

TEEN DATING VIOLENCE VICTIMIZATION AND SCHOOL OUTCOMES: THE  
MEDIATING ROLE OF HEALTH-RELATED BEHAVIORS

By

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Abstract

TEEN DATING VIOLENCE VICTIMIZATION AND SCHOOL OUTCOMES: THE  
MEDIATING ROLE OF HEALTH-RELATED BEHAVIORS

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TDV is a significant social problem that has adverse effects on teens' health-related behaviors and academic achievement. Several studies have examined the association between TDV and health-related behaviors, and TDV and school outcomes separately. However, only one qualitative study explored the relationship among TDV victimization, health-related behaviors, and school outcomes. There is a need for more studies that examine TDV victimization, health-related behaviors, and school outcomes factors interrelate among high school youth. The purpose of this study is to explore risk factors of TDV, examine the moderating effect of gender or ethnicity on the relationship between TDV victimization and school outcomes, and explore the mediating effect of health-related behaviors on the relationship between TDV victimization and school outcomes.

Data from the 2017 Youth Risk Behavior Survey (YRBS) was used. The CDC collects data biennially on risk behaviors among high school youth across the U.S. using the YRBS. This study used multiple imputation to handle missing data. Bivariate analyses included correlations, T-tests, Chi-squares, and logistic regression in SPSS to explore the relationships between the variables. Process MACRO 3.3 was used to conduct moderation and mediation analyses.

The sample was comprised of 14,765 high school students. Most participants were 16 to 18 years and older (61.9%). 51.4% of the sample were female; 91.4 % of participants reported that they engaged in at least one or more sexual risk behaviors. Seventy percent of the teens were -others (i.e., White, Multi-racial, Asian, Alaskan-Native, American Indian, and Hawaiian), 19.4% were Black/African-American, and 10.6 % were Hispanic. Thirty-seven percent of participants reported difficulty concentrating in school. Participants reported average grades of 3.39 with the majority of students reporting As (28.9%) and Bs (29.7%) and having substance use of 1.12 on a scale of zero (no substance use) to four (higher levels of substance use).

Results indicated that being a younger, female, non-Hispanic, and involving in sexual risk behaviors were risk factors for TDV victimization. Second, neither gender nor ethnicity moderated the relationship between TDV victimization and school outcomes. Finally, physical activity and sleep were mediators of the relationship between TDV victimization and school outcomes.

These findings indicate that health-related behaviors are at the center of TDV victimization and academic achievement. School-based TDV prevention programs should include content on the importance of physical activity and sleep in their curricula when addressing healthy relationships. This study calls for multidisciplinary collaborations to address this social problem.



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## **CHAPTER 1**

### **Introduction**

Teen dating violence (TDV) is a significant social problem that affects health-related behaviors (e.g., substance use, physical activity, dietary behaviors, sleep) (Chronister, Marsiglio, Linville, & Lantrip, 2014; Temple & Freeman, 2011), and school outcomes and behaviors (e.g., grades, concentration) (Baker, 2016; Chronister, Marsiglio, Linville, & Lantrip, 2014; Zhabenko et al., 2016) during adolescence. TDV occurs at a time when adolescents are undergoing significant biological, psychological, and social developmental changes in their lives (Cicchetti, & Rogosch, 2002) and these changes may go unnoticed by parents and professionals. As children enter adolescence, they are confronted with new challenges, for instance, sexuality and romantic interests, changing norms that tolerate aggressive behaviors, and mixed-gender peer-groups (Miller et al., 2013) that they have to learn to navigate quickly. Psychological changes, for example, mood variability may influence socially induced behaviors such as cigarette smoking behavior which is associated with TDV experiences (Weinstein & Mermelstein, 2013).

The Centers for Disease Control and Prevention (CDC), (2016) defines TDV as any form of aggression; physical, sexual, psychological, emotional, or stalking perpetrated by an adolescent against his/her partner in an intimate relationship. The CDC (2016) defines physical violence as any aggression on a partner that involves the use of physical force through actions like pinching, hitting, shoving, slapping, punching, or kicking. Psychological/emotional violence involves the use of threats and an attack on a partner's self-worth through name-calling, shaming, bullying, and purposely embarrassing or isolating one from his/her family and friends. Sexual violence is coercing a partner to indulge in sex either physically or psychologically. Stalking involves harassment and aggressive techniques to induce fear in a partner (CDC, 2016).

Theriot (2008) recommends that when exploring the definition of TDV, it is important to consider key features in adolescence and adolescent development. For example, adolescents may use some actions which are considered abusive in adult intimate relations to be flirtatious or seek attention from their partners, for instance, hair pulling, and name calling (Pittman, Wolfe, & Wekerle, 2000).

Researchers define TDV differently depending on the scope of their study. Most studies focus on physical violence (e.g., Ramisetty-Mikler, Goebert, Nishimura, & Caetano, 2006; Temple & Freeman, 2011; Thompson, Wonderlich, Crosby, & Mitchell, 2001) but some studies combine physical with sexual violence in their definition of TDV (e.g., Martz, Jameson, & Page, 2016; Silverman, Raj, Mucci, & Hathaway, 2001; Taylor, Wamser, & Sanchez, 2010). Other studies use a broader definition of TDV and include physical, sexual, and psychological/emotional violence (e.g., Edwards & Neal 2017); physical, and psychological/emotional violence (e.g., Choi et al., 2017; Foshee, Reyes, Gottfredson, Chang, & Ennett, 2013; Haynie et al., 2013; Parker & Bradshaw, 2015), and physical violence, sexual violence, and stalking (Slashinski, Coker, & Davis, 2003). The current study utilizes the Youth Risk Behavior Surveillance (YRBS) definition of TDV which is hitting, slamming or injuring someone with an object or weapon intentionally by an intimate partner. Sexual TDV occurs when an adolescent is forcefully kissed, touched or coerced to engage in sexual activity by an intimate partner.

Due to the public outcry, especially through advocacy groups like Break the Cycle, the federal government, in 2000, incorporated some sections of the Violence Against Women Act (VAWA) to address TDV through budget allocations to VAWA by launching violence prevention initiatives to educate teens in schools about violence prevention (Tharp, 2012). Also,

several states have taken an active role in TDV prevention by passing legislation that addresses TDV. For example, as of 2014, at least 22 states had laws that urge school boards to create a curriculum on TDV (National Conference of State Legislatures, 2017). Finally, some communities have adopted the bystander initiative where all community members are involved in intervening in abusive situations in their surroundings. Also, the *Bystander* approach aims to improve community receptivity in prevention efforts and challenge community norms on sexual violence and is widely adopted in college campuses (Banyard, Moynihan, & Plante, 2007).

### **TDV Prevalence Rates**

Data from the YRBS - 2017 indicate that 8.0% and 6.9% of adolescents in dating relationships experienced physical and sexual violence victimization, respectively in 2014 (Kann et al., 2018). Other national studies have reported higher rates of TDV victimization compared to the YRBS (Halpern, Oslak, Young, Martin, & Kupper, 2001; Taylor, & Mumford, 2016). For example, the National Survey of Teen Relationships and Intimate Violence (STRiV) found that two-thirds of 12-18-year-olds in dating relationships reported some form of victimization; specifically, 18% experienced physical, and 18% experienced sexual TDV (Taylor, & Mumford, 2016). Also, urban low-income minority adolescents have been found to report high rates of physical TDV (21.1%), nonphysical violence (48.1%), and overall TDV (52.6%) (Lormand et al., 2013). In addition, according to some studies, the prevalence of TDV does not appear to be changing. Rothman and Xuan's (2014) examination of a 12-year trend of physical TDV found that the rates were steady at 9.4% for boys and 9.2% for girls across the nation.

Though TDV victimization is mainly associated with females, studies show that both males and females experience TDV either at the same rates or at different rates (Taylor, &



Mumford, 2016; Vagi, Olsen, Basile, & Vivolo-Kantor, 2015; Wolitzky-Taylor et al., 2008). Vagi, Olsen, Basile, and Vivolo-Kantor (2015). For example, Wolitzky-Taylor et al. (2008) reported significantly higher rates of sexual, physical, and sexual and physical TDV victimization in teenage girls compared to boys. On the contrary, Taylor and Mumford (2016) reported higher rates of physical, sexual, and psychological TDV victimization in boys than girls though the differences were not significantly different. Specifically, girls and boys reported 15.3% vs. 19.6% physical, 17.8% vs. 18.25% sexual, and 65.3% vs. 65.7% psychological TDV victimization, respectively (Taylor, & Mumford, 2016).

Studies have attributed the difference in TDV experience between boys and girls to the severity of violence (Muñoz-Rivas, Graña, O’Leary, & González, 2007; Carroll, Raj, Noel, & Bauchner’s, 2011; Wolitzky-Taylor et al., 2008). Wolitzky-Taylor et al., (2008) found that 2.6% of girls compared to 0.6% of boys experienced severe dating violence. While Carroll, Raj, Noel, and Bauchner’s (2011) study indicated that girls are more likely to perpetrate physical violence yet report fear of experiencing serious injuries, i.e., 16.2% girls vs. 3.1% boys. Additionally, more girls (22.4%) than boys (13.9%) reported that they were aggressive toward their partner when angry while more boys than girls reported that they perpetrated violence against their partners in response to the aggression they received from their partners (Muñoz-Rivas, Graña, O’Leary, & González, 2007).

Besides, studies suggest that teens experience different levels of violence based on age and ethnicity. For example, teens in early adolescence reported less TDV compared to their counterparts in late adolescence (Wolitzky-Taylor et al., 2008; Ramisetty-Mikler, Goebert, Nishimura, & Caetano, 2006). Teens from different ethnicities report different rates of TDV experience. According to the 2013 YRBS, 17.2% Hispanic, 15.5% Black, and 14.5% White

adolescents experienced some form of TDV in the year before the study was conducted (Ramisetty-Mikler, Goebert, Nishimura, & Caetano, 2006; Vagi et al., 2015). Native Hawaiian students reported a higher rate (11.6%) than Caucasians (7.3%) and Asian/Pacific Islanders (6.5%) (Ramisetty-Mikler, Goebert, Nishimura, & Caetano, 2006). However, other studies have reported no differences in TDV experience among African American, White, and Hispanic adolescents (Temple & Freeman, 2011).

### **Consequences of TDV**

Literature shows that TDV victimization is associated with adverse short-term and long-term effects on adolescents' wellbeing (Banyard & Cross, 2008; Callahan, Tolman, & Saunders, 2003; Silverman et al., 2001). Most studies focus on the impact of TDV on mental, emotional, sexual, and social health. Adolescents who experience TDV are predisposed to health risk behaviors including sexual risk behaviors, such as, early sexual debut, teen pregnancies, and involvement with multiple sex partners, and unhealthy weight control (Silverman et al., 2001). Adolescents experiencing TDV are more likely to engage in negative health-related behaviors, for example, alcohol use (Banyard & Cross, 2008) and drug use at higher rates especially, smoking and marijuana (Temple & Freeman, 2011). TDV experiences lead to adverse mental health outcomes, particularly, post-traumatic stress disorder symptoms (Callahan, Tolman, & Saunders, 2003), depressive symptoms (Banyard & Cross, 2008), anxiety (Ackard & Neumark-Sztainer, 2002), and suicidal behavior (Lormand et al., 2013; Silverman et al., 2001).

As a result of TDV experience, adolescents may encounter psychological issues, for instance, feelings of dissatisfaction about their bodies, low self-esteem, eating disorders, and unhealthy weight control behaviors (e.g., binge eating, forced vomiting) (Ackard Eisenberg & Neumark-Sztainer, 2007; Ackard & Neumark-Sztainer, 2002). Also, teens who have experienced

TDV end up with disordered sleep patterns (Haynie et al., 2013), severe sleep problems (Zhabenko et al., 2016), and lower levels of life satisfaction (Callahan, Tolman, & Saunders, 2003). Hildenbrand, Daly, Nicholls, Brooks-Holliday, and Kloss (2013) using the 2009-YRBS found that teens who had insufficient sleep were predisposed to violence-related behaviors in school.

With many adverse outcomes associated with TDV, research has also found that TDV negatively impacts school outcomes and behaviors (Baker, 2016; Chronister, Marsiglio, Linville, & Lantrip, 2014; Rothman, & Xuan, 2014; Zhabenko et al., 2016). Teens who experience TDV are at high risk of problematic school behaviors, low levels of school attachment, poor grades (Banyard & Cross, 2008), academic difficulties, absences, expulsions and dropping out of school (Chronister, Marsiglio, Linville, & Lantrip, 2014).

TDV predicts future revictimization for adolescents (Gómez, 2011; Smith, White & Holland, 2003). Smith, White, and Holland (2003) found that teens who experienced TDV in high school were more likely to be victimized by their dating partners in college than their counterparts who were not victimized in high school. Also, adolescents who experienced TDV were at increased risk of reporting not only dating violence five years later but also experienced intimate partner violence 12 years later (Exner-Cortens, Eckenrode, Bunge, & Rothman, 2017).

### **Significance and Purpose of the Present Study**

TDV is a significant social problem facing adolescents and affects both their health-related behaviors (substance use, physical activity, diet, sleep) and school outcomes (grades, concentration), and it affects 6.9% (sexual TDV) and 8.0% (physical TDV) (Kann et al., 2018) of teens. There is a significant association between TDV experiences and school outcomes, yet, few studies have focused on how adolescents' health-related behaviors can impact this relationship

(Chronister et al., 2014). Some studies have examined the role of health-related behaviors on school outcomes (Chronister et al., 2014; Cooper, Bandelow, & Nevill, 2011). However, there are no quantitative studies known to the author that have addressed health-related behaviors, and school outcomes among adolescents who have experienced TDV. There is a need for research on the role of health-related behaviors (substance use, physical activity, diet, and sleep) in the relationship between TDV and school outcomes (grades, and concentration).

Chronister et al.'s (2014) qualitative study focused on the contextual understanding of TDV and educational experiences and is the only study known to the author that examines the interrelationships among the three: TDV experience, health-related behaviors, and educational experiences. Chronister and colleagues found that health behaviors (e.g., substance use and sleep behaviors) had adverse effects on educational experiences (e.g., skipping school, inability to focus, and a decline in grades) (Chronister et al., 2014). Although Chronister et al. (2014) began to fill this gap in research, additional research is needed to build on these preliminary findings to understand the critical relationship between these variables. Chronister and colleagues' study was qualitative, included girls only, and their focus was not on the impact of specific health behaviors (e.g., substance use, physical activity, diet, and sleep) on school outcomes (e.g., grades, concentration) but the links are evident. TDV victimization, negative health-related behaviors, and negative school outcomes are significant problem behaviors among youth that lead to other problem behaviors such as school dropout, and criminal behavior. Thus, it is important for us to understand better how TDV experiences may impact youths' health and school outcomes to inform prevention efforts better.

More specifically, it is essential to know which individual health behaviors may play a significant role in the relationship between TDV victimization and school outcomes. Knowledge

of the contribution of health-related behaviors (substance use, physical activity, diet, sleep) is essential in informing interventions. For example, this information may directly guide social workers, educators, and nutritionists working with teens to employ practical means of averting adverse school outcomes (grades, and concentration) among teens victimized by TDV. Also, gender, age, ethnicity, and sexual risk behaviors have been significantly associated with TDV victimization (Ramisetty-Mikler, Goebert, Nishimura, & Caetano, 2006; Wolitzky-Taylor et al., 2008). Thus, this study will explore how gender, age, ethnicity, and sexual risk behaviors impact TDV victimization, and how gender, and ethnicity moderates the association between TDV and school outcomes. Most importantly, this study will examine the role that health-related behaviors (substance use, physical activity, sleep behaviors, and dietary behaviors) play on the relationship between TDV victimization and school behaviors (grades, and concentration) in a diverse-national sample of adolescents.

### **Innovation Statements**

There is significant involvement of the government, schools, agencies and various professions and individuals dedicating time and resources in the fight against the TDV issue. For example, the Office of Violence Against Women awarded over \$450 million in grants to programs to aid in the fight against dating violence and intimate partner violence (U.S Department of Justice, 2017). In recent years, the CDC collected data on physical and sexual TDV alongside other risky behaviors to understand the trends and help inform prevention and intervention programs. They funded many initiatives such as Dating Matters, Choose Respect, and Safe Dates to aid in the prevention of TDV among high school students. Also, the previous administration, especially under the leadership of the vice president Joe Biden allocated funds for programs geared toward alleviating TDV under the Violence Against Women Act (VAWA).

