<p><i>During the past 12 months, how many times did <u>YOU</u>:</i></p> <ul style="list-style-type: none"> -Try to control a current or previous girlfriend or boyfriend by always checking up on them, telling them who their friends could be, or telling them what they could do and when? -Damage something on purpose that was important to a boyfriend or girlfriend? -Shout, yell, insult, or swear at a current or previous girlfriend or boyfriend? -Threaten to hit a current or previous boyfriend or girlfriend? 	<p>0 times 1-2 times 3-5 times 6-9 times 10 or more times Yes, this happened before but not in the past 12 months</p>
Physical Dating Violence (1 item)	<p><i>During the past 12 months, how many times did <u>YOU</u>:</i></p> <ul style="list-style-type: none"> -Hit, slap, or physically hurt a current or previous boyfriend or girlfriend on purpose? 	<p>0 times 1-2 times 3-5 times 6-9 times 10 or more times Yes, this happened before but not in the past 12 months</p>

Sexual Harassment
(3 items)

In the past 12 months, how many times did YOU:

-Tell sexual stories or jokes that made another high school student uncomfortable?

-Make gestures, rude remarks, or use sexual body language to embarrass or upset another high school student?

-Keep asking another high school student out on a date or ask to hookup even though they said “No”?

0 times

1-2 times

3-5 times

6-9 times

10 or more times

Yes, this happened before but not in the past 12 months

Sexual Violence^b
(3 items)

In the last 12 months, how many time have YOU:

-Had sexual activities with a high school student because you either threatened to end your friendship or romantic relationship if they didn't or because you pressured the other person by arguing or begging?

-Had sexual activities with another high school student by threatening to use or used physical force (twisting their arm, holding them down, etc.)?

-Had sexual activities with another high school student because she/he was drunk or on drugs?

0 times

1-2 times

3-5 times

6-9 times

10 or more times

Yes, this happened before but not in the past 12 months

Attitudes

Rape Myth Acceptance

-Girls should have sex with their boyfriend or guy they are dating when he wants.

-If a guy spends money on a date, the girl should have sex with him in return.

-Guys should respond to dates' or girlfriends' challenges to authority by insulting them or putting them down.

-If a girl is sexually assaulted while she is drunk she is to blame for letting things get out of control.

-Sexual assault charges are often used as a way of getting back at guys.

Strongly Disagree

Disagree

Agree

Strongly Agree

-Many girls lead a guy on and then they claim sexual assault.
 -When girls are sexually assaulted, it's often because the way they said 'no' was unclear.

Dating Violence Acceptance

-There are times when violence between couples is okay.
 -A girlfriend or boyfriend who makes their girlfriend or boyfriend jealous on purpose deserves to be hit.
 -Sometimes violence is the only way to express your feelings.
 -Some couples have to use violence to solve their problems.
 -Violence between couples is a private matter and others should not get in the way or get involved.

Strongly Disagree
 Disagree
 Agree
 Strongly Agree

Program Exposure

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Training

-How many hours of Green Dot training have you received? This training is about 5 hours and includes teaching ways you can prevent violence.

Never heard of Green Dot
 No, did not receive Green Dot training
 1 hour
 2 hours
 3 hours
 4 hours
 5 or more hours

Speech

-In the past 12 months, did you hear a Green Dot speech? A Green Dot speech is a talk about how students can prevent personal violence.

Never heard of Green Dot
 No, did not receive Green Dot speech
 Yes, in the past 6 months
 Yes, in the past 12 months
 Yes, but not in the past 12 months

Demographic Background

Sex	What is your sex?	Female Male
Grade	What grade are you in?	9 th grade 10 th grade 11 th grade 12 th grade Ungraded or other grade
Sexual Attraction	People are different in their sexual attraction to other people. Which best describes your feelings? Are you:	Only attracted to females Mostly attracted to females Equally attracted to females and males Mostly attracted to males Only attracted to males Not sure
Exposure to Parental Partner Violence	In your family, how often did you see or hear one of your parents or guardians being hit, slapped, punched, shoved, kicked, or otherwise physically hurt by their spouse or partner?	Never 1 time 2-5 times 6-10 times More than 10 times

^a. Violence types were combined into co-occurrence variables based on the network visualization results.