These initiatives centered on the school environment suggest that the majority of TDV incidents occur in the school environments (Jackson, Cram, & Seymour, 2000). Despite these efforts, statistics indicate that TDV is still a common occurrence among high school students and more actions need to be taken.

Unfortunately, currently, no policies exist to address TDV at the federal level; TDV policies exist within VAWA. However, some states have mandated schools to create policies and curricula to address TDV. According to the National Conference of State Legislatures (2017), as of July 2014, 22 states have enacted legislation that addresses TDV, including Arizona, California, Florida, Georgia, Kentucky, and Texas. Many of these policies require schools to teach about healthy relationships and help-seeking but do not address healthy behaviors among students who experience TDV especially as a way to promote positive adaptation when experiencing TDV. Additionally, few current evidence-based TDV prevention programs address the broader health-related issues. For example, the Safe Dates program raises awareness of what healthy and abusive dating is, as well as causes and consequences of abusive relationships.

Besides, the Safe Dates program equips adolescents with skills and resources to help themselves and their peers in abusive relationships, and develop healthy relationships (Foshee et al., 2005). However, the program does not address the issue of diet, sleep or physical activity which are relevant because of their contribution to the overall wellbeing of individuals. This study may inform TDV efforts, including policies and programming on the importance of approaching TDV prevention in schools from a broader and more holistic manner. This study also furthers the work of Chronister et al. (2014) by looking at the relationship between health-related behaviors and school outcomes in a national sample of adolescents who have experienced TDV.

Current research has focused on TDV, health-related behaviors, and school outcomes separately. For example, a majority of research in TDV has focused on the impact of TDV on adolescents' health-related behaviors and school outcomes and found significant relationships (Banyard & Cross, 2008; Callahan, Tolman, & Saunders, 2003; Silverman et al., 2001). Similarly, there is evidence that teens who experience TDV use substances and other unhealthy choices as a way of coping with TDV (Chronister et al., 2014) which in turn affect their academic achievement and behavior in school. This dissertation explores the interrelationships among TDV, health-related behaviors, and school outcomes that have not been explored previously. This study will contribute to the field by providing a theoretical basis of understanding these relationships which is lacking. This study's findings may also provide insights on possible interventions with teens who have experienced TDV, and call for collaborative input from educators, nutritionists, and therapists in addressing the TDV, health-related behaviors (substance use, physical activity, sleep behaviors, and diet), and school outcomes (grades, and concentration).

The goal of this research is to advance knowledge about the relationships among TDV victimization, health-related behaviors, and school outcomes. Specifically, the objectives include: (1) Examine how risk factors (Age, gender, race/ethnicity, sexual risk behavior) relate to TDV victimization (no TDV, and TDV victimization-physical or sexual) (2) Explore whether the relationship between TDV victimization and school outcomes (grades, and difficulty concentrating) differs by gender, or race/ethnicity (3) examine the mediating effect of health-related behaviors (substance use, physical activity, diet, and sleep) on the relationship between TDV victimization and school outcomes.

The next chapter will examine the literature that addresses the impact of TDV on health-related behaviors, TDV, and school outcomes as well as the context of TDV which includes health-related behaviors and school outcomes.



## **CHAPTER 2**

### **Literature Review**

Given the centrality of school outcomes and the onset of intimate relationships in the lives of the teens, and an increased likelihood of health risk behaviors associated with TDV, an understanding of the impact of health-related behaviors on school outcomes and behaviors is crucial. Therefore, this review highlights what previous studies have established on the impact of health-related behaviors (physical activity, substance use, diet, and sleep) on school outcomes (grades, and concentration), specifically among teens based on their TDV victimization experiences.

#### **Review Methods and Search Criteria**

This review of the literature explores the relationships among TDV, health-related behaviors, and school outcomes. First, various online databases were used through EBSCOhost to access the following databases: Academic Search Complete, CINAHL Complete, Education Abstracts (H.W. Wilson), ERIC, Family Studies Abstracts, Healthsource: Nursing/Academic Edition, PsycARTICLES, PsycINFO and Social Work Abstracts. Also, Google Scholar, ProQuest Dissertations and Theses Global, and reference lists of the retrieved studies were used to supplement the search for empirical articles. The following search terms were utilized: dating violence OR intimate partner violence OR sexual dating violence OR physical dating violence OR teen dating aggression OR adolescent dating aggression AND Teens OR Adolescents OR adolescence OR teenagers OR High school OR secondary school OR secondary education AND Exercise AND diet AND Drugs OR marijuana OR Cocaine OR methamphetamines AND alcohol AND smoking OR cigarettes AND sleep OR Healthy behaviors OR Unhealthy behaviors OR risky behaviors impact OR effects OR consequences OR influence AND Physical education

AND team sports AND grades OR academic achievement OR academic success OR academic performance AND attendance OR truancy AND concentration OR school engagement OR school behaviors OR outcomes.

### **Inclusion Criteria**

Studies were included if they focused on any form of TDV, adolescents aged (12-19 years old), health-related behaviors (substance use, sleep, diet, and or physical activity), and school outcomes (attendance, concentration, and grades). Additional inclusion criteria were as follows: (1) studies had to be empirical, (overall, 59 empirical articles were reviewed due to their relevance and the contribution they bring to this review); (2) published in peer-reviewed journals (-quantitative, qualitative, and systematic reviews of the literature); (3) published in English between 2000 and 2017; (4) published across the world; and (5) focused on adolescents of both genders in high schools. Also included are, dissertations, and survey data from YRBS and National Sleep Foundation. Studies in this review were organized in a table (Table 1.1) indicating author/year, purpose, sample, methodology, and results.

Inasmuch as studies have focused on the impact of TDV on health-related behaviors and school outcomes, as well as the impact of health behaviors on school behaviors and outcomes, little research explores TDV, health-related behaviors, and school outcomes. Thus, this review draws upon literature on health-related behaviors and school outcomes on teens in high school who have and those who have not experienced TDV to support the link. *Table 1.1* provides a list of the reviewed studies including author, purpose, sample size methodology and results.

### **The Impact of TDV on School Outcomes**

Typically, adolescence is a time when most individuals are in high school and many experience their first dating relationships where they become vulnerable to abuse and violence.

Thus, it is likely that unhealthy relationships with peers where violence is involved can affect their school outcomes. Some studies using quantitative methodologies have found that TDV negatively impacts school outcomes, especially, grades, and concentration (Banyard & Cross, 2008; Edwards & Neal, 2017; Eaton, Davis, Barrios, Brener & Noonan, 2007). For example, Banyard and Cross (2008), using a sample of 2101 7<sup>th</sup> to 12<sup>th</sup> graders explored educational consequences of physical and sexual TDV and found an association between TDV and poor academic outcomes. TDV accounted for variance in all the three educational outcomes: perceptions of school attachment (4%), thoughts of dropping out (1%), and self-reported average grades (2%) (Banyard & Cross, 2008). Furthermore, Eaton, Davis, Barrios, Brener, and Noonan (2007) found that students who reported dating violence victimization were at increased odds of reporting grades of Cs, Ds, and Fs than As.

Similarly, Edwards and Neal (2017), using a prediction model, found that physical and sexual dating violence victimization predicted low school grades. While Martz, Jameson, and Page (2016) found that TDV predicted lower academic grades for girls only. However, even though TDV did not predict lower academic grades for boys, boys who experienced TDV had lower grades than those who did not experience TDV. Martz, Jameson, and Page (2016) thought that the impact of TDV could be the same for both girls and boys and attributed the insignificance in boys' drop-in scores to an artifact-grade baseline rates where there is an assumption that girls generally make higher grades compared to boys but girls' grades significantly drop when faced with adversity. However, due to the cross-sectional nature of these studies, it was difficult to conclude what incident preceded the other (i.e., whether TDV led to poor performance or poor performance heightened the risk of TDV).

Extant research generally shows that TDV experience leads to a decline in academic performance and overall school experience (Chronister, Marsiglio, Linville, & Lantrip, 2014; Martz, Jameson, & Page, 2016). One of the only three qualitative studies reviewed herein (and the only one known to the author that focused on TDV experience and school behaviors and outcomes) provided some insight on why there is a decline in academic performance (Chronister et al., 2014). In the study by Chronister and colleagues, most of the 19 female adolescent participants who had experienced TDV in the 12 months before the interview indicated that the abuse interfered with their school experiences. In fact, for some students, their grades started declining as soon as abuse began in their relationships because their abusive partner made them prioritize between homework and the relationship to which most victims forewent their homework (Chronister et al., 2014). In other instances, participants in Chronister et al.'s study reported that an abusive boyfriend would use physical and emotional violence tactics that interfered with the participant's learning and school experiences overall.

Students who experience TDV may have irregular school attendance. For example, Chronister et al. (2014) found that some teens skip classes to spend time with their partners, and eventually drop out of school. Furthermore, TDV experience hinders concentration in school. Also, Chronister et al. (2014) found that some participants who had experienced violence could not concentrate in class due to a decline in their mental health. As highlighted earlier, several studies indicate that TDV leads to an array of mental health outcomes including, depression (Ackard, Eisenberg, & Neumark-Sztainer, 2007; Edwards & Neal, 2017), anxiety, self-harm and even suicidality (Ackard, Eisenberg, & Neumark-Sztainer, 2007) that would potentially interfere with concentration in class.

Contrary to the previous discussion, some studies find that TDV may not always lead to negative academic outcomes (Chronister et al., 2014; Foshee, Reyes, Gottfredson, Chang, & Ennett, 2013). For example, Foshee et al. (2013) using longitudinal data made of 3,328 - 8th to 12<sup>th</sup>-grade participants found that neither physical, sexual nor psychological victimization predicted a decline in academic aspirations or grades. This finding suggests that some students may keep up with their schoolwork despite TDV victimization. To explain how victims of TDV still maintain their academic performance, Chronister, et al. (2014) purport that a student who is a victim of TDV may prioritize his/her grades while experiencing violence by ensuring they attend school as required, complete all homework, and pay attention in class to avoid creating suspicion in their parents that something is amiss.

## **TDV and Health-Related Behaviors**

### **The Impact of TDV on Substance Use**

Extant literature has found a relationship between TDV and substance use among teens who experience TDV (Baker, 2016; Chronister et al., 2014; Edwards & Neal, 2017; Foshee, Reyes, Gottfredson, Chang & Ennett, 2013). Some studies have reported that teens who experience TDV engage in more than one substance use behavior (Parker & Bradshaw, 2015; Parker, Debnam, Pas, & Bradshaw, 2016). For example, Parker and Bradshaw's (2015) study involving 18,680 9th-12th grade students, reported that teens who experience TDV had higher odds of reporting alcohol use, alcohol and marijuana use, as well as high and moderate polysubstance use than those not experiencing TDV. Whereby, polysubstance included- use of alcohol, binge drinking, marijuana, cigarette, cigar, and use of prescription drugs (Parker & Bradshaw, 2015). Similarly, Howard and Wang (2013) examined this relationship among girls using the YRBS data and found that experiencing TDV predicted binge drinking, cocaine, and

inhalant use. Huffhines et al. (2014) found that teens who experienced TDV were more likely to initiate smoking before age 13 and smoked more than ten cigarettes a day than teens who did not experience TDV. Furthermore, Foshee et al.'s longitudinal study found that teens who experienced TDV earlier had increased levels of substance use behaviors later. Though these studies provide significant evidence on the negative relationship of TDV and substance use behaviors across genders and a possibility that TDV precedes substance use behaviors; none of these studies prove causation.

Some studies find that the type of abuse and gender of the victim determines the type of substance use (Ackard, Eisenberg, & Neumark-Sztainer, 2007; Foshee, Reyes, Gottfredson, Chang & Ennett, 2013). For example, Foshee et al., (2013) found that for both genders, teens who experienced psychological TDV were more likely to engage in increased levels of alcohol use, while those experiencing physical and sexual victimization engaged in higher levels of cigarette use than their counterparts who did not experience TDV. Also, physical and sexual violence only predicted marijuana use for girls (Foshee et al., 2013). Such differences call for more studies primarily qualitative research to understand the context of substance use by gender in order to understand why males and females resort to a particular substance or alcohol use when dealing with TDV experiences. Furthermore, it is essential to understand the differences in substance use between victims of sexual and physical violence. Most studies have combined sexual and physical violence or have explored only physical and psychological TDV.

Baker (2016) conducted a qualitative study that involved 39 high-school teens in examining the context of TDV and substance use in dating relationships and established that their partners might introduce teens in abusive relationships to drugs. As time goes by, victims keep using the drugs during the relationship to cope with abuse (Baker, 2016; Chronister et al.,

2014), as well as a coping resource after a relationship breakup (Baker, 2016). Similarly, another qualitative study among 18 Black and Hispanic youth that sought to understand the youths' beliefs about the influence of alcohol and marijuana on TDV experience found that the interviewed youth felt that both substances helped them in coping with TDV-related stress (Rothman, Linden, Baughman, Kaczmarzky, & Thompson, 2016). However, each substance use had different influences: alcohol heightened minor conflict and feelings of irritation and anger while marijuana helped reduce the feelings of anger and irritation (Baker, 2016; Rothman, Linden, Baughman, Kaczmarzky, & Thompson, 2016). Some participants in Baker's (2016) study shared that engaging in substance use behavior led to violent tendencies since participants were very irritable. These three qualitative studies suggest that TDV may occur both concurrently with substance use behaviors, but in other cases, TDV may cause substance use behaviors or substance use may lead to TDV.

In addition, there is evidence that TDV co-occurs with substance and alcohol use. Using longitudinal data with 583 female participants, Choi et al. (2017) found a co-occurrence of TDV and alcohol use among teens in public high schools in Texas. Teens in the study maintained their status over time. For instance, teens in the no-violence- no-alcohol group and those in the physical-violence-alcohol group stayed in their respective groups. These findings imply that teens who had not experienced TDV nor used alcohol at the beginning of the study did not report experiencing TDV nor using alcohol at the end of the study. Besides, the students who reported experiencing TDV and alcohol, in the beginning, reported TDV experience and alcohol use at the end of the study. Similarly, using a longitudinal study, Reyes, Foshee, Bauer, and Ennett (2014), found that teens reported increased physical TDV victimization as alcohol use increased for boys and girls, and hard drug use increased for boys.

On the contrary, though some studies show that TDV and substance use may occur at the same time (Choi et al., 2017; Reyes et al., 2014), other studies find that experiencing TDV may precede substance use (Baker, 2016; Chronister et al., 2014; Edwards & Neal, 2017; Foshee et al., 2013). Ramietty-Mikler et al. (2006) found that early initiation of alcohol use heightened the risk of physical TDV. These studies suggest that three scenarios are possible in terms of causality and co-occurrence when exploring the relationships between substance use and TDV experience. Experiencing TDV may lead to substance use, and substance use may lead to TDV experience. The third scenario indicates that substance use and TDV may co-occur.

### **The Impact of TDV on Physical Activity**

While several studies have explored the association between violence and physical activity, especially sexual violence and extracurricular activities, the area of TDV, involvement in physical activities, and school outcomes remains understudied. Thus, to understand the impact of physical activity on school outcomes in teens who experienced TDV, it is essential first to understand the relationship between TDV and physical activity. For this review, physical activities may be referred to as extracurricular activities, and include participating in team sports, physical education (PE), and exercise. Two studies examined the relationship between participation in sports and TDV outcomes in minority populations (rural, and African-American samples, respectively) (Taylor, Wamser, & Sanchez, 2010; Taylor, Wamser, Welch, & Nanney, 2012). Taylor, Wamser, and Sanchez (2010) found that more girls who participated in sports activities than those who did not participate experienced less violence, sexual and physical violence victimization but not less TDV. It is possible that sports activities reduce the probability of experiencing other forms of violence because of the team spirit and company most of the time that would prevent any attacks. Taylor, Wamser, Welch, and Nanney (2012) also found that



sports served as a protective factor against TDV among African American girls, and that self-esteem mediated the relationship between sports participation and TDV victimization. Taylor et al., (2012) found that aspects of self-esteem explored in the study (social acceptance, competence, and self-confidence) are heightened as a result of sports participation thus reducing the propensity that teens would involve themselves with abusive partners.

Teen participation in extracurricular activities is a protective factor against high-risk behaviors. However, the experience of TDV may limit an individuals' motivation to participate in activities they once felt strongly about due to the depression and low self-esteem that often accompanies TDV (Taylor et al., 2012). Also, experiencing abuse may affect participation in any form of physical activities. For example, one qualitative study found that some teens who experience TDV do not engage in activities due to loss of motivation and ability to participate; other teens were prevented from engaging in activities by their abusive partners (Chronister et al., 2014). In the same study, some teens who experienced TDV indicated that at times their partners forced them into participating in extracurricular activities. In such cases, the victims experienced a sense of low self-esteem, prompting them to participate in their partner's choice of activities against their will (Chronister et al., 2014). Only one participant indicated that her boyfriend stopped her from participating in a team sport; other participants just stated that they were stopped or forced to participate in extracurricular activities with no specificity.

On the contrary, participating in one or more sports team may not be a protective factor against TDV victimization. Specifically, Wilke (2017), using the YRBS- 2013, found that students who participated in one or more sports teams were more predisposed to sexual dating violence victimization but not physical dating violence victimization than their peers. Similarly, another study revealed that extracurricular activities, for example, participating in a community

or school sports team did not act as a strong protective factor against TDV (Earnest, & Brady, 2016). Other studies have highlighted the role of sports participation in fostering aggressive behaviors, especially delinquency among adolescents (Burton & Marshall, 2005). Perhaps the intense camaraderie that develops by being part of a team leads to norms accepting TDV in team sports for males. Much literature from college students and high school students find that male student who engaged in team sports in high school are more likely to engage in aggressive behaviors (Forbes, Adams-Curtis, Pakalka, & White, 2006; Rhea & Lantz, 2004). Despite the lack of a strong positive association between TDV and physical activities as well as the negative outcomes, it is impossible to downplay the significant role that physical activity plays in adolescence. More importantly, these findings highlight the importance of including athletes and physical activity in the conversations on physical and sexual violence prevention and intervention.

### **The Impact of TDV on Dietary Behaviors**

Teens who experience TDV face significant challenges to maintaining a healthy diet and positive self-image (Chronister et al., 2014), which may derail them from achieving their best in school settings. Though none of the studies reviewed examined the relationship between TDV and specific diets, the literature shows a relationship between dating violence and higher rates of eating disorders (Ackard & Neumark-Sztainer, 2002; Coker et al., 2000). Specifically, Ackard and Neumark-Sztainer (2002), using a Minnesota school-based survey of 81,247, found that most teens who experienced dating-violence and rape were at an increased risk of using laxatives, diet pills, vomiting, or fasting for weight control as well as binge-eating compared to their non-abused peers. Also, studies that focused on girls only using the YRBS data reported similar findings (Silverman, Raj, Mucci, & Hathaway, 2001; Thompson, Wonderlich, Crosby, &

Mitchell, 2001). Girls who experienced TDV were at an increased risk of engaging in unhealthy weight control behaviors for example, use of laxatives and/or vomiting compared to their counterparts who did not experience physical and sexual dating violence (Silverman, Raj, Mucci, & Hathaway, 2001; Thompson, Wonderlich, Crosby, & Mitchell, 2001).

Some studies have explained the higher rates of disordered eating among teens who experienced TDV (Ackard & Neumark-Sztainer, 2002; Chronister et al., 2014). For example, Ackard and Neumark-Sztainer (2002), attributed this trend of eating disorders among teens who experienced abuse to a struggle with developing a positive body image which was negatively impacted by the TDV experience, as well as, the usual adolescent struggles due to body changes (Ackard & Neumark-Sztainer, 2002). In one qualitative study, girls reported that after experiencing TDV, they felt like they lost any positive self-image, self-worth, and self-efficacy they had before their TDV experience. As a result of the TDV experience, teens restricted themselves from eating to either keep their figure or boost self-esteem which resulted in unhealthy eating habits (Chronister et al., 2014). These studies based their conclusions on female samples; the motivation behind disordered eating habits in males may be different, yet no studies known to the author have specifically explored disordered eating among males and unhealthy diet choices among boys who experienced TDV. However, studies are beginning to show evidence of increasing rates of eating disorders among males (Eddy et al., 2014; Hudson, Hiripi, Pope, & Kessler, 2007; Madden, Morris, Zurzynski, Kohn, & Elliot, 2009).

### **The Impact of TDV on Sleep**

There is evidence of an association between sleep problems and TDV. However, only a few studies have explored this relationship. For example, Zhabenko et al. (2016) explored the correlates of sleep problems in 1,852 - 14-20-year-old youths using a self-administered

computerized survey and found that dating violence victimization was associated with severe sleep problems. Sleep problems included whether participants had trouble falling asleep, how many times they woke up at night, trouble staying asleep, and waking up after typical hours of sleep feeling tired and worn out. Researchers attributed sleep problems to psychological problems, especially, depression brought about by TDV (Zhabenko et al., 2016). Haynie et al. (2013) similarly found an association between both TDV perpetration and victimization, and sleep problems, particularly, changes in sleep. Also, Hildenbrand, Daly, Nicholls, Brooks-Holliday, and Kloss (2012) - using the 2009-YRBS found teens who had insufficient sleep were predisposed to violence-related behaviors in school. However, Hildenbrand et al. (2012) did not involve TDV-related variables in the analysis. Like the previous study where Zhabenko et al. (2016) attributed sleep problems to depression as a result of TDV, Haynie et al. (2013) measured sleep problems as one of many depressive symptoms, and as health complaints which were significantly associated with TDV victimization and perpetration.

## **Health-Related Behavior and School Outcomes**

### **Substance Use and School Outcomes**

Adolescence is a time when many individuals have first encounters with substance use and abusive relationships which can become detrimental to their academic pursuits. Vast literature indicates a strong association between substance use and school outcomes (Balsa, Giuliano, & French, 2011; Barry, Chaney, & Chaney, 2011; Crosnoe, Benner, & Schneider, 2012). Three studies reviewed show that substance use leads to low academic performance (Cox, Zhang, Johnson, & Bender, 2007; Lopez Frias et al., 2001; Miller, Naimi, Brewer, & Jones, 2007). Similarly, Balsa, Giuliano, and French, (2011) found that alcohol use negatively affected the Grade Point Average (GPA) in males. Alcohol use in females resulted in academic difficulty,

suspension, missing school, lower concentration in class, and not completing homework assignments. Possibly, males engage more in excessive use of alcohol compared to females to levels that interfere with their academic performance while girls try to maintain their GPAs despite the academic difficulty.

Teens who engage in substance use are predisposed to an array of health risk behaviors and tend to miss more school than those who do not engage in substance use (Barry, Chaney, & Chaney, 2011; Engberg & Morral, 2006). For instance, Barry, Chaney, and Chaney (2011) found that both truancy and alcohol use were significant predictors of low educational aspirations. Furthermore, Engberg and Morral (2006), using a sample of 1,084 adolescents attending substance use treatment within a year found that a reduction in -alcohol intake, stimulants, sedatives, hallucinogens and other drug use, and discontinuation of marijuana use predicted subsequent school attendance. It is possible that the teens who engage in substance misuse may have hangovers or may prefer missing school to get high. Chronister and colleagues (2014) argue that students may skip classes to indulge in substance use.

Though studies show an association between substance use and school outcomes, there is bidirectional ambiguity between these variables which needs to be resolved. It is possible that substance use may co-occur with negative school outcomes, or substance use or adverse school outcomes could be the cause of the other. Best, Manning, Gossop, Gross, and Strang, (2006) found that excessive alcohol use was associated with cigarette smoking, cannabis use, and positive attitudes towards illicit drugs as well as truancy and low educational aspirations. On the contrary, Crosnoe (2006) using longitudinal data found that academic failure led to alcohol use in the subsequent year, but alcohol use did not lead to academic failure in the subsequent year.

These findings reveal that academic failure may be a risk factor for alcohol use where students who have failing grades engage in substance use to avoid the reality of their deteriorating grades.

### **Physical Activity and School Outcomes**

Physical activity significantly benefits cognitive development in adolescents. In that regard, schools and the government through institutions like CDC (CDC, 2015) encourage youth to participate in some form of physical activity whether physical education (PE), exercise or through joining a sports team. Kann et al. (2016) reported that in 2015, approximately one-half of high school students participated in sports with boys reporting higher participation rates compared to girls, 62.2% vs. 53% respectively. Research also shows that physical activity has a positive association with school behaviors (Rasberry et al., 2011). For example, according to CDC (2009), 76% of adolescents who were not physically active and 60% who did not play on a sports team had lower letter grades of Ds and Fs.

Similarly, Rasberry et al. (2011), using a systematic review of the literature examined 50 studies found more than half of these studies showed a positive association between school-based physical activity including PE, and school behaviors (e.g., school connectedness, attendance, planning, and GPAs). Also, according to Rasberry et al. (2011), 48% of the studies showed an association, though not significant, while only 1.5% found a negative association. These studies indicate that there is a difference in academic outcomes between students who participate in physical activity and those who do not. Also, participation in team sports seems to have a more significant influence on school behaviors and outcomes compared to PE and exercise.

Researchers have proposed explanations for the relationship between physical activity and academic achievement (Arday et al., 2016; Kim & So, 2012). One study that used the

Korean web-based YRBS using self-reported grades and number of PE sessions attended revealed that attending less than three PE sessions a week was associated with poor school performance (Kim, & So, 2012). Another study involving a group-randomized controlled trial among 67 teens in South-East Spain, researchers found that increasing the intensity and number of PE sessions improved cognitive performance and academic achievement (Arday et al., 2016). While Kim and So (2012), and Arday et al. (2016) do not specifically examine gender differences, there is little reason to think that physical exercise would not benefit both males and females. Kwak et al. (2009) found among a sample of 232 Swedish adolescents that vigorous physical activity was associated with academic achievement in girls, as well as, boys.

Physical activity and school outcomes do not occur in isolation; other factors act as protective factors and enhance school behaviors. For instance, students who engage in physical activities are less likely to engage in risky behaviors and more likely to have improved self-esteem levels (Nelson, & Gordon-Larsen, 2005). Self-esteem and low levels of risky behaviors provide grounds for high academic performance. Henry et al. (2007) found that adolescents, who excelled in school, held high educational aspirations, participated in sports, had positive perceptions of their school, teachers, and peers reported fewer days of truancy. One experimental study involving 434 students in Italy found that vigorous exercise was related to sleep and cognitive functioning. Specifically, the experimental group which was made up of athletes who were engaged in vigorous exercising reported better sleep patterns, less fatigue, and increased concentration during the day than the control group (Brand et al., 2010).

On the contrary, other studies have found little to no evidence linking physical activity to academic achievement. Rees and Sabia (2010), using longitudinal study found that sports participation led to higher grades and college aspirations as well as less difficulty in completing

homework and concentrating in class, though, the impact was too marginal to support the idea that sports participation leads to better educational outcomes. Similarly, Taras (2005) conducted a systematic review to understand the association between physical activity and academic outcomes and found little to no correlation between the two.

### **Dietary Behaviors and School Outcomes**

A healthy diet is vital during adolescent years as individuals undergo much growth and developmental changes that require proper nutrition. Highlighting the trends and essential guidelines of healthy diets are crucial in understanding the impact of TDV and diet on school outcomes among teens and a need for special attention for victims of TDV. The YRBS 2011 reported that only 64% of teens in 9th to 12th grade had eaten fruit or drank juice, and 62.3% ate vegetables one or more times a week in the week preceding the survey (Eaton et al., 2012). Approximately 13.1% of youth in 2011 (Eaton et al., 2012), and 13.8% in 2015 (Kann et al., 2016), had not had breakfast in the past seven days. Many youths report not eating breakfast, yet studies find that teens who eat breakfast have high energy levels and perform better in cognitive tests than their counterparts who do not eat breakfast (Cooper, Bandelow, & Nevill, 2011).

Eating breakfast and having a regular diet contributes to better school behaviors. A cross-sectional study including 128, 10-19-year-olds in Nigeria found that body mass index, breakfast, three meals a day, and regular intake of fruits and vegetables had positive effects on adolescents' school outcomes (Ogunsile, 2012). Specifically, teens who met these four aspects of good nutrition had improved cognitive ability and health conditions, better school attendance, and better academic performance than their counterparts who lacked in these areas (Ogunsile, 2012). Ogunsile (2012) echoed Rampersaud et al.'s (2005) study findings in their systematic review,



where they also concluded that eating breakfast may improve cognitive function linked to memory, test grades, and school attendance.

Food insufficiency has severe ramifications on academic performance. Teens who come from families that cannot provide consistent meals face challenges in school settings. Teens' concentration span can diminish, their ability to learn and academic performance can decline, and their attendance can decrease. In a systematic review of the literature, Taras (2005), reported that studies find improved attendance rates and reduced tardiness in schools that provide free breakfast. Similarly, for the undernourished populations, studies reported that free school breakfasts tend to heighten academic performance and cognitive functioning (Taras, 2005). Furthermore, a nationwide cross-sectional study conducted in Swaziland in 2003 found that teens who were rarely hungry were less likely to engage in truant behaviors (Siziya, Muula, & Rudatsikira, 2007). One longitudinal study involving a diverse sample found that though the difference was marginal, body weight negatively affected the GPA of white females specifically (Sabia, 2007).

### **Sleep and School Outcomes**

According to the National Sleep Foundation (2013), adolescence brings on changes in sleep patterns. Adolescents tend to be more awake late into the night and take longer to awake in the morning. These patterns of sleep and sleep insufficiency may interfere with their concentration in class (National Sleep Foundation, 2013), as well as, their grades (Wong et al., 2013). Shin, Kim, Lee, Ahn, and Joo (2003) examined sleep habits and the relationship between excessive sleepiness in school and school performance using a sample of 3,871 high school students in Korea. They found that the boys and girls on average slept 6.3 and 6.5 hours per day respectively which was lower than the required (8.5 to 9.5) hours of sleep for adolescents, and

were more likely to be excessively sleepy in school. Also, the authors found a decline in school performance associated with an increase in levels of excessive sleepiness in school. They attributed the insufficiency in sleep to demanding school schedules, expanding social opportunities, and increased accessibility to drugs and alcohol (Shin, Kim, Lee, Ahn, & Joo, 2003).

Other aspects of sleep linked to school performance in adolescents include: sleep disturbances and sleep problems. For instance, Pagel, Forister, and Kwiatkowi (2007) found a significant relationship between adolescent sleep disturbance and school performance in a cross-sectional study involving 238 teens in Colorado. Sleep disturbance behaviors, such as restless legs when trying to sleep, sleepiness during the day, and difficulty with concentration negatively affected grades (Pagel et al., 2007). Also, Saxvig, Pallesen, Wilhelmsen-Langeland, Molde, and Bjorvatn (2012) found that sleep problems such as delayed sleep phase, problems advancing the sleep period, and oversleeping at least two days a week, and moderate sleepiness at school were associated with lower grades. Similarly, two other studies examined the impact of delayed sleep on school grades. In a systematic review of the literature, Wolfson and Carskadon (2003), found that delayed sleep phase had a negative effect on grades in school, and that delayed sleep phase was also linked to school absences. These findings were replicated in a cross-sectional study by Sivertsen, Glozier, Harvey, and Hysing (2015).

## **TDV, Health-Related Behaviors, and School Outcomes**

### **TDV, Substance Use, and School Outcomes**

While many studies focus on alcohol use and grades among adolescents, little is known about the indirect impact of substance use on the relationship between TDV victimization and school outcomes. However, it is possible to visualize this impact by understanding the link

between TDV and substance use, and substance use and school behaviors and outcomes. For example, extant literature finds that TDV disproportionately predisposes teens to substance use (Baker, 2016; Chronister et al., 2014; Edwards & Neal, 2017; Foshee et al., 2013), and substance use, in turn, leads to negative school behaviors and outcomes (Cox, Zhang, Johnson, & Bender, 2007; Lopez Frias et al., 2001; Miller, Naimi, Brewer, & Jones, 2007). Also, the inverse is true, substance use predisposes teens to TDV (Ramietty-Mikler et al., 2006) and TDV has a negative impact on school behaviors and outcomes (Banyard & Cross, 2008; Edwards & Neal, 2017; Eaton et al., 2007). One qualitative study involving 19 female adolescents revealed that teens in abusive dating relationships might engage in substance use for the first time in their dating relationships to please their partners (Chronister et al., 2014). Also, some victims of TDV skip school to use alcohol or get high with their partners which lead to failing classes or even expulsion from school (Chronister et al., 2014).

Additionally, several studies have explored the relationship between TDV, substance use, and school outcomes and found positive associations exist (Edwards & Neal, 2017; Foshee et al., 2013; Martz, Jameson, & Page, 2016). Edwards and Neal (2017) explored whether there was a relationship between TDV, binge-drinking and poor academics, and established that indeed there were relationships between TDV and binge drinking, and TDV and poor academics. Teens who experienced physical and sexual TDV were more likely to report engaging in binge-drinking and poor academics compared to their counterparts who did not report TDV experience. Two other studies examining TDV, substance use, and academic consequences found significant relationships between TDV and substance use, and TDV and academic consequences (Foshee et al., 2013; Martz, Jameson, & Page, 2016). However, none of these studies has explored the relationships among substance use, school outcomes, and TDV experience. More research is

needed in this area to understand how substance use impacts school behaviors among teens who have experienced TDV.