^b. Sexual violence/assault was described as unwanted sex or sexual activities without consent throughout the survey.

Appendix C: Network Visualization Methods

The visualization techniques were used to identify types of violence with strong connections (i.e. co-occur more than others), and to utilize those co-occurring violence to examine their impact on active bystander behavior. First, the dataset was converted for use in UCINET. Second, network plotting was conducted with raw values, then with normalized values to observe connections between violence types. Third, multidimensional scaling (MDS) was run to provide additional information to identify co-occurring violence for analysis.

I. Data Set-up

The dataset must be converted to the format compatible with UCINET, which includes the visualization software NetDraw. The SPSS dataset was first converted to Excel to import into UCINET. Then the data within UCINET was converted into the violence by violence format that allows for plotting of violence type nodes.

Converting SPSS to Excel

1. Convert the SPSS dataset to Excel to prepare the dataset for UCINET.
2. In Excel, all missing values were replaced with 0.
3. To keep only the cases with co-occurring violence experience, cases with total of 0 (n=6,814) or 1 (n=3,116) experience were removed, leaving in the dataset cases with 2 to 10 violence types (n=5,842) out of all valid cases (N=15,772).

Importing Excel Data to UCINET

1. Open UCINET. Click DL Editor, File|Open Excel file. Choose the file, and appropriate worksheet. Choose Full Matrix as the data format. Keep the column headings (violence types). The UCINET data is saved as Violence2Plus.
2. Display the UCINET dataset. The UCINET log window opens. The data is stored as shown in Figure 2 1 and 2. All 5842 cases and 10 violence types are included.

Figure 1. UCINET Data Output (top)

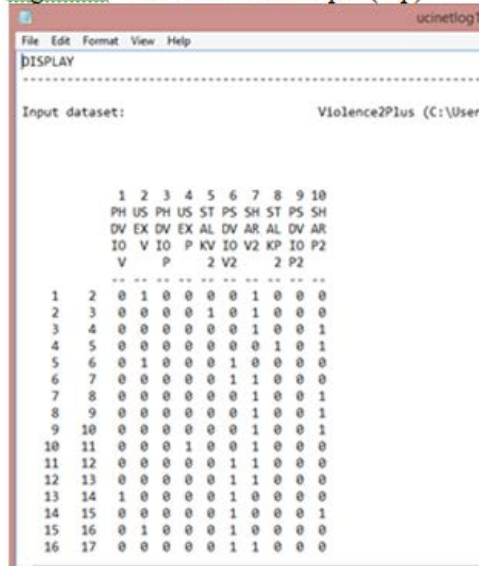
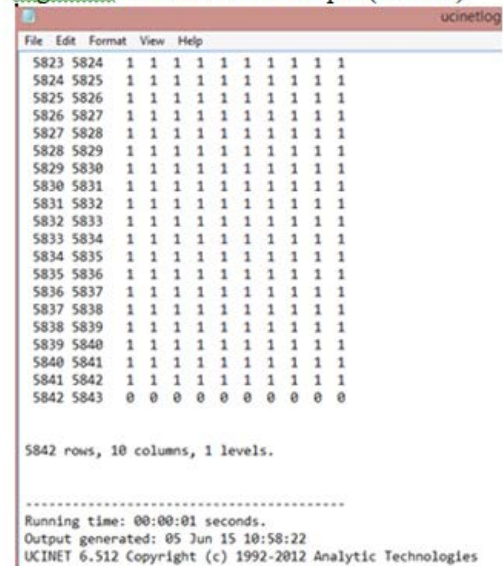


Figure 2. UCINET Data Output (bottom)



Data Conversion within UCINET

1. Convert the two-mode data (violence type by case) to one-mode (violence by violence).
2. Run Data/Affiliations (2 mode to 1 mode). Choose the dataset, Violence2Plus, and select “Columns” (violence) as mode, and “Sum of cross products” (co-occurrence) as method. The output will be saved as “Violence2Plus-Columns.” Click OK. The output log appears as shown in Figures 3.