### **TDV, Physical Activity, and School Outcomes**

Though studies have found relationships between TDV and physical activity, and physical activity and school outcomes; no study known to the author has examined the interconnection of these three factors among high-school students. Understanding the interconnection would enable us to design more targeted interventions. Teens who engage in physical activity despite experiencing TDV may enjoy the protective features of physical activity such as improved cognitive functioning and sleep patterns (Brand, et al., 2010), high self-esteem and less involvement in high risk behaviors (Nelson, & Gordon-Larsen, 2005), which may have a positive impact on school behaviors. On the other hand, teens who do experience TDV and do not engage in physical activity may lack the buffering effects of the protective factors associated with physical activity, and hence, have inadequacies in school outcomes.

### **TDV, Dietary Behaviors, and School Outcomes**

Thus far, it is evident that dietary behaviors play a significant role in school outcomes of teens regardless of whether they experienced TDV or not (Ogunsile, 2012; Rampersaud et al., 2005; Taras, 2005). However, teens who experience TDV face significant challenges compared to their counterparts with no TDV experience. Specifically, teens who experience TDV have an extra burden to deal with on top of the struggles that adolescents deal with, especially, positive body image among girls (Chronister et al., 2014). According to Chronister et al. (2014), some teens reported that their eating and body image changed after TDV experiences; teens revealed that their abusive partner would restrict them from eating, and thus, they stopped eating for a while to impress their partners. Though Chronister and colleagues did not explore the connection

between disordered eating and school behaviors and outcomes, it is likely that the cognitive capacities of victims of TDV with disordered eating will be impacted in a similar, if not, more severe manner than teens who had not experienced TDV. While the connection between TDV, dietary behaviors, and school outcomes seems evident, no study has examined the association between dietary behaviors and school outcomes among teens who have experienced TDV.

### **TDV, Sleep, and School Outcomes**

Though no study has explored the relationship between sleep and school outcomes among teens who have experienced, research shows there are potential relationships among the three. Only one qualitative study throughout this review attempted to explain how TDV experience may interfere with sleep patterns and eventually school performance and attendance (Chronister et al., 2014). One TDV victim reported in the study that her partner would make her wake up early to escort him to work, and thus, interrupting her sleep as well as her school attendance. Sleep problems among teens are associated with health risk behaviors that are linked to experiencing TDV: which in turn hinder attainment of good grades, concentration, and school attendance. For example, sleep problems are associated with high levels of anxiety, depression (Saxvig et al., 2012; Zhabenko et al., 2016), and substance use (Saxvig et al., 2012; Shin, Kim, Lee, Ahn, & Joo, 2003; Zhabenko et al., 2016). Similarly, extant literature has linked TDV to these health risks mainly; anxiety and depression (Ackard, Eisenberg, & Neumark-Sztainer, 2007; Field, Miguel, & Sanders, 2001; Hishinuma, Chang, McArdle, & Hamagami, 2012; Haynie et al., 2013), as well as substance and alcohol use (Ackard, et al., 2007; Balsa et al., 2011; Barry, Chaney, & Chaney, 2011; Best et al., 2006; Foshee et al., 2013; Haynie et al., 2013; Vagi, Olsen, Basile, & Vivolo-Kantor, 2015) which interfere with sleep, and school outcomes.

The review of these studies supports a relationship between TDV and sleep, TDV and school outcomes, and sleep and school outcomes. However, no study known to the author has focused on how the three factors interact, and thus, research is needed to address the gap in knowledge of the impact of sleep on school outcomes in teens who have experienced TDV.

### **Summary**

Studies in this review employed diverse research methodologies with the majority using quantitative methodology both cross-sectional and longitudinal, which provided room for conclusions, especially on causality using the longitudinal data. Mainly, this literature review included 59 empirical articles that addressed TDV, health behaviors, or school outcomes, or a combination of the three. The majority of the studies were quantitative studies (n=52, 89.66%); with cross-sectional (n=35, 60.34%); and longitudinal (n=17, 29.31%). The rest of the studies were qualitative studies (n=3, 5.17%) and systematic reviews (n=3, 5.17%). Though there are few qualitative studies conducted to explore the impact of health behaviors on school outcomes among teens who experience TDV, there is no quantitative study known to the author that examined the relationships among the three variables.

While it is evident that both males and females are victims of TDV, there were more females than males represented in these studies, and four studies focused on females only. Though it is common for studies to have more females than males, it may be difficult to apply some findings to males. As is evident in this review the most critical study that helped to explain the context of TDV was Chronister et al.'s (2014) qualitative study that comprised of a girls-only sample.

Again, numerous studies address TDV, health-related behaviors, and school outcomes together, and yet, only one study using qualitative methodology assessed the interrelationships

among the three variables (Chronister et al., 2014). We do not know how various health-related behaviors in teens who have experienced TDV impact their school outcomes using quantitative methodology. This study is a first step.

Regarding the measurement of TDV, most studies measured TDV in terms of psychological and physical violence. For example, Foshee et al., (2013) explored psychological TDV against physical and sexual TDV combined. A few studies especially those using the YRBS data used physical and sexual violence as a measure of TDV. Even so, these studies using the YRBS data may not be sufficient in understanding causality based on the cross-sectional nature of the YRBS survey. However, the YRBS data present a crucial initial step in understanding the relationships between health-related behaviors and school outcomes based on TDV experience.

The majority of the studies on health-related behaviors examined the impact of substance use, primarily, alcohol use among adolescents. This focus may have been influenced by the notion that alcohol is the substance that is readily available to teens. Besides the other substances mentioned in extant literature, it is essential to acknowledge the adverse impact of insufficient or absence of other health-related behaviors like dietary behaviors, sleep, and physical activity. These health behaviors are critical to explore because they are essential elements in adolescent development which could serve as important protective factors for TDV. Most health-related behaviors precede or co-occur with school outcomes and or TDV. Thus, careful considerations should be given when planning and evaluating future research in order to understand where and how to target intervention efforts.

Numerous studies have concerns over self-reports for specific measures in research. GPAs may be among measures that are very prone to distortions if self-reported. The majority of

studies reviewed define school behaviors and outcomes in terms of self-reported overall GPA, GPA, or grades for English and Mathematics for the past year. Few studies include other important variables, such as concentration and attendance. Only two studies used official transcripts from schools (Balsa, Giuliano, & French, 2011; Sivertsen, Glozier, Harvey, & Hysing, 2015). Balsa et al.'s (2011) study measured school outcomes more comprehensively than many studies. They asked respondents how often they skipped school, whether respondents had been suspended, and if they were having difficulties paying attention in school, getting along with teachers, or doing their homework. Using more than one measure of academic achievement especially in cases where teens self-report their GPA helps to validate further the measures used. Most studies reviewed herein are lacking in that aspect. It is important to note that some studies have found that not all teens who experience TDV report low grades (Chronister et al., 2014; Foshee et al., 2013). Thus, there is a need for researchers to conduct more research on this group of students whose school outcomes remain positive despite experiencing TDV. Perhaps important health-related behaviors mediate the relationship.

Also, few studies address how health-related behaviors impacted school attendance. Among the few, one study by Engberg and Morral (2006) found that a reduction or discontinuation of substance use led to an increase in attendance. Engberg and Morral (2006) measured attendance in terms of being in school or not being in school. In this study, those in school included all students regardless of whether they were attending school at the time the study was conducted or not, while not being in school included those who were employed or unemployed. This operationalization could have skewed the results.

The results of this review of 18 years of research provide significant evidence regarding the extent of the impact of health-related behaviors on school outcomes in teens who have



experienced TDV, as well as the interrelationships among these variables. Following the review of the current state of the literature, it is now essential to explore theoretical frameworks that might help to explain the relationships among TDV, health-related behaviors and school outcomes and behaviors. The next chapter will do this.

Table 1. 1: List of Studies Reviewed

<b>Author/ Year</b>	<b>Purpose</b>	<b>Sample</b>	<b>Methodology</b>	<b>Results</b>
Ackard, Eisenberg, & Neumar-Sztainer, 2007	To evaluate the long-term impact of adolescent dating violence (ADV) on behavioral and psychological health.	1516	Quantitative-Longitudinal	ADV positively associated with cigarette smoking and suicide attempts for both sexes, binge-eating and suicidal ideation in male adolescents, and smoking marijuana and high depressive symptoms in female adolescents
Ackard & Neumark-Sztainer, 2002	To assess the prevalence of date violence and rape in adolescents, to examine associations between date violence and rape and disordered eating behaviors and psychopathology, and to determine if these associations remain significant after controlling for sociodemographic characteristics and other physical and sexual abuse by an adult.	81,247	Quantitative-Cross-sectional	Date violence and rape are associated with higher rates of disordered eating behaviors and suicidal thoughts and attempts and lower scores on measures of emotional well-being and self-esteem. Date violence and rape victims were more likely to use laxatives, vomit, use diet pills, binge eat, and have suicidal thoughts or attempts than their non-abused peers.
Arday et al., 2014	To analyze the effects of an intervention focused on increasing the time and intensity of Physical Education (PE), on adolescents' cognitive performance and academic achievement.	67	Quantitative-Longitudinal-Experimental	Increasing the number and intensity of PE sessions per week have a positive effect on both cognitive performance and academic achievement.
Baker, 2016	To explore the connection between TDV and substance use	39	Qualitative	Using alcohol or drugs at the start of the dating relationship and after the relationship ended as a way to cope with the break-up. Alcohol and drugs were also used throughout to cope with being in an abusive relationship. The intersection of ADV and substance use occurred

				during instances when both partners were using alcohol or drugs, as well as when only one partner was using.
Balsa, Giuliano, & French, 2011	To examine the effects of alcohol-use on high school students' quality of learning.	63082	Quantitative-Longitudinal	Increases in alcohol consumption result in small yet statistically significant reductions in GPA for male students and statistically non-significant changes for females. For females, however, higher levels of drinking result in self-reported academic difficulty.
Banyard, & Cross, 2008	Explore mental health and educational consequences of physical and sexual abuse by peers in a convenience sample of adolescents.	2101	Quantitative-Cross-sectional	Dating violence was associated with higher levels of depression, suicidal thoughts, and poorer educational outcomes. The use of alcohol and depression complicated the relationship between victimization and outcomes. Sex differences in patterns of perceived social support as a moderator were also examined with more significant effects for girls.
Barry, Chaney, & Chaney, 2011	To assess whether recent alcohol use and truancy impact students' educational aspirations among a nationally representative sample of US high school seniors.	10,833	Quantitative-Cross-sectional	As students engage in increased alcohol use or truancy, educational aspirations decrease.
Best, Manning, Gossop, Gross, & Strang, 2006	Investigates excessive drinking and associations with other problem behaviors	2078	Quantitative-Cross-sectional	Excessive drinking was positively associated with frequency of cigarette smoking, use of cannabis, positive attitudes towards illicit drugs, low educational aspirations, higher depression scores, frequent truancy, and involvement in delinquent behaviors.
Brand et al., 2010	To investigate whether chronic vigorous exercising is related to improved sleep and psychological functioning and whether this association varies with gender.	434	Quantitative-experimental	Compared with controls, athletes reported better sleep patterns including higher sleep quality, shortened sleep onset latency, and fewer awakenings after sleep onset, as well as less tiredness and increased concentration during the day. Athletes reported significantly lower anxiety and fewer depressive symptoms.

Burton, & Marshall, 2005	Examined the potential for participation in extracurricular activities to act as a protective factor for youth deemed at risk of engaging in delinquent activity.	169	Quantitative - Cross-sectional	Extracurricular activities do not act as a protective factor for youth who are at risk of engaging in delinquent behavior.
Choi et al., 2017	Examined whether there was latent status based on past-year TDV and alcohol use and whether female adolescents changed their statuses of TDV and alcohol use over time.	583 girls	Quantitative-longitudinal	Adolescents generally remained in the same subgroup across time.
Chronister, Marsiglio, Linville, & Lantrip, 2014	Investigate the impact of dating violence on adolescent girls' educational experiences and relationships with peers, family members, and school personnel.	19 girls	Qualitative	Teens who experienced TDV abuse substances to keep their relationships or cope with the loss. Teens miss school or drop out or are expelled as a result of TDV, may be encouraged from doing homework or studies to spend time with the boyfriend (bf). May not attend school for fear of embarrassment from their boyfriend and skip school to engage in drugs with a boyfriend. Teens experiencing TDV may or may not participate in extracurricular activities due to some negative push from their partner. interrupted sleep to keep up with their partner's schedule like walk them to work
Coker et al., 2014	Evaluate prevalence rates of DV victimization and perpetration by demographic factors and other forms of interpersonal violence, including parental partner abuse, binge drinking, and both bullying others and being bullied.	14,190	Quantitative - Cross-sectional	Older students, members of racial or ethnic minority groups, those receiving a free or reduced-price meal, those identifying as not exclusively attracted to the opposite sex, those witnessed parental or guardian partner violence, those who were bullied or bullied others at school, and binge drinkers were more likely to disclose DV.

Cooper, Bandelow, & Nevill, 2011	Examine the effects of breakfast consumption on cognitive function, mood, and blood glucose concentration in adolescent schoolchildren.	96	Quantitative-Randomized crossover design,	Breakfast consumption improved the accuracy of responses on the cognitive function tests, particularly on the more cognitively demanding tasks
Cox, Zhang, Johnson, & Bender, 2007	Investigate the relationship between academic performance and substance use among public high school students in Mississippi.	1488	Quantitative-Cross-sectional	Low academic performance during the 12 months preceding the survey was more prevalent among males, non-Hispanic blacks, frequent smokers, binge drinkers, and marijuana users
Crosnoe, 2006	To determine whether academic failure was a risk factor for adolescent drinking, and vice versa, and then to identify the mechanisms underlying the two longitudinal associations.	11927	Quantitative-Longitudinal	The number of classes failed in one year predicted alcohol use a year later more than early alcohol use predicted later class failures.
Crosnoe, Benner, & Schneider, 2012	Explore the bidirectional associations among indicators of adolescents' alcohol use and their feelings of social integration at school.	8,271	Quantitative-Longitudinal	Socioemotional problems did not predict increased drinking over time, but drinking predicted declining socioemotional functioning, with negative implications for adolescents' academic grades by the end of high school.
Earnest & Brady, 2016	Examines whether being a victim of violence by an adult in the household, witnessing intra-familial physical violence, and feeling unsafe at school are associated with physical dating violence victimization. It also examines whether extracurricular	75,590	Quantitative-Cross-sectional	Little to no extracurricular activity involvement was weakly associated with dating violence victimization. Attenuating effects of perceived care and extracurricular activity involvement on associations between risk factors and dating violence victimization were smaller in magnitude than main effects.