Figure 3. Output Log of 1 Mode Affiliation Matrix

		1	2	3	4	5	6	7	8	9	10
		PHDV	USEX	PHDV	USEX	STAL	PSDV	SHAR	STAL	PSDV	SHAR
		I OV	V	I OP	P	KV2	I OV2	V2	KP2	I OP2	P2
1	PHDVIOV	1593	884	559	498	928	1497	1062	438	875	503
2	USEXV	884	2481	673	862	1350	1831	1853	644	1253	740
3	PHDVIOP	559	673	1112	491	638	898	798	447	950	474
4	USEXP	498	862	491	1165	685	827	800	547	750	683
5	STALKV2	928	1350	638	685	2844	1958	2199	659	1200	783
6	PSDVIOV2	1497	1831	898	827	1958	4074	2646	701	2158	900
7	SHARV2	1062	1853	798	800	2199	2646	4052	722	1656	1106
8	STALKP2	438	644	447	547	659	701	722	947	701	582
9	PSDVIOP2	875	1253	950	750	1200	2158	1656	701	2589	769
10	SHARP2	503	740	474	683	783	900	1106	582	769	1444

10 rows, 10 columns, 1 levels.

Notes:

The one-mode affiliation is the co-occurrence. In Figure 3, the cells in diagonal are the numbers of cases in each category. For example, among 5842 students who experienced two or more types of violence, 1,593 experienced physical dating violence victimization (PHDIOV). Out of these 1,593 students, sexual assault victimization/unwanted sex (USEXV) was also experienced by 884 students, indicating co-occurrence. It is expressed as “tie-strength” in the network plot. Table 1 lists all abbreviations of violence types used for this study.

Table 1. Abbreviation of Violence Types

Abbreviation	Types of Violence Experienced by Students
PHDVIOV	Physical dating violence victimization
USEXV	Sexual violence victimization
PHDVIOP	Physical dating violence perpetration
USEXP	Sexual violence victimization
STALKV2	Stalking victimization
PSDVIOV2	Psychological dating violence victimization
SHARV2	Sexual harassment victimization
STALKP2	Stalking perpetration
PSDVIOP2	Psychological dating violence perpetration
SHARP2	Sexual harassment perpetration

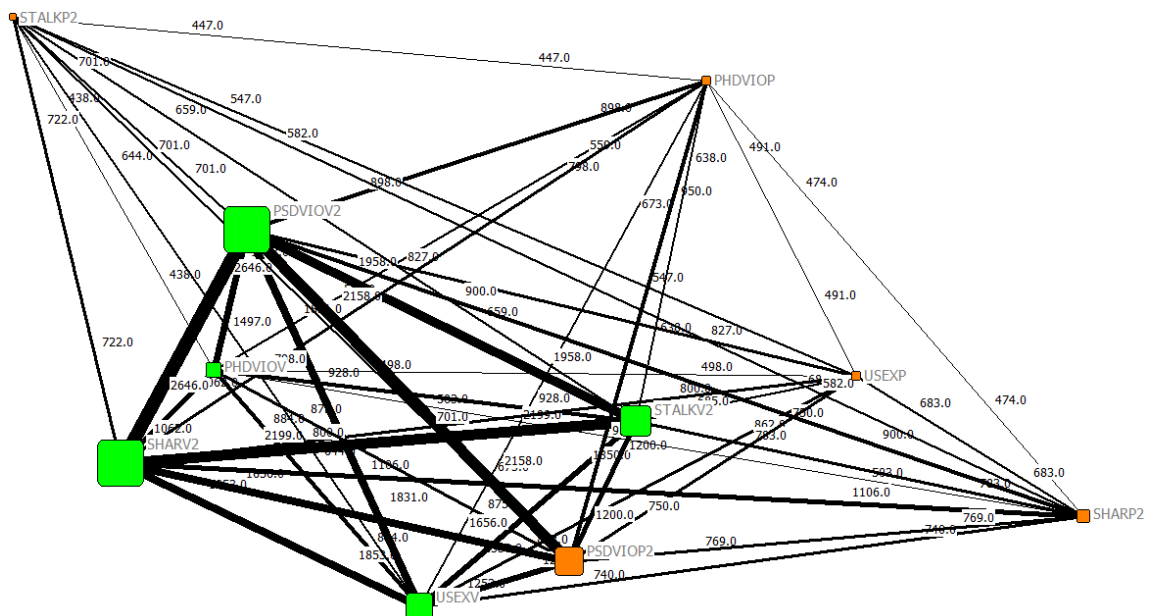
II. Network Plotting

The one-mode data with the raw tie-strength value was first plotted to graphically display connections between different violence types for preliminary observation. Then the data was normalized to visualize the co-occurrence without the node size bias.

Network Plotting with Raw Tie-strength Values

1. Open NetDraw within UCINET, and open the appropriate file (Violence2Plus-Columns).
2. When the network plot was opened, the node color, node size, and line thickness were added for visualization as shown in Figure 4.

Figure 4. Network Plot with Raw Values



Green node = Victimization
Orange node = Perpetration

Notes:

Figure 4 displays victimization nodes in green and perpetration nodes in orange. The node size indicates the number of people who reported experience of the given violence type. A glance of the node size shows differences between nodes, such as more students reporting psychological dating violence victimization (PSDVIOV2) than physical dating violence victimization (PHDVIOV). The ties between all victimization nodes are extremely strong, as indicated by the thickness of the lines between them. Strong ties are also observed between some types of perpetration and victimization, such as psychological dating violence victimization (PSDVIOV2) and perpetration (PSDVIOV2). However, the fact that some violence types are more common than others may be dominating the plot, resulting in a few common types having strong ties. To amend this problem, the one-mode matrix was normalized.

Network Plotting with Normalized Tie-strength Values

1. Normalize the one-mode matrix by dividing each value by the row maximum in UCINET. The normalized data were then symmetrized by maximum value, creating a symmetric matrix that provides one normalized value for each violence combinations as displayed in Figure 5.
2. Open the normalized-symmetric data in NetDraw. Apply colors and tie-strength. The node size does not change in normalized data (all 1.0). Figure 6 is the resulting network plot.
3. In order to clarify the difference in tie-strength based on the normalized values, stronger ties were coded in color as displayed in Figure 7. Table 3 includes strong ties, their color codes and tie-strength values.