	activity involvement and perceived care by parents, teachers, and friends attenuate those relationships, consistent with a stress-buffering model.			
Eaton, Davis, Barrios, Brener, & Noonan, 2007	Examined the association of victimization in a physically violent dating relationship with risk behaviors, the age of risk behavior initiation, and co-occurrence of risk behaviors among students in grades 9 through 12 in the United States.	15,123	Quantitative Cross-sectional	Dating violence victimization also was associated with early initiation of alcohol use among female students. The odds of dating violence victimization increased as the number of risk behaviors increased and as the number of lifetime sexual partners increased.
Edwards & Neal, 2017	Examine how the school (e.g., school poverty rate) and community (e.g., county population density) characteristics relate to DV victimization and DV victim outcomes among high school youth.	24,976	Quantitative-Cross-sectional	DV victims not involved in community group participation had poorer academics than DV victims involved in community groups. Binge drinking was unrelated to school and community characteristics.
Engberg & Morral, 2006	Examined if decreases in substance use substantially improve youths' school attendance.	1084	Quantitative-Longitudinal-Experimental	Reductions in the frequency of alcohol, stimulants, and other drug use and the elimination of marijuana use were each associated independently with increased likelihoods of school attendance.
Field, Miguel, & Sanders, 2001	Examine frequently explored risk factors for adolescent depression	79	Quantitative-Cross-sectional	Depressed students spent less time doing their homework, had a lower GPA, spent less time exercising, and reported marijuana and cocaine
Foshee, Reyes, Gottfredson, Chang, & Ennett, 2013	Examine the effects of psychological and physical (which included sexual) dating abuse victimization on internalizing symptoms,	3,328	Quantitative-Longitudinal	For both boys and girls, psychological victimization predicted increased alcohol use and physical victimization predicted increased cigarette use. For girls, physical victimization predicted increased marijuana use, and psychological victimization

	substance use, academic aspirations and grades, and relationships with friends and family.			predicted increased internalizing symptoms; the latter effect was only marginally significant for boys. Physical victimization marginally predicted decreases in the number of close friends for boys. Neither type of victimization predicted decreased academic aspirations or grades, nor was there evidence that consequences varied by grade.
Haynie et al., 2013	Identify conceptually cohesive latent classes of youth dating violence (DV) and examined associations between covariates and classes by gender.	2,203	Quantitative-Cross-sectional	DV was associated with greater depressive symptoms for girls and boys. Positive associations were found between DV and substance use, with some variation by gender for individual substances.
Henry & Huizinga, 2007	Explore associations between truancy and several salient school-related risk and protective factors among a sample of youth who grew up in socially disorganized neighborhoods of Denver, CO.	1528	Quantitative-Longitudinal	Students who performed well in school participated in sports, held high educational aspirations, associated with conventional peers reported fewer days of truancy. On the other hand, students who felt unsafe at school, reported that there were gangs in their school, or associated with delinquent peers reported more days of truancy.
Hildenbrand, Daly, Nicholls, Brooks-Holliday, & Kloss, et al., 2013	Examined the relationship between insufficient sleep and school violence behaviors in a nationally representative sample of high school students.	14,782	Quantitative-Cross-sectional	Students with insufficient sleep had higher odds of engaging in the majority of school violence-related behaviors compared to students with sufficient sleep. Males only with insufficient sleep were at increased risk of weapon carrying at school
Hishinuma, Chang, McArdle, and Hamagami, 2012	To determine more conclusively whether depressive symptoms cause lower GPA, or vice versa, and to ascertain whether the causal relationship between depressive symptoms and GPA	7,317	Quantitative-Longitudinal	Depressive symptoms affect subsequent academic achievement and not the other way around

	differs as a function of the important demographic variable of ethnicity.			
Howard & Wang, 2003	Examine the prevalence of TDV and potential risk factors among females	7824	Quantitative-Cross-sectional	Dating violence was associated with sad/hopelessness, binge drinking, cocaine/inhalant use, multiple sexual partners, and nonuse of condoms
Huffhines et al., 2014	To examine the impact of being a victim of physical intimate partner violence (IPV) and sexual abuse (SA) on tobacco smoking behaviors in high school students.	16,410	Quantitative-Cross-sectional	Exposure to either IPV or SA served as a risk factor for risky smoking behaviors
Kim & So, 2012	Examine whether the number of PE classes attended per week is related to school performance in Korean adolescent students.	75,066	Quantitative-Cross-sectional	Attending <3 PE classes per week was associated with poor school performance despite adjusting for school performance-related covariate variables.
Kwak et al., 2009	To explore the associations between objectively assessed intensity levels of physical activity and academic achievement and test whether cardiovascular fitness mediates the association between physical activity and academic achievement.	232	Quantitative-Cross-sectional	Academic achievement was associated with vigorous physical activity in girls. In boys, academic achievement was associated with pubertal phase and fitness
Lopez-Frias et al., 2001	To identify patterns of alcoholic consumption among Spanish high school students and describe the relationship between alcohol intake and school performance	1602	Quantitative-Cross-sectional	Drinking significantly increased the relative risk of failure across all intake categories and compared to nondrinkers



Martz, Jameson, and Page, 2016	Examine how victimization for physical dating violence and history of rape were associated with depression and suicidality, substance use, risky sexual behaviors, and academic success.	1003	Quantitative-Cross-sectional	IPV was associated with greater risk for depression and suicidal behaviors, substance use, risky sexual behaviors for both sexes, and lower academic grades for females. Physical IPV was associated with more substance use for both sexes. Physical IPV was related to having a risky number of sexual partners for males and for substance use and lack of condom use during the last episode of intercourse for both sexes
Miller, Naimi, Brewer, & Jones, 2007	Examined the relationship between multiple health risk behaviors and alcohol consumption and compared both binge drinkers and non-binge drinkers with nondrinkers.	15214	Quantitative-Cross-sectional	School performance was inversely associated with the prevalence of binge drinking
Nelson & Gordon-Larsen, 2006	Examine relationships between PA and sedentary behavior patterns and an array of risk behaviors, including leading causes of adolescent morbidity/mortality.	11957	Quantitative - Cross-sectional	Adolescents in clusters characterized by skating and video gaming, high overall sports and sports participation with parents, using neighborhood recreation center, strict parental control of TV, reporting few activities overall, and being active in school were less likely to participate in a range of risky behaviors
Ogunsile, 2012	To determine the effects of dietary pattern and body mass index on the academic performance of in-school adolescents in Ekiti State.	128	Quantitative-Cross-sectional	Body mass index, breakfast consumption, eating three square meals and regular intake of fruits and vegetables all had significant effects ( $P < 0.05$ ) on the academic performance of adolescents.
Pagel, Forister & Kwiatkowski, 2007	To assess how selected socioeconomic variables known to affect school performance alter the association	238	Quantitative-Cross-sectional	Students with lower GPAs were more likely to have restless/aching legs when trying to fall asleep, difficulty concentrating during the day, snoring every night, difficulty waking in the morning, sleepiness

	between reported sleep disturbance and poor school performance in a contiguous middle school/high school population.			during the day, and falling asleep in class.
Parker & Bradshaw, 2015	To address gaps in the extant research regarding co-occurring patterns of adolescent substance use by using LCA to examine patterns of substance use among high school students. Also, examined how physical and psychological TDV victimization were associated with adolescent substance use.	27758	Quantitative-Cross-sectional	Adolescents who had experienced physical and psychological TDV were more likely to be in the two polysubstance use classes and the alcohol and marijuana use class, as compared with non-victimized adolescents
Parker, Debman, Pas, & Bradshaw, 2016	Examined the association between recent alcohol use and recent marijuana use and the experience of physical and verbal TDV victimization while considering the potential influence of school contextual variables.	27758	Quantitative-Cross-sectional	Students who reported frequent recent alcohol or recent marijuana use were at increased odds of experiencing physical, and verbal TDV victimization compared to students who reported little or no alcohol or marijuana use.
Ramietty-Mikler, Goebert, Nishimura, & Caetano, 2006	Examined gender and ethnic differences in experiencing physical dating violence and whether drinking, unsafe sexual behaviors, and suicidality constitute a risk for victimization	1242	Quantitative-Cross-sectional	Significant bivariate associations were found between victimization and being young, sexually active, early initiation of drinking, and suicidality

Rampersaud, Pereira, Girard, Adams, 2005	Summarize the results of 47 studies examining the association of breakfast consumption with nutritional adequacy, body weight, and academic performance	47 studies	Systematic Review	Breakfast consumption may improve cognitive function related to memory, test grades, and school attendance.
Rasberry et al., 2011	To synthesize the scientific literature that has examined the association between school-based physical activity and academic performance	50 studies	Systematic Review	251 associations between physical activity and academic performance, representing measures of academic achievement, academic behavior, and cognitive skills and attitudes. 50.5% of all associations examined were positive, 48% were not significant, and 1.5% were negative.
Rees & Sabia 2010	Examine the effect of sports participation on several measures of academic performance.	20746	Quantitative-Longitudinal	A strong positive relationship between sports participation and academic performance
Reyes, Foshee, Bauer, & Ennett, 2014	Examine proximal relations between cigarette, alcohol, marijuana and hard Drug use and physical dating aggression while controlling for demographic covariates and shared risk factors.	1920	Quantitative-Longitudinal	Heavy alcohol, marijuana, and other hard drug use, but not cigarette use, are uniquely associated with increased risk for physical DA during adolescence. Overall levels of hard drug (boys only) and marijuana (girls only) use during the assessment period were associated with higher levels DA across all grades
Rothman, Linden, Baughman, Kaczmarzsky, & Thompson, 2016	Examine the beliefs of youth users of alcohol and marijuana about the connections between their substance use and dating violence perpetration.	18	Qualitative	Alcohol escalates minor conflict and exacerbates feelings of irritation and anger; Marijuana reduces feelings of irritation and anger, and Substances are used to cope with conflict-related stress.
Sabia, 2007	To examine the relationship between adolescent obesity and academic achievement.	4218	Quantitative-Longitudinal	Evidence of a significant negative relationship between body mass index and GPA.

Saxvig, Pallesen, Wilhelmsen-Langeland, Molde, & Bjorvatn, 2012	To investigate prevalence and correlates of delayed sleep phase in a large sample of Norwegian high school students.	1285	Quantitative-Cross-sectional	Delayed sleep phase was associated with lower average school grades, smoking, alcohol usage, and elevated anxiety and depression scores.
Shin, Kim, Lee, Ahn, & Joo, 2003	Examine the sleep habits and excessive daytime sleepiness	3871	Quantitative-Cross-sectional	The prevalence of EDS in all students with a low grade was significantly higher than in those with a moderate grade and those with a high grade, respectively. Prevalence of EDS in male students significantly increased with a decline in school performance. The highest prevalence of EDS was also shown in female students with a low grade.
Silverman, Raj, Mucci, & Hathaway, 2001	To assess lifetime prevalence of physical and sexual violence from dating partners among adolescent girls and associations of these forms of violence with specific health risks.	4163	Quantitative-Cross-sectional	Physical and sexual dating violence was a significant independent predictor of substance use, unhealthy weight control, sexual risk behavior, pregnancy, and both considering and attempting suicide.
Sivertsen, Glozier, Harvey, & Hysing, 2015	assess the association between DSP and academic performance in 16–19-year-old high school students using registry-based academic grades	8347	Quantitative-Cross-sectional	Delayed sleep phase (DSP) was associated with increased odds for poor school performance.
Siziya, Muula, & Rudatsikira, 2007	Examine the prevalence and factors associated with truancy among adolescents in Africa	7341	Quantitative-Cross-sectional	Being a male, having been bullied, lower school grades, and alcohol use were positively associated with truancy.
Taras, 2005	To review the state of research on the association between physical activity among school-aged children and academic outcomes	14 studies	Systematic review	For the most part, the studies showed either significant but weak associations between activity level and better academic performance or no correlation at all.

Taylor, Wamser, & Sanchez, 2010	Explore the impact of sports participation and race/ethnicity on violence and victimization	6990 Girls	Quantitative - Cross-sectional	Sports participants were less likely to engage in general violence and reported less physical and sexual victimization but did not experience less intimate partner violence victimization.
Taylor, Wamser, Welch, & Nanney, 2012	Explore the relationship of sports participation and victimization; the role of self-esteem and its disaggregated components as mediators of the relationship between sports participation and victimization	2162 girls	Quantitative- Cross-sectional	Sports participation appears to have some relationship to lower rates of victimization, enhanced self-esteem. Overall self-esteem and, specifically, the individual component competence mediated the relationship between sports participation and victimization
Thompson, Wonderlich, Crosby, & Mitchell, 2001	Assess the association between sexual violence and weight control practices among Girls; and to determine if weak impulse control mediates the association	2,629 girls	Quantitative Cross-sectional	Dating violence and unwanted sexual contact elevated the probability that girls would report practicing weight control techniques by 6–13%.
Wilke, 2017	Examine the association between sports participation and dating violence victimization	13583	Quantitative- Cross-sectional	There was not a statistically significant association between sports team participation and physical dating violence victimization; and forced sex victimization. Students who reported playing on three or more sports teams within the past 12 months had higher odds of reporting sexual dating violence victimization within the past year compared to those that did not play on sports teams. The association between participation in two or fewer sports teams and sexual dating violence victimization was not significant.
Wong et al., 2013	Assess how sleep duration and sleep quality may be causally linked to daytime functions,	930	Quantitative- Longitudinal	Sleep duration on school days, sleep disturbances and daytime dysfunction to be the strongest predictors of school grades while study effort was individually

	including physical health, psychological health, and academic functioning			predicted by habitual sleep efficiency. sleep disturbances and daytime dysfunction predicted GPA
Zhabenko et al., 2016	To determine the correlates of sleep problems among adolescents.	28,933	Quantitative-Cross-sectional	Female gender, depression, dating victimization, tobacco use, nonmedical use of prescription medication, and an ED visit for medical reasons were each associated with sleep problems among adolescents, even while controlling for age, other types of drug use, receiving public assistance, and dropping out of school.

## CHAPTER 3

### Theoretical Framework

Several theories explain the phenomenon of TDV. Key among them are social learning and feminist theories (Choi & Temple, 2016; Giordano, Soto, Manning, & Longmore, 2010; Gover, Kaukinen, & Fox, 2008; Wekerle et al., 2009). Studies that have used feminist theories (Anderson, 2002; Bell & Naugle, 2008; Johnson, 2011; McPhail, Busch, Kulkarni, & Rice, 2007; Whitaker, Haileyesus, Swahn, & Saltzman, 2007) and social learning theory (Ehrensaft et al., 2003; Renner, & Kristen, 2006; Stith, Rosen, McCollum, & Thomsen, 2004) have focused on IPV among married couples than violence in dating relationships and TDV. More use of these theories to explain intimate partner violence than TDV may be as a result of extensive research on intimate partner violence as well as a conceptualization of these studies to fit these two theories.

Social learning and feminist theories provide a narrow perspective on TDV and its relationship with other problem behaviors and school outcomes and behaviors. Social learning theory would examine TDV as an outcome of issues in the family or society of origin (Bandura, 1977; Ross, & Ross, 1963), and in turn, perpetrators of violence may be portrayed as victims of their past, withholding any responsibility on their part. Also, since the scope of this study does not include variables that precede TDV for instance, childhood abuse and exposure to parental violence, this study does not use social learning theory to explain TDV. On the other hand, although the feminist theory has been widely used to study intimate partner violence, it has not been used to explore the relationship between TDV and the occurrence of other problem behaviors or low academic achievement.

This chapter focuses on aspects of problem behavior theory (PBT) such as problem behavior, health-related behaviors, conventional behaviors, and risk factors used in guiding this study. The PBT provides insight for understanding TDV, health-related behaviors, and school outcomes. This chapter describes in greater depth the concepts, assumptions, and empirical support for the PBT. I include a discussion of the criticisms leveled against this theory and its application to studying TDV. Finally, a conceptual model based on PBT is presented.

### **Problem Behavior Theory (PBT)**

PBT is a socio-psychological framework that was first published in 1968 through a grant funded Tri-Ethnic Study to initially understand alcohol abuse among the Native Americans; the study eventually examined substance use in Native Americans, Hispanics, and Whites in rural Southern Colorado (Jessor, 2016; Jessor, Graves, Hanson, & Jessor, 1968). Subsequently, the theory was expanded to explore other problem behaviors such as crime and violence as well as an introduction of conventional behaviors, such as church attendance, school achievement, and school club achievement. Finally, the most recent reformulation of PBT introduced a new way of exploring problem behaviors by including risk and protective factors (Jessor, 1991).

### **Rationale and Basic Assumptions for Problem Behavior Theory**

PBT is based on the premise that adolescence is marked with many developmental changes and transitions (Jessor, & Jessor, 1977). It argues that adolescents may engage in some behavior problems as a move to assert their mature status. Some problem behaviors, for instance, drinking, smoking, and engaging in sex are age-graded behaviors; such behaviors are proscribed for younger individuals but, proscribed for older individuals (Jessor, & Jessor, 1977). For example, it is against societal norms for younger teens to engage in sexual activity but it is more permissible for older individuals, and thus, some adolescents may engage in sexual activity as a



way of showing they are mature. Adolescence also marks the onset of intimate relationships (Connolly, Craig, Goldberg, & Pepler, 2004; Meier & Allen, 2009) and many studies find that these relationships may turn tumultuous (Exner-Cortens, Eckenrole & Rothman, 2013; Taylor & Mumford, 2016; Vagi, Olsen, Basile, & Vivolo-Kantor, 2015). Other theorists, like Erikson, support the notion of formative experiences during adolescence by arguing that adolescence is a time when individuals individuate (Hutchison, 2015). This process of individuation and formative experiences during adolescence may present avenues for experimentation and involvement in problem behaviors.

Another assumption of PBT is that all behavior is a consequence of person-environment interaction (Jessor, 2016; Jessor, Graves, Hanson, & Jessor, 1968; Jessor & Jessor, 1977); most of PBT research focuses on the context in which the behavior happens (Jessor, Graves, Hanson, & Jessor, 1968). Adolescents, in particular, have many interactions with their environment including their families, their peer interactions, and school environments.

Furthermore, certain behaviors co-occur because of an underlying syndrome of problem behavior (Jessor, 1987; Jessor & Jessor, 1977). This suggests that individuals who engage in one problem behavior are more likely to engage in other problem behaviors because problem behaviors share common causes. For example, Rhee, Yun, and Khang, (2007), found that almost 40% of teens who reported engaging in one problem behavior were more likely to report engaging in other problem behaviors. In particular, girls who engaged in violence were more likely to report cigarette smoking, alcohol use, and bullying (Rhee, Yun, & Khang, 2007).

Finally, PBT assumes that similar to other learned behaviors, problem behavior is functional, purposive, and instrumental toward goal attainment. Problem behavior is based on a psychosocial perspective, whereby, an individual's problem behavior is understood in the

context of their psychological, social, behavioral, and situational attributes (Jessor, 1987). This understanding of problem behaviors is similar to the concept of the person in the environment. For example, an understanding of TDV goes beyond biological considerations; it is important to understand other aspects, such as, the intention of the individual perpetrating TDV, the situations in which individuals perpetrate TDV, the type of TDV perpetrated, and the experienced and observed effects of an incident of TDV within the context of the social environment in which TDV occurs.

### **Concepts of Problem Behavior Theory**

**Problem behavior** refers to behaviors “defined socially as a problem, as a source of concern, or as undesirable by the norms of conventional society, and their occurrence usually elicits some social control response” (Donovan, Jessor, & Costa, 1991, p. 52). PBT theorists have explored mainly issues such as marijuana use, sexual intercourse, protest, drinking, problem drinking, and generally deviant behavior as problem behavior (Jessor, 2016). TDV is recognized as a significant social problem that has received much attention in communities, schools, and governmental policies at both the state and federal level. TDV is linked to numerous negative consequences to adolescents including, substance use, unhealthy weight control, sexual risk behaviors, depression, suicide and poor academic outcomes (Ackard Eisenberg & Neumark-Sztainer, 2007; Ackard & Neumark-Sztainer, 2002; Chronister, Marsiglio, Linville, & Lantrip, 2014; Banyard & Cross, 2008).

**Health-Related Behaviors** refers to behaviors that either compromise or maintain an individual’s physical, mental, or social health; a personal sense of well-being; or effectiveness of functioning (Donovan, Jessor, & Costa, 1991, p. 52; Perry & Jessor, 1985). Examples of health-related behaviors, which are either health-compromising or maintaining, include excessive

eating, unprotected sex, cigarette smoking, alcohol and drug use, healthy eating habits, and enough sleep. Behaviors that are health compromising and health maintaining are subject to social norms and sanctions. For example, society disapproves of teenage smoking and drinking alcohol. Laws prohibit those under 18 years of age from smoking cigarettes and those under 21 from drinking alcohol. On the other hand, society's encouragement of adolescents' healthy eating habits and exercise can be seen on television and billboard advertisements.

**Health-compromising behaviors** are behaviors that have a negative effect on health and are dependent upon social norms and sanctions (Donovan, Jessor, & Costa, 1991, p. 52) and include behaviors such as, sedentary behavior patterns, overeating, smoking, alcohol, and drug use. **Health-maintaining behaviors** are behaviors that are socially approved by society. For example, these behaviors include adolescents' behaviors that are encouraged by parents, media, schools, and government to eat healthy, exercise, and have adequate sleep.

Extant literature established that adolescents who experience TDV are predisposed to an array of health-related behaviors. Examples of these health-related behaviors associated with TDV include: excessive alcohol (Banyard & Cross, 2008), smoking, and drug use (Temple & Freeman, 2011), inadequate sleep (Zhabenko et al., 2016), poor nutrition (Ackard Eisenberg & Neumark-Sztainer, 2007; Ackard & Neumark-Sztainer, 2002), and less involvement in physical activities (Chronister, Marsiglio, Linville, & Lantrip, 2014). Most of these studies examining the relationship between TDV and health-related behaviors have explored health-compromising behaviors, especially substance use (Howard & Wang, 2003; Temple & Freeman, 2011; Whiteside et al., 2013). For example, Howard and Wang (2003) found that girls who experienced TDV were more likely to engage in health-related behaviors and vice-versa. Other studies established that adolescents who experience dating violence are more likely to use different

substances compared to their peers who do not experience TDV (Temple & Freeman, 2011; Whiteside et al., 2013). With regard to health-related behaviors and school outcomes; Newcomb et al., 2002 found that health-compromising behaviors led to school failure including truancy and dropping out. The concept of health-related behaviors will be conceptualized in this study as the various behaviors, health maintaining or compromising, that teens who have experienced TDV indulge in and that have an impact on their school outcomes.

**Conventional behaviors**, on the other hand, are behaviors that are approved socially, expected as norms, and institutionalized as appropriate for adolescents and youth especially regarding religion and school. PBT provides examples like church attendance, engagement in school activities, and academic performance (Donovan, Jessor, & Costa, 1991, p. 52).

The theoretical framework of PBT is made up of three systems: the perceived environment, the personality, and the behavior systems. Health-related behaviors belong to the problem behavior structure while conventional behaviors belong to the conventional behavior structure of the behavior system. Proneness to problem behavior in the behavior system implies higher involvement in other problem behaviors and less involvement in conventional behavior.

**Risk factors** are variables linked to a reduced likelihood of positive outcomes in various facets of life extending from health and well-being to performance in social roles while *Protective Factors* are variables associated with positive behaviors or outcomes (Jessor, Turbin, & Costa, 1998). PBT draws risk factors from early research on resilience (Jessor et al., 1998). In this study, I focus on four risk factors associated with TDV. These include gender, age, ethnicity/race, and sexual risk behaviors. Research indicates that *gender* is significantly related to TDV victimization. Specifically, Gover, Kaukinen, and Fox (2008) found that females, more so than males, were at an increased likelihood of physical and psychological violence victimization.

On the contrary, other studies indicate that boys and girls experience physical and psychological violence at similar rates (O’Leary et al., 2008; Sears et al., 2006). Despite this debate on whether more girls than boys experience TDV, it is evident that TDV increases the chances for psychological and behavioral health consequences in girls than boys (Ackard, Eisenberg, & Neumark-Sztainer, 2007), which may, in turn, lower the likelihood of school outcomes. For example, one study reported that TDV and substance use might be more pronounced in females than males (Silverman, Raj, Mucci & Hathaway, 2001). These studies indicate that gender is a risk factor for TDV; being female increases the chances of TDV victimization.

Another risk factor for TDV is *ethnicity/race*. The 'Centers for Disease Control and Prevention [CDC], (2012) found that minority youth [Black (12.2%), Hispanic (11.4%)] reported a higher prevalence of TDV than their white counterparts (7.6%). Noonan and Charles (2009) suggested that African American youth are more predisposed to TDV since African American youth reported more often than white youth that they witnessed TDV. This finding is supported by another study by the CDC that found that African American teens experienced TDV more often than their counterparts in other races (Black et al., 2006). As the TDV risk increases in minority populations, so does the chances for health-compromising behaviors and unconventional behavior.

Also, *age* is a significant risk factor for TDV and negative outcomes. Black et al. (2011), using a national sample, found that 24.3% of females and 13.8% of males who reported some form of intimate partner violence first experienced TDV between ages 11 to 17. Specifically, Bonomi et al. (2012) using longitudinal data of teens aged 13 to 19 found that most teens reported their first experience of physical and sexual violence after 16 years. Also, Coker et al.

(2014) found that older teens were more likely to disclose TDV. This implies that as age increases from mid-adolescence to late adolescence, teens are at an increased risk of experiencing TDV.

Finally, *sexual risk activities* are risk factors associated with TDV experience and other adverse outcomes. For example, Howard and Wang (2003) using the YRBS data found that girls who reported engaging in sex with multiple sex partners, non-condom use, and sex while intoxicated had increased odds of TDV victimization. Other studies have also found that TDV victimization increases the likelihood of engaging in sexual risk behaviors (Silverman, Raj, & Clements, 2004; Vagi et al., 2014). Vagi et al. (2014) found that only male students who experienced sexual TDV were more likely to engage themselves with multiple sex partners. While Silverman, Raj, and Clements (2004) found that only girls who reported experiencing TDV and engaging in sexual activity had higher chances of reporting multiple sexual partners. Thus, there exists a bidirectional relationship between sexual risk behaviors and TDV victimization.

Besides, PBT theorists suggest that some behaviors (e.g., risky driving, early sexual activity, multiple sex partners, and non-condom use) “compromise successful adolescent development and jeopardize the life chances of youth,” (Jessor, 1991, p. 600). These behaviors have the youth’s intended outcomes as well as adverse outcomes that accompany any risky behaviors. For example, teens may engage in sexual activity with multiple partners without protection, for social acceptance which is their intended outcome but, they may face adverse outcomes such as STIs, pregnancy, and TDV. These studies provide evidence that risky sexual behavior is a risk factor associated with TDV especially, sexual TDV, and thus, supporting the

need to explore its association with physical TDV and how it relates to health-related behavior and conventional behaviors.

### **Empirical Support**

PBT has a strong empirical base stemming from the first tri-ethnic study of alcohol abuse, other problem behaviors (crime and violence) and conformity to conventional behaviors (church attendance, school achievement, and school club involvement) in Colorado (Jessor, Graves, Hanson, & Jessor, 1968). The Tri-ethnic study found that sociocultural and personal environments play a significant role in problem behavior. This was followed by a longitudinal study using cohorts of junior and high school, and college students to understand problem behavior and psychosocial development among cohorts studied (Jessor & Jessor, 1977). This phase of PBT research used a longitudinal study, and subsequently, the theorists used a national sample to survey high school individuals. Jessor and Jessor (1977) found that variation in the personality system and perceived environment accounted for a variation in problem behavior and was inversely related to conventional behaviors. Also, it is during this period of research that researchers established the concept of behavior problem syndrome and behavior problem proneness. In general, findings from longitudinal studies provide evidence that problem behavior is developmental.

Most recently, there was a follow-up study of cohorts from junior high to college to examine contextual factors of individuals in their young adulthood (Jessor, Donovan, & Costa, 1991). Extant research on problem behavior, both cross-sectional and longitudinal, used diverse samples from childhood to young adulthood consisting of studies conducted in the United States and China. Later on, other researchers in other places including Kenya (Kabiru, Beguy, Ndugwa, Zulu, & Jessor, 2012), examined the association between risk and protective factors at the

individual and societal context and resilience factors. They found that protective factors had a positive correlation while risk factors had a negative correlation with resilience factors.

PBT is often used to help explain substance abuse and other problem behaviors but has also been used to explain TDV. Three studies reviewed examine TDV as a problem behavior that clusters with other problem behaviors (Choi et al., 2017; Howard & Wang, 2003; Temple & Freeman, 2011). A longitudinal study by Choi et al. (2017) examined the underlying syndrome of problem behavior using latent transition analysis and found that TDV (physical and psychological violence) co-occurred with substance use (alcohol use). In this study, girls who experienced TDV also reported alcohol use and vice versa. Temple and Freeman's (2011) study also focused on substance use and TDV and found that teens who experienced TDV compared to those who did not experience TDV were more likely to report substance use. Howard and Wang (2003) using a national sample incorporated a wider range of problem behaviors (carrying a weapon, substance use, fighting, and risky sexual behaviors) and found that they predicted TDV victimization.

Similarly, another longitudinal study by Crosnoe (2006) using PBT's syndrome perspective found that academic failure was a risk factor for adolescent drinking. On the contrary, Cox et al. (2007) used the Mississippi 2003 YRBS which is cross-sectional to understand the relationship between substance use and academic achievement. Cox et al. based their study on the assumption that the same underlying risk factors cause both substance use and poor academic achievement, and that involvement in substance use depends on the extent to which an individual engages in other problem behaviors and conventional behaviors. Findings indicate that teens who engaged in substance use were at increased chances of reporting poor



academic performance. Also, Engberg et al. (2006) using PBT in a longitudinal study found that a reduction in substance use heightened the chances for school attendance.

### **Limitations**

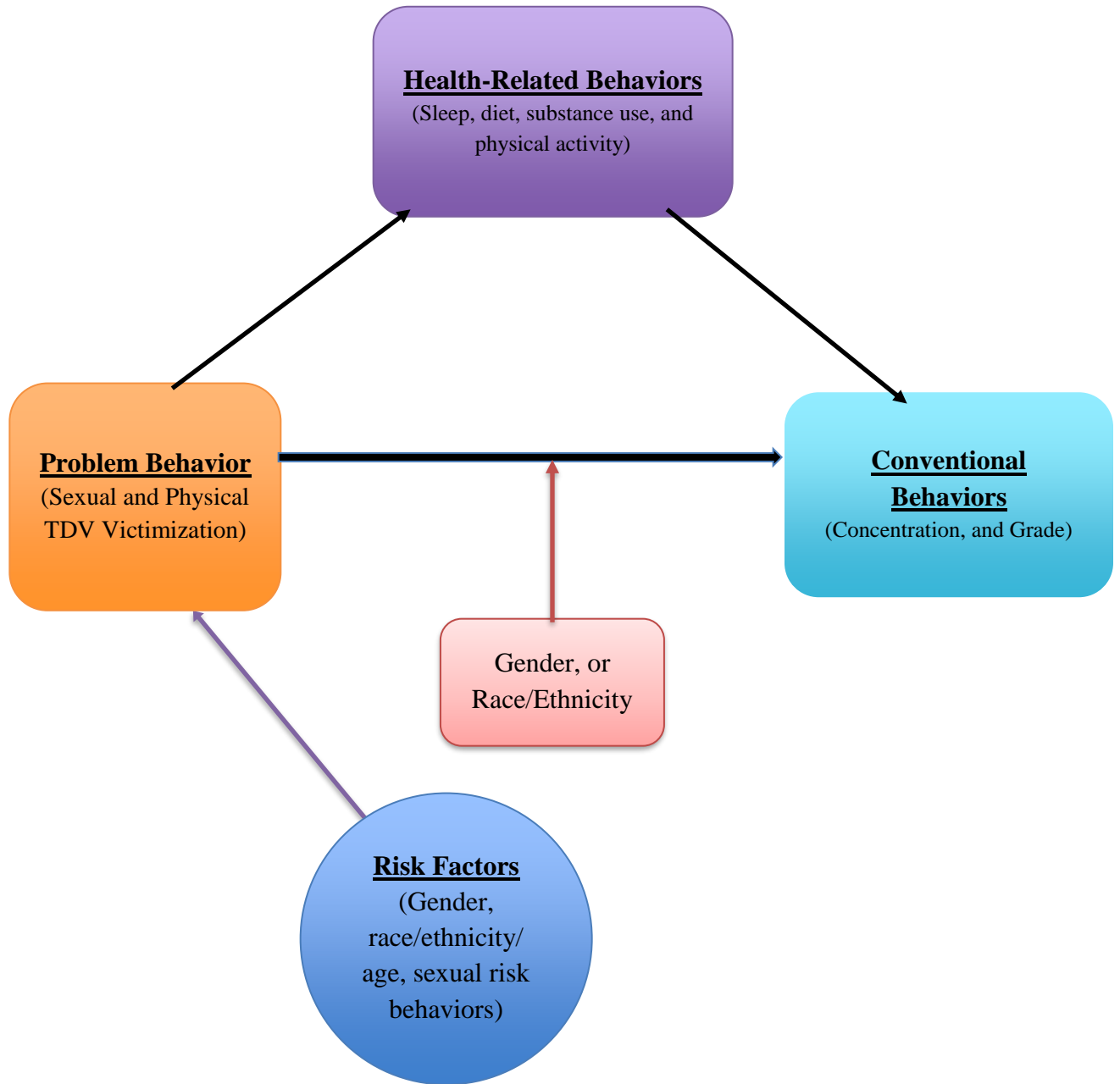
Previously, some researchers criticized PBT on the basis that the structure of problem behaviors may be different across ethnic groups (Barrera et al., 2001). Specifically, what may be a risk factor in one ethnic group for a problem behavior may not be a risk factor for another ethnic group. Other studies have challenged the notion of the syndrome of problem behaviors. For example, Ebin et al. (2001) found that some behavior did not correlate with each other for example, substance use did not correlate with hours of sleep and dietary behaviors. Based on the first critique, this study explores the ethnic differences in problem behavior but maintains PBT's assumption of the syndrome of problem behavior.

### **Application to the Present Study**

PBT is a theory that provides a broad perspective on TDV. This theory considers the relationship between TDV and other problem behaviors, risk factors, and conventional behaviors. Thus, this study uses PBT to define TDV as a problem behavior and explore how TDV relates to health-related behaviors and conventional behaviors. TDV experience predisposes teens to a myriad of health-related behaviors, as well as, a reduced likelihood that the teens will successfully engage in conventional behaviors. This research draws from the concepts of health-related behaviors, i.e., health maintaining and compromising behaviors (substance use, diet, sleep, physical activity) and conventional behaviors (concentration, and grades) to help understand the relationship between the two, where health-related behaviors mediate the relationship between TDV victimization and conventional behaviors (see Figure 2. 1).