Figure 5. Output of the Symmetric Normalized Matrix

```
Violence2PlusFinal
-----

Prior to symmetrizing...
Density of the input matrix: 0.484388906922605
Percentage of symmetric pairs was: 0.00%
Calculated as the proportion of times x(i,j) = x(j,i)
Percentage of reciprocated ties: 100.00%
Calculated as |x->y AND x<-y|/|x->y OR x<-y|

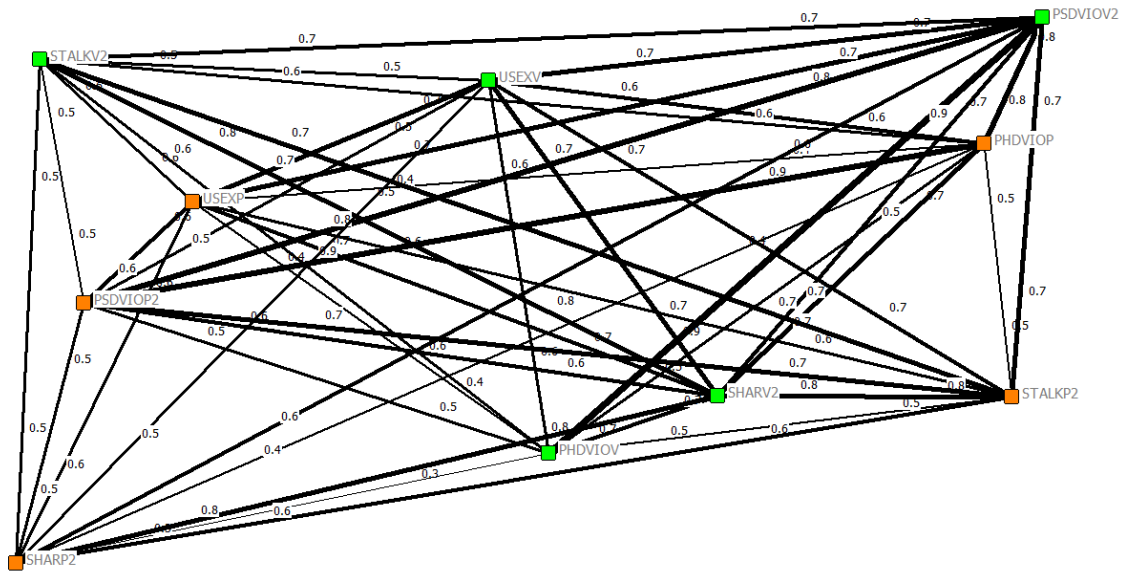
Violence2PlusFinal

          1      2      3      4      5      6      7      8      9      10
          PHDVI USEXV PHDVI USEXP STALK PSDVI SHARV STALK PSDVI SHARP
-----
1 PHDVIOV 1.000 0.555 0.503 0.427 0.583 0.940 0.667 0.463 0.549 0.348
2 USEXV   0.555 1.000 0.605 0.740 0.544 0.738 0.747 0.680 0.505 0.512
3 PHDVIOP 0.503 0.605 1.000 0.442 0.574 0.808 0.718 0.472 0.854 0.426
4 USEXP   0.427 0.740 0.442 1.000 0.588 0.710 0.687 0.578 0.644 0.586
5 STALKV2 0.583 0.544 0.574 0.588 1.000 0.688 0.773 0.696 0.463 0.542
6 PSDVIOV2 0.940 0.738 0.808 0.710 0.688 1.000 0.653 0.740 0.834 0.623
7 SHARV2  0.667 0.747 0.718 0.687 0.773 0.653 1.000 0.762 0.640 0.766
8 STALKP2 0.463 0.680 0.472 0.578 0.696 0.740 0.762 1.000 0.740 0.615
9 PSDVIOP2 0.549 0.505 0.854 0.644 0.463 0.834 0.640 0.740 1.000 0.533
10 SHARP2 0.348 0.512 0.426 0.586 0.542 0.623 0.766 0.615 0.533 1.000

Density of the symmetrized matrix: 0.627995369169447

Symmetrized matrix saved as dataset      Violence2Plus-Columns-Normed-Sym (C:\Users\
```

Figure 6. Network plot of the normalized data

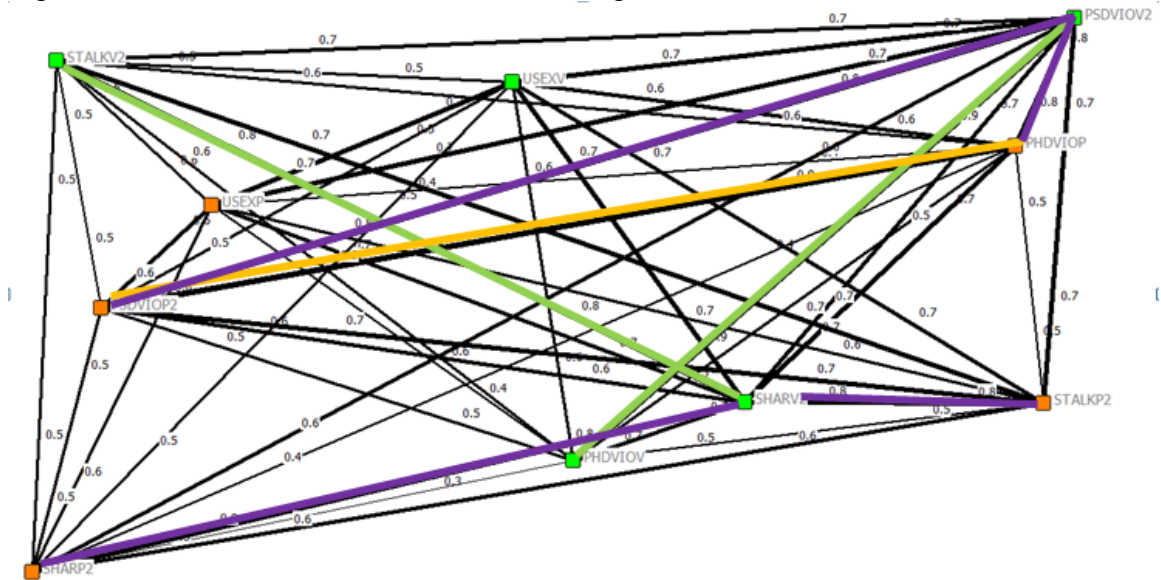


Green node = Victimization
Orange node = Perpetration

Notes:

In Figure 6, while not as drastically different as the raw value ties, difference of normalized tie-strength still shows in the thickness of the connecting lines. The normalized node size is the same for all violence types. The location of each node and distance between nodes are arbitrary in this method.

Figure 7. Normalized Network Plot with Stronger Ties Marked with Color



Green = Poly-victimization
Orange = Poly-perpetration
Purple = Victimization-perpetration

Table 2. Co-occurring Violence Types with Strong Ties

Co-occurring Violence Types	Tie Colors	Tie-Strength	
		Normed Value	Raw Value
1. Psychological DV vic – Physical DV vic	Green	0.940	1497
2. Psychological DV perp – Physical DV perp	Orange	0.854	950
3. Psychological DV vic – Psychological DV perp	Purple	0.834	950
4. Psychological DV vic – Physical DV perp	Purple	0.808	898
5. Sexual harassment vic – Stalking vic	Green	0.773	2199
6. Sexual harassment vic – Sexual Harassment perp	Purple	0.766	1106
7. Sexual harassment vic – Stalk perp	Purple	0.762	722

Notes:

The ties between violence types above normalized values of 0.75 were considered strong ties for this study as there was no pre-determined criterion (H. Bush, personal communication, May 14, 2015). These ties are colored in green for victimization, orange for perpetration, and purple for victimization-perpetration in Figure 7. Table 2 summarizes the violence types identified in this method, listed in descending order of normalized tie-strength value.

Because the location of each node and distance between nodes are arbitrary in network plots, another visualization technique, multidimensional scaling, was utilized to add additional perspective in understanding ties between violence types (i.e. co-occurrence of violence).

III. Multidimensional Scaling (MDS)

Multidimensional scaling (MDS) provides meaning to locations and distances in the relationship among nodes and help identify co-occurring violence types.

Multidimensional Scaling (MDS) with normalized data

1. Non-metric MDS was conducted using the symmetric normalized data, producing the output as shown in Figure 8 and the plot in Figure 9.
2. Based on visual observations, violence types in close proximity were identified and marked as shown in Figure 10.

Figure 8. Output of Normalized MDS

```

NON-METRIC MDS
-----
Starting config:          TORSCA
Type of Data:           Similarities

Input dataset:          Violence2Plus-Columns-Normed-Sym (C:\Users\

Non-metric MDS coordinates (stress = 0.198)

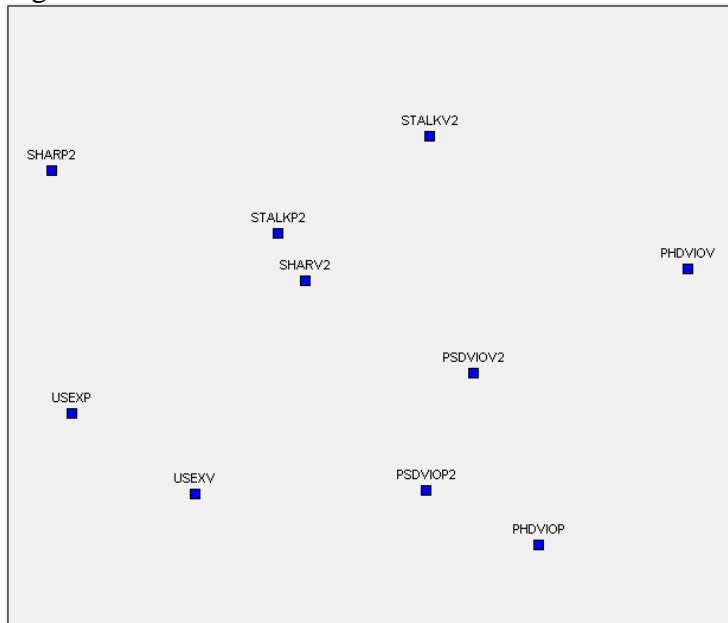
      1      2
-----
1 PHDVIOV  1.362  0.336
2 USEXV   -0.602 -0.721
3 PHDVIOP  0.768 -0.957
4 USEXP   -1.092 -0.341
5 STALKV2  0.333  0.959
6 PSDVIOV2 0.511 -0.152
7 SHARV2  -0.161  0.282
8 STALKP2  -0.271  0.499
9 PSDVIOP2 0.321 -0.700
10 SHARP2  -1.170  0.795

Stress = 0.198 in 27 iterations.

-----
Running time: 00:00:01
Output generated: 03 Jul 15 14:06:06
UCINET 6.512 Copyright (c) 1992-2012 Analytic Technologies