Although PBT conceptualizes risk factors as, models risk, vulnerability risk, opportunity risk, and behavior risk, in this study, demographic factors (gender, race/ethnicity, age) and sexual risk behaviors will be used as risk factors. This choice is based on the distinctive role played by these demographic factors and sexual risk behaviors in influencing health-related behaviors and school outcomes among adolescents. The use of risk factors in this manner provides a unique perspective of understanding the moderating effect of these demographic variables and sexual risk behaviors in the relationship among TDV, health-related behaviors, and conventional behaviors.

Figure 2. 1: Theoretical Model



## CHAPTER 4

### Methods

#### Introduction

This chapter highlights the methods utilized in this study. First, I state the research questions, hypotheses and provide a rationale for the hypotheses. Next, I discuss the source of data, human subject protection, data analysis procedures, and conclude with the limitations of the methods. This study involves secondary data analyses based on a cross-sectional design. Secondary data analysis is affordable since data are readily available, and thus, it saves the researcher time and other resources that are required in planning and collecting data. For instance, data collection of sensitive information from vulnerable populations or in the case of this study, collection of data from adolescents may face stringent measures from the Institutional Review Boards (IRB) that may lead to prolonged wait times and a possibility for a disapproval of the study (Sales et al., 2006). Also, secondary data provides researchers access to large samples, which the researcher may not easily access when they conduct their studies due to limited resources (Rubin & Babbie, 2014).

#### Research Questions and Hypotheses

The study will address the following research questions and with associated hypotheses:

**1. How do risk factors (Age, gender, race/ethnicity, sexual risk behavior) relate to TDV victimization?**

*Hypothesis 1:* Being an older (16 to 18 years and older), female, minority (Black or Hispanic), or engaging in sexual risk behaviors will positively correlate with TDV victimization (*No TDV victimization/TDV victimization*).

**Rationale.** Studies on TDV victimization reported that age, gender, ethnicity, and sexual risk behaviors are associated with TDV experience. For example, minority youth, especially, Blacks and Hispanic teens, experience TDV at higher rates compared to their white counterparts (Ramisetty-Mikler, Goebert, Nishimura, Caetano 2006; Vagi et al., 2015). Teens aged 16-19 reported TDV victimization at higher rates than 13-16-year-old teens; and reports of TDV incidents were higher in females than males (Vagi et al., 2015), though another study found higher levels of TDV victimization in boys (Taylor & Munford, 2001). Also, Howard and Wang (2003) found that teens who reported engaging in sexual risk activities (i.e., multiple sex partners, non-condom-use, and sex while under the influence of drugs/alcohol) had an increased likelihood of reporting TDV victimization. The researcher anticipates that more teens who are older, females, a minority (Black or Hispanic), and engaging in sexual risk behaviors will report both sexual and physical TDV victimization compared to young, male, other ethnicities, and teens not engaging in sexual risk behaviors.

## **2. To what extent does gender, and race/ethnicity moderate the relationship between TDV victimization and school outcomes?**

*Hypothesis 2a:* Gender will moderate the relationship between TDV victimization and school outcomes.

*Hypothesis 2b:* Race/ethnicity will moderate the relationship between TDV victimization and school outcomes.

### **Rationale**

Studies on TDV victimization have noted significant differences in TDV victimization experiences between females and males, and minority youth and others. For example, Martz, Jameson, and Page (2016) found that TDV predicted lower academic grades for girls only.

However, even though TDV did not predict lower academic grades for boys, boys who experienced TDV had lower grades than those who did not experience TDV. Also, teens from different ethnicities report different rates of TDV experience. According to the 2013 YRBS, 17.2% Hispanic, 15.5% Black, and 14.5% White adolescents experienced some form of TDV in the year before the study was conducted (Ramisetty-Mikler, Goebert, Nishimura, & Caetano, 2006; Vagi et al., 2015). The researcher anticipates that gender and ethnicity will moderate the relationship between TDV victimization and school outcomes. With other factors held constant.

### **3. How do health-related behaviors mediate the relationship between TDV victimization and school outcomes?**

*Hypothesis 3:* There will be a significant indirect effect of TDV victimization on school outcomes (School Grade, and Concentration) through health-related behaviors (substance use, physical activity, diet, and sleep).

**Rationale.** PBT proposes a syndrome of problem behaviors whereby problem behaviors co-occur and may lead to other negative outcomes (Choi et al., 2017; Howard & Wang, 2003; Temple & Freeman, 2011). Studies show that TDV cluster with other problem behaviors. For example, victims of TDV mostly report substance use, fighting, weapon carrying, poor eating habits, poor sleeping habits and unhealthy weight control (Ackard, Eisenberg, & Neumark-Sztainer, 2007; Choi et al., 2017; Howard & Wang, 2003; Temple & Freeman, 2011), which may jeopardize school outcomes and behaviors. This study anticipates that health-related behaviors will mediate the relationship between TDV victimization and school outcomes and behaviors.

## **Data Source**

Data used in this study are part of a study of youth risk behavior conducted by the (CDC) known as YRBS. The CDC developed the YRBS in 1990 and launched it in 1991 to monitor health behaviors that contribute to mortality and disability among youth (Brener et al., 2013). The behaviors include behaviors that contribute to unintentional injuries and violence, sexual behaviors related to unintended pregnancy and sexually transmitted diseases, alcohol and other drug use, tobacco use, unhealthy dietary behaviors, and low physical activity. The YRBS also collects demographic data. The YRBS is administered biennially and contains representative samples of 9th to 12th-grade students from the national, state, territorial, tribal government, and local school-based surveys. Data utilized in this study are components of the Youth Risk Behavior Surveillance System collected in 2017 YRBS.

## **Human Subjects Protection**

As aforementioned, this study used the publicly available 2017 YRBS data collected by the CDC. Before collecting data, the CDC ensures proper protection of participants by going through all the required approval processes, and consent where participants (schools and students) are informed of their right to stop participation at any point. Also, the YRBS data are already de-identified, and thus, the subjects' identities are kept confidential. The author obtained clearance from the Institutional Review Board at the University of Texas at Arlington. See Appendix A.

## **Sampling Design**

The YRBS uses a three-stage cluster sample design that involves a nationally representative sample of all public and private high school students in 9<sup>th</sup> -12<sup>th</sup> grade within the 50 states and the District of Columbia; the U.S. territories are not included in this sampling

frame. Also, alternative schools, special education schools, schools operated by the Department of Defense, Bureau of Indian Education schools, and vocational schools serving only pull-out populations were excluded. In the 2017 survey, the first stage sampling frame included 1,257 primary sampling units (PSUs) which comprised counties- groups of smaller, adjacent counties, or parts of larger counties. The 1,257 PSUs were classified into 16 strata depending on their metropolitan statistical area (MSA) status (e.g., urban city) and the percentages of black and Hispanic students in the PSUs. Fifty-four 54 were sampled from the 1,257 PSUs, using probability proportional to overall school enrollment size for the PSU.

In the second stage of sampling, secondary sampling units (SSUs) were defined as a physical school with grades 9 through 12 and in other cases a school created by combining nearby schools to provide all four grades. One hundred and sixty-two (162) SSUs were sampled from the 54 PSUs, with probability proportional to school enrollment size. The 162 SSUs matched 192 physical schools. The third stage of sampling comprised of random sampling in each of grades 9–12, one or two classrooms from either a mandatory period (e.g., homeroom) or subject (e.g., English). Each student from the sampled classes was eligible to participate. Any eligible school, class, and student that declined to participate were not replaced. Two classes per grade, as opposed to one, were sampled in schools with a high minority enrollment to facilitate separate data analysis for Black and Hispanic students.

### **Data Collection Procedures**

Before survey administration, the CDC's IRB approved the protocol for the national survey. The YRBS procedures ensure the protection of students' privacy by allowing for anonymous, and voluntary participation and adheres to local parental permission procedures. Students completed the self-administered survey on an answer sheet during one class period.



While the YRBS contains 89 standard questions, the 2017 YRBS contained 99 questions. Except for height and race/ethnicity, all questions were multiple-choice and yes/no questions that were mutually exclusive and had a high possibility that participants would pick only one of the choices. Also, the YRBS does not include skip-questions in their questionnaire to allow all students to take an equal amount of time to complete the survey, and thus, providing privacy to students.

### **Data Analysis**

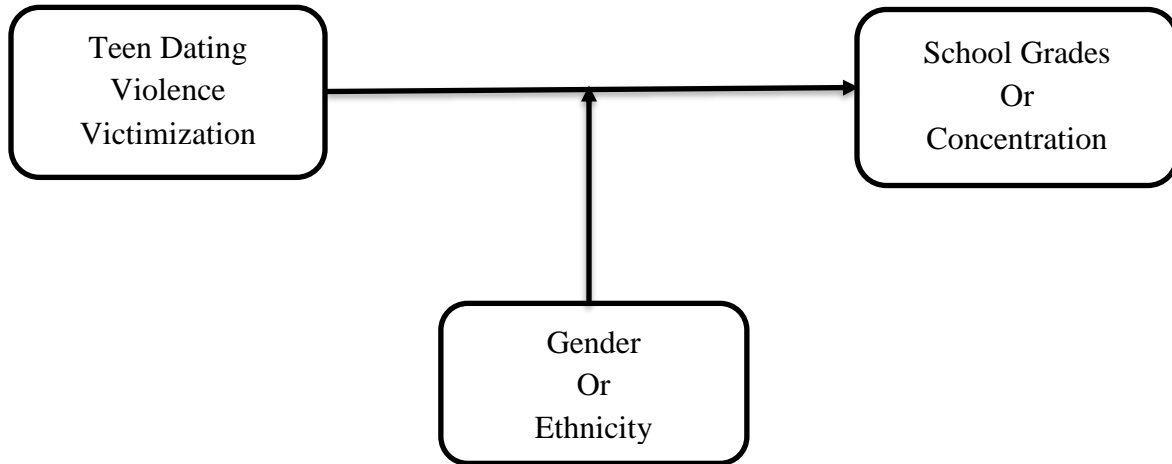
All statistical procedures for this study were conducted using the Statistical Package for Social Sciences software (SPSS), version 22.0, and PROCESS Macro 3.3. The first step upon IRB approval was data management; I checked to ensure that data were entered accurately by running and checking frequency tables for all variables that were used in this study. In the process, I checked for missing data by running a missing data analysis and recoded variables to prepare for analyses (see Table 1. 2). Additionally, I checked for multicollinearity through correlations. Descriptive analyses were run to understand the sample characteristics. Secondly, bivariate analyses including correlations, T-tests, and Chi-squares were conducted to examine the relationships between independent variables, risk factors, mediators, and dependent variables.

For hypothesis testing (Research Question 1), logistic regressions were conducted to examine the relationships between risk factors (age, gender, race-ethnicity, and sexual risk behaviors) and TDV victimization. Logistic regression is well suited for these variables.

Next (Research Question 2), moderation analyses were performed using PROCESS Macro 3.3 to explore the moderating effects of gender, and race-ethnicity on the relationship between TDV victimization and school grades, and concentration; while controlling for risk

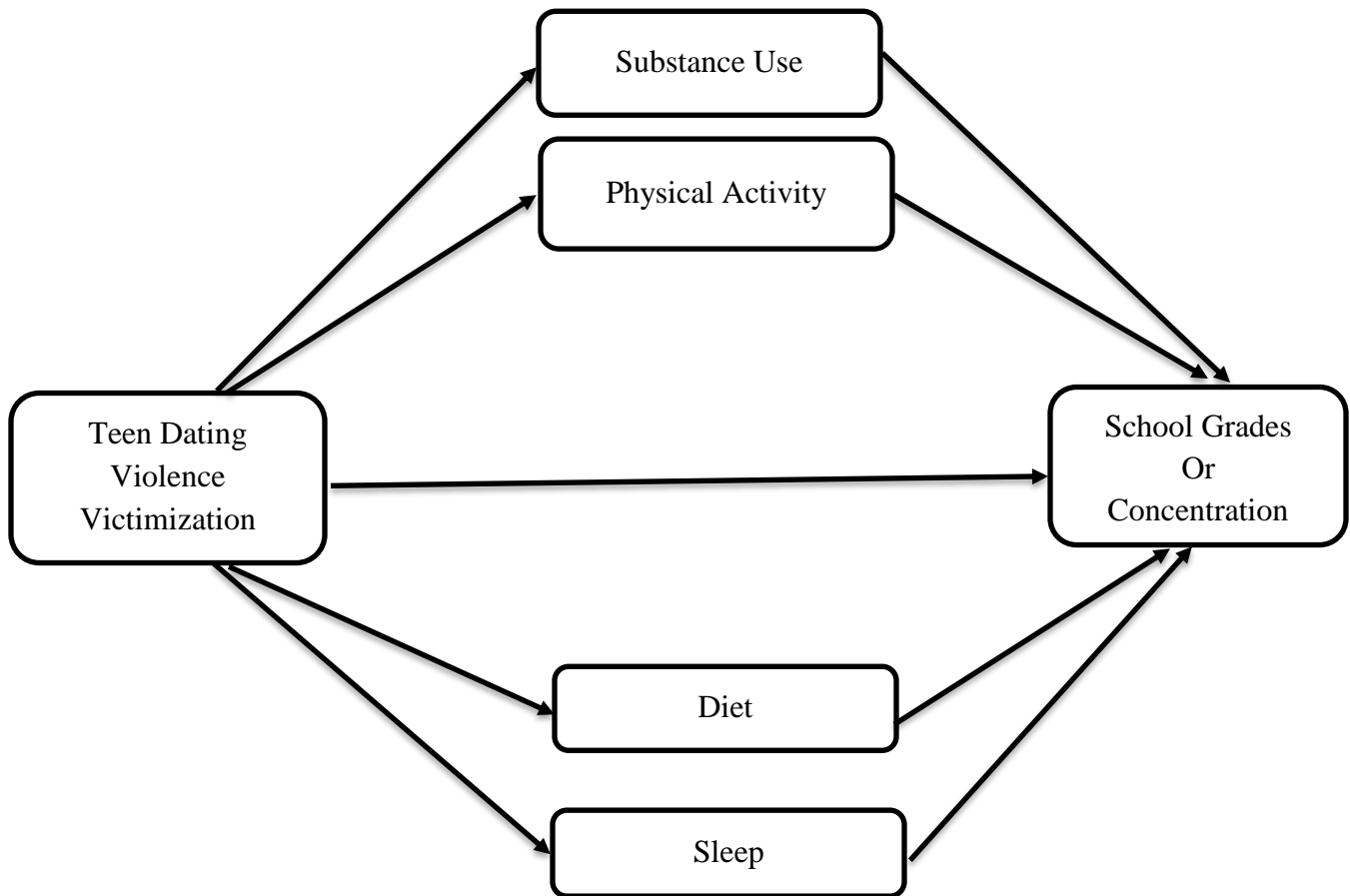
factors. Moderation analysis answers the question – *when* or *for whom* (Hayes, 2018). See Figure 2. 2 below.

Figure 2. 2: Moderation Model



Finally (Research Question 3), mediation analyses were performed using PROCESS Macro 3.3 using the Monte Carlo option to examine the mediating effect of health-related variables (substance use, physical activity, diet, and sleep) on the relationship between TDV victimization and school grades, and concentration; while controlling for risk factors. Mediation analyses is a widely used statistical method that tests the hypotheses about how  $X$  imparts its influence on  $Y$  through an intervening variable  $M$ . Mediation analyses answers the question – *how*, and provides the researcher an opportunity to test several models simultaneously (Hayes, 2017). This study used Monte Carlo simulations to make inferences about the indirect effects. Monte Carlo simulation is convenient when other rival methods (such as bootstrapping) are impossible, is not computer intensive (Preacher & Selig, 2012), and is not sensitive to normality (Hayes, 2017). See Figure 2.3 below.

Figure 2. 3: Mediation Model



### Operationalization of Variables and Measures

#### Grades and Concentration

There are two primary dependent variables in this study: school grades, and concentration. School grades were operationalized by a continuous variable (0-5) based on GPAs where 0 indicates poor grades while 5 indicates higher/better grades.

Concentration was operationalized as a dichotomous variable (0 = *no difficulty concentrating*, 1 = *difficulty concentrating*).