```

Figure 9. MDS Plot of the Normalized Data



Notes:

Although the nodes are somewhat spread out, there are some that are closer to each other as shown in Figure 9. The MDS algorithm aims to minimize stress which represents the amount of distortion in the graph, with acceptable level of 0.12 for non-metric MDS (Borgatti et al., 2013). As displayed in Figure 8, the stress level for this plot is 0.198.

Figure 10. Color-coded Pairs and Clusters



Orange = Poly-perpetration
Purple = Victimization-Perpetration

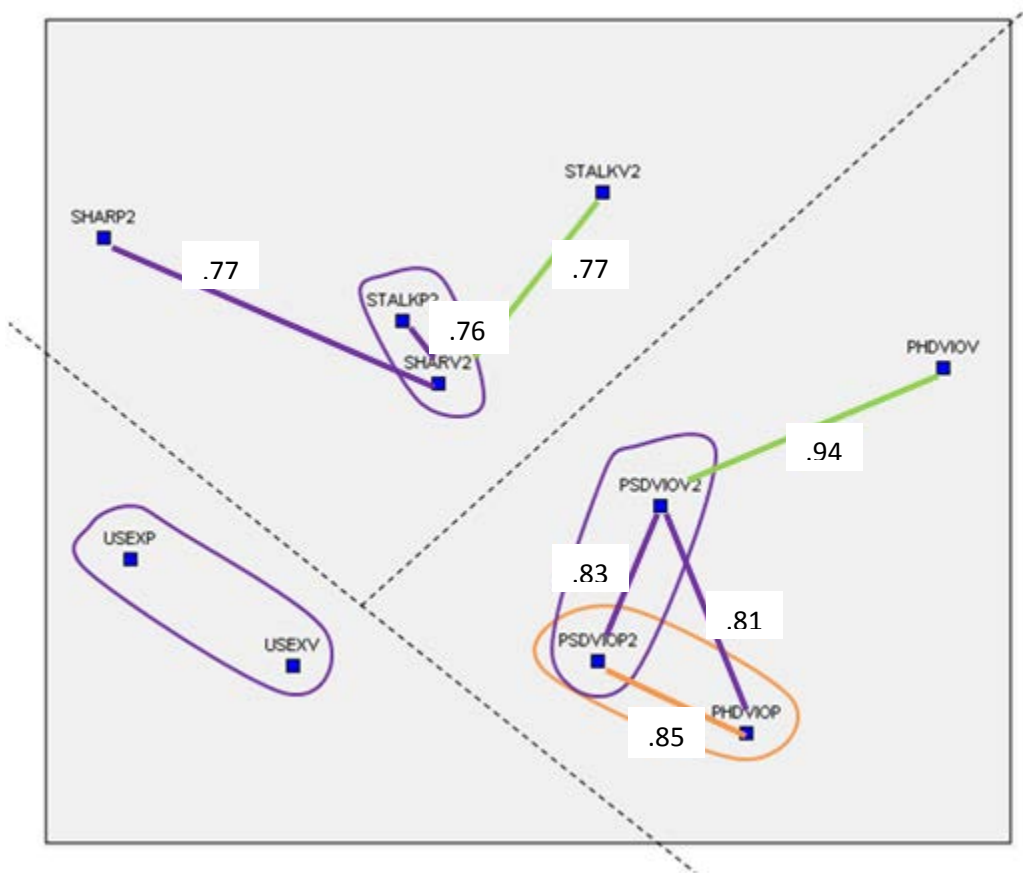
Notes:

Figure 10 displays the visual observation of pairs and clusters in the MDS plot. Stalking perpetration (STALKP2) and sexual harassment victimization (SHARV2) nodes are much closer to each other compared to other close pairs. Three clusters are observed and separated by the black dotted lines.

IV. Summary

In order to observe the connections between different types of violence experience by students, visualization techniques, network and MDS plotting were conducted. In Figure 11, violence type pairs identified with high normalized tie-strength values are added to the MDS plot.

Figure 11. Results of Network Plot Combined in MDS Plot



From the network plot, straight lines indicating ties and normalized tie-strength value for each tie are incorporated.

- Green = Poly-victimization**
- Orange = Poly-perpetration**
- Purple = Victimization-perpetration**

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- 1996 Bachelor of Science in Social Work
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- 1987 Associate of Arts in English
Baika Junior College, Osaka, Japan

PROFESSIONAL POSITIONS

- 2006-present Trainer and Consultant (Contractor)
YWCA of Tokyo, Tokyo, Japan
- 2004-2010 Trainer and Consultant (Contractor)
Ohio Dept. of Rehabilitation and Correction (ODRC), Columbus, OH
- 2003-2007 Behavioral Health Specialist (Contractor)
Mount Carmel Health Systems, Columbus, OH
- 2001-2010 Training & Technical Assistance Specialist
Ohio Domestic Violence Network, Columbus, OH
- 2002-2005 Therapist (Private Practice)
Crossroads Counseling Group and Consultation, Columbus, OH
- 1998-2002 Therapist/Program Coordinator
Lutheran Social Services of Central Ohio, Columbus, OH
- 1995-1997 Project Coordinator
Asian American Community Services, Columbus, OH

SCHOLASTIC AND PROFESSIONAL HONORS

- 2006 Outstanding Abstract Award, the 5th International Conference on Social
Work and Mental Health, Hong Kong, China
- 2006 Bringing Change for Women Award, the Soroptimist International of
Nara-Mahoroba, Nara, Japan

- 1997 Critical Difference for Women Scholarship, the Ohio State University, Columbus, OH
- 1997 C.C. Stillman Fellowship in Community Organization, the Ohio State University, Columbus, OH
- 1996 Critical Difference for Women Scholarship, the Ohio State University, Columbus, OH
- 1996 President's Salute to Outstanding Undergraduate Students by Dr. E. Gordon Gee, the Ohio State University, Columbus, OH
- 1994 Townsend Scholarship, the Ohio State University, Columbus, OH

PROFESSIONAL PUBLICATIONS

Peer-reviewed Journal Article

- Ozaki, R. & Otis, M.D. (2016). Gender equality, patriarchal cultural norms, and perpetration of intimate partner violence: Comparison of male university students in Asian and European cultural contexts. *Violence Against Women*. DOI: 10.1177/1077801216654575

Books and Book Chapters

- Ozaki, R. (2015). *DV higaisha shien handobukku: Sabaiba to tomoni (Kaiteishinpan) [DV victim advocacy handbook: Advocacy with survivors (2nd ed.)]*. Osaka, Japan: Toki Shobo.
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- Ozaki, R. (2002). Amerika ni okeru DV kagaisha taisaku [DV offender programming in the United States]. In K. Hasegawa (Ed.), *Kogo de yomu DV boshiho katsuyo handobukku [Handbook of DV prevention law in everyday Japanese]*. Osaka, Japan: Toki Shobo.

Other Publications

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- Cook-Craig, P.G., Ozaki, R. & Ferrell, D.L. (2015). *Missouri Department of Health and Senior Services baseline data report on PRE contracted colleges implementing the Green Dot primary prevention program*. Lexington, KY: University of Kentucky.

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