## **TDV Victimization**

Teens reported TDV either experiencing or not experiencing physical or sexual TDV victimization (0 = *no*, 1 = *yes*). The two questions were combined so that 0 = *No TDV victimization*, and 1 = *TDV victimization* (for teens who indicated yes on either physical or sexual TDV).

## **Age, Gender, Ethnicity, and Sexual Risk Behaviors**

Age was initially coded in ages from 12 years old and younger to age 18 years old and older. For this study, age was dichotomized where 0 = *12 years old and younger to 15 years old*, 1 = *16 years old to 18 years old or older* in order to examine the difference in TDV victimization. Gender was categorized as 0 = *male*, 1 = *female*, and used as a risk factor, and a moderator. Ethnicity was initially categorized as 1 = American Indian/Alaska Native, 2 = Asian, 3 = Black or African American, 4 = Native Hawaiian/Other, 5 = White, 6 = Hispanic/Latino, 7 = Multiple – Hispanic, and 8 = Multiple - Non-Hispanic. Ethnicity was used (*Black and Hispanic* were dummy-coded to be used) as covariates (“*others*” as a reference, and dummy coded *Hispanic* and *Black*).

Sexual Risk Behaviors comprised four questions that included engaging: in sex before age 13, drug use and sex, sex with more than one partners, and sex with no condom use, all had dichotomous responses of “Yes,” and “No.” These responses were summed up so that all variables that had zero were 0 = *no sexual risk*, and those with one or more were 1 = *sexual risk behaviors*.

## **Substance Use, Physical Activity, Diet, Sleep**

Substance use consisted of nine questions that asked participants about whether they ever used: alcohol; marijuana; cocaine; inhalant; heroine; ecstasy; synthetic\_ marijuana;

methamphetamines; and prescription drugs (0 = No and 1 = Yes). Sum scores were calculated with a range of 0 to 9 with higher values indicating more substances use. Substance use was recoded to 0 to 4 since there were few values between 4 and 9. 0 indicated *no substance use problems*, and higher values indicated *higher levels of substance use*.

Physical Activity was comprised of three questions: during the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day? (1= 0 days, 2 = 1 day, 3 = 2 days, 4 = 3 days, 5 = 4 days, 6 = 5 days, 7 = 6 days, 8 = 7 days); in an average week when you are in school, on how many days do you go to physical education (PE) classes? (1 = 0 days, 2 = 1 day, 3 = 2 days, 4 = 3 days, 5 = 4 days, 6 = 5 days); and finally, during the past 12 months, on how many sports teams did you play? (Include any teams run by your school or community groups) (1 = 0 team, 2 = 1 team, 3 = 2 teams, 4 = 3 or more teams). These items were recoded to 0 = No, and 1 = Yes, then a sum score was calculated, and a composite variable made ranging from 0 = no physical activity, 1= one physical activity, 2= two physical activities, to 3 = more than two physical activities. Finally, physical activity was reverse-coded so that 0 indicated *less problematic physical activity (more physical activity)*, and 3 indicated *more problematic physical activity (no physical activity)*.

Diet comprised of seven items that asked: did you drink fruit juice; Milk; Eat Fruit; Green Salad; Carrots; Other Vegetables; and Breakfast one or more times during the past seven days? The responses, 0 = No, 1 = Yes, were summed up to create a continuous variable of 0 to 7 where 0 indicated poor diet, and 7 indicated a healthier diet. This was coded to 0 to 4 because there were few values between 4 and 7, and further reverse-coded where 0 indicated *no dietary problems/healthy diet*, and 4 indicated *more dietary problems/less healthy diet*.

Sleep was operationalized using one question: on an average school night, how many hours of sleep do you get? 1 = 4 or less hours, 2 = 5 hours, 3 = 6 hours, 4 = 7 hours, 5 = 8 hours, 6 = 9 hours, and 7 = 10 or more hours. These were further recoded to 0 to 4 due to the low distribution of values between 4 and 7 where: 0 = 4 or less hours, 1 = 5 hours, 2 = 6 hours, 3 = 7 to 8 hours, 4 = 9 hours to 10 or more hours. Lower values indicated problematic sleep behavior. The items that were combined showed overall acceptable internal consistency reliability with the following Cronbach alphas: sexual risk behaviors (.615), physical activity (.615) diet (.661), and substance use (.761).

Table 1. 2: Operationalization of Variables

Variable	Questions and Responses	Variable Transformation	Reliability
School Grades	During the past 12 months, how would you describe your grades in school? 1= Mostly A's, 2,= Mostly B's, 3,= Mostly C's 4,= Mostly D's 5,= Mostly F's 6,= None of these grades 7,= Not sure	0-5	
Concentration	Because of a physical, mental, or emotional problem, do you have serious difficulty concentrating, remembering, or making decisions? 1=Yes, 2 = No	0 = <i>No</i> 1 = <i>Yes</i>	
TDV Victimization	During the past 12 months, how many times did someone you were dating or going out with force you to do sexual things that you did not want to do? (Count such things as kissing, touching, or being physically forced to have sexual intercourse.) 1=I did not date or go out with anyone during the past 12 months, 2=0 times, 3=1 time, 4= 2 or 3 times, 5= 4 or 5 times, 6= 6 or more times During the past 12 months, how many times did someone you were dating or going out with physically hurt you on purpose? (Count such things as being hit, slammed into something, or injured with an object or weapon.) 1 = I did not date or go out with anyone during the past 12 months, 2 = 0 times, 3 = 1 time, 4 = 2 or 3 times, 5 = 4 or 5 times, 6 = 6 or more times	0 = <i>No TDV</i> 1 = <i>TDV Victimization</i>	

Age	How old are you 1 = 12 years old or younger, 2 = 13 years old, 3 = 14 years old, 4 = 15 years old, 5 = 16 years old 6 = 17 years old, 7 = 18 years old or older	0 = 12 years old or younger to 15 years old 1 = 16 years old to 18 years old or older	
Gender	What is your sex 1=Female, 2=Male	0 = Male 1 = Female	
Race-Ethnicity	What is your race? 1 = American Indian/Alaska Native, 2 = Asian, 3 = Black or African American, 4 = Native Hawaiian/Other, 5 = White, 6 = Hispanic/Latino, 7 = Multiple – Hispanic, 8 = Multiple - Non-Hispanic	0 = Black 1 = Hispanic 2 = Others (White, Multiracial Am Indian/Alaska Native, Asian, Native Hawaiian/Other) 0 = Other, 1 = Black 0 = Other 1 = Hispanic	
Sexual-Risk Behaviors	Did you engage in Sex Before 13; Drugs and Sex, Sex with more than one partners; sex with No Condom Use? 1 = Yes, 2 = No	0 = Did not engage in Sexual Risk Behaviors 1 = Engaged in one or more Sexual Risk Behaviors	.615
Substance Use	Did you ever use: Alcohol; Marijuana; Cocaine; Inhalant; Heroin; Ecstasy; Synthetic_ Marijuana; Methamphetamines; Prescription drugs? 1 = Yes, 2 = No	0-4	.761
Physical Activity	During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day? 1 = 0 days, 2 = 1 day, 3 = 2 days, 4 = 3 days, 5 = 4 days, 6 = 5 days, 7 = 6 days, 8 = 7 days In an average week when you are in school, on how many days do you go to physical education (PE) classes? 1 = 0 days, 2 = 1 day, 3 = 2 days, 4 = 3 days, 5 = 4 days, 6 = 5 days During the past 12 months, on how many sports teams did you play? (Include any teams run by your school or community groups.) 1 = 0 teams, 2 = 1 team, 3 = 2 teams, 4 = 3 or more teams	0-3	.615
Diet	Did you drink fruit juice; Milk; Eat Fruit; Green Salad; Carrots; Other Vegetables; Breakfast one or more times during the past seven days? 1 = Yes, 2 = No	0-4	.661

Sleep	On an average school night, how many hours of sleep do you get? 1 = 4 or less hours, 2 = 5 hours, 3 = 6 hours, 4 = 7 hours, 5 = 8 hours, 6 = 9 hours, 7 = 10 or more hours	0-4
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### Missing Data

Since this study uses secondary data, it was essential to examine and handle missing data before analyses. Research shows that missing data poses a significant threat to reduced analytic power (Patrician, 2002), bias and valid conclusions (Langkamp, Lehman, & Lemeshow, 2010). Researchers laud multiple imputation as a method of handling missing data for producing data that are less biased and have more efficient estimates (Langkamp, Lehman, & Lemeshow, 2010; Young, & Johnson, 2013). Multiple imputation is a technique of dealing with missing data by replacing a missing value with an estimated value by creating several imputed datasets (Patrician, 2002). Multiple imputation assumes that data are missing at random (MAR).

First, I analyzed the patterns of missingness (see figure 2. 4 below) and found that more than 10% of cases in this study had missing values. Furthermore, I conducted the Little's Missing Completely At Random (MCAR) test to examine whether data were MCAR. Results indicated that data were not MCAR [ $\chi^2(71) = 231.730, p = .000$ ]. Since the data are not MCAR and display a visual pattern of missing values (see *Figure 2. 4*), data are MAR; hence, multiple imputation was used. PROCESS assumes that data is complete, failure to have complete data would prompt PROCESS to exclude any cases with missing values (Hayes, 2017). Multiple imputation is recommended highly for handling missing data where more than 10% of cases have missing values (Langkamp, Lehman, & Lemeshow, 2010). The rate of missingness in the data were as follows (see Table 1. 3): TDV victimization (37.8%), concentration (27.7%), substance use (25.1%), grades (23.9%), diet 22.7%), physical activity (21.5%), sleep (20.0%), ethnicity (2.3%), gender (0.9%), and finally age had the least at 0.5%; while sexual risk

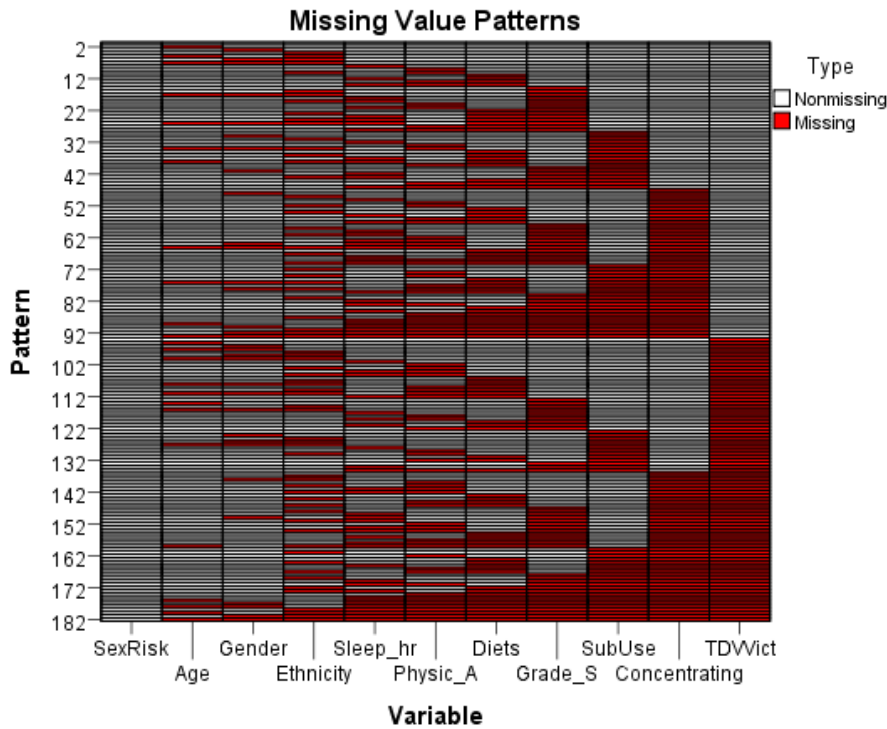


behaviors did not have any missing cases. Acock (2005) recommends imputing 5-10 datasets. The multiple imputation created 5 imputed datasets; this study uses the 5<sup>th</sup> dataset. Any dataset would yield similar results.

Table 1. 3: Variable Summary for Missing Values

	Missing		Valid N	Mean	SD
	N	Percent			
TDV Victimization	5586	37.8%	9179		
Concentrating	4097	27.7%	10668		
Substance Use	3712	25.1%	11053	1.2476	1.21306
Grades	3533	23.9%	11232	4.0888	.89928
Diet	3350	22.7%	11415	1.8645	1.33135
Physical Activity	3173	21.5%	11592	1.8927	.93589
Sleep	2954	20.0%	11811	2.4666	1.24152
Ethnicity	337	2.3%	14428		
Gender	127	0.9%	14638		
Age	81	0.5%	14684		

Figure 2. 4: Missing Value Patterns



## **Reliability and Validity**

The YRBS is a source of credible data. Test-retest reliability studies were conducted in 1992 and 2000 to assess the reliability of the YRBS questionnaire. There were substantial reliability scores (Kappa =61% to 100%). Questions with lower reliability at both points were revised or deleted. In 2003, the CDC reviewed the cognitive and situational factors that could affect the validity of self-reports and found no evidence that they were threats to self-reports of behaviors explored in the YRBS (Brener et al., 2013).

## CHAPTER 5

### Results

#### Introduction

This chapter presents a summary of the results of the study. The following research questions are addressed: (1) How do risk factors (age, gender, race/ethnicity, sexual risk behavior) relate to TDV victimization? (2) To what extent does gender, and race/ethnicity moderate the relationship between TDV victimization, and school outcomes (grades and difficulty concentrating)? (3) How do health-related behaviors (substance use, physical activity, diet, and sleep) mediate the relationships between TDV and school outcomes? First, a description of the sample is provided followed by bivariate analyses that were conducted to explore the associations between key variables. Lastly, moderation and mediation analyses were conducted using PROCESS macro 3.3. Results for the research questions for this study are presented, followed by a summary of the results.

#### Demographic Characteristics

The overall sample for this study is 14,765 high school students. As displayed in Table 1.4, most respondents were 16 to 18 years and older (61.9%). Females represented 51.4% and males 48.6% of the sample, while most participants (91.4%) reported that they engaged in at least one or more sexual risk behaviors, 8.6% reported they did not engage in sexual risk behaviors. Majority of the teens were in the-“other” category (White, Multi-racial, Asian, Alaskan-Native, American Indian, and Hawaiian) (69.9%), followed by Black/African-American (19.4%), and Hispanic (10.6 %). 37.4% of participants reported difficulty concentrating in school. Participants reported average grades of 3.39 ( $SD = 1.49$ , range 0-5) with the majority of students reporting As (28.9%) and Bs (29.7%), and substance use 1.12 ( $SD = 1.15$ , range 0-4).

The mean score for physical activity was 1.59 ( $SD = 1.05$ , range 0-4), diet score of 1.62 ( $SD = 1.62$ , range 0-4), and sleep score of 2.12 ( $SD = 1.36$ , range 0-4).

Table 1. 4: Socio-Demographic Characteristics of Teens

<b>Characteristic</b>	<b>N=14765(%)</b>	<b>Mean(SD)</b>	<b>Range</b>
<b>Age</b>			
12 and younger to 15 years old	38.1		
16 to 18 years and older	61.9		
<b>Gender</b>			
Male	48.6		
Female	51.4		
<b>Race/Ethnicity</b>			
Black	19.4		
Hispanic	10.6		
Other (White, Multi-Racial, Asian, Alaskan-Native, American Indian, Hawaiian)	69.9		
<b>Sexual Risk Behavior</b>			
No sexual risk behavior	8.6		
1 or more sexual risk behaviors	91.4		
<b>TDV Victimization</b>			
No TDV	73.3		
TDV (Physical or Sexual TDV)	26.3		
<b>Difficulty Concentrating</b>			
No	62.6		
Yes	37.4		
<b>Substance Use</b>		1.12(1.15)	0-4
<b>Physical Activity</b>		1.59 (1.05)	0-3
<b>Diet</b>		1.62(1.32)	0-4
<b>Sleep</b>		2.12(1.36)	0-4
<b>Grades</b>		3.39(1.49)	0-5

## Bivariate Analyses

### Correlations with Outcomes

**Table 1. 5** shows correlations among all variables. Substance use is significantly correlated with diet ( $r = .050$ ,  $p < 0.01$ ), physical activity ( $r = .060$ ,  $p < .01$ ) sleep ( $r = -.037$ ,  $p < .01$ ), and grades ( $r = 0.19$ ,  $p < .05$ ). Also, Pearson's  $r$  was conducted for initially checking

multicollinearity between continuous independent variables. Multicollinearity is not a problem since no independent variables were correlated at .80 or greater.

Table 1. 5: Correlations among Predictor Variables

Variable	1	2	3	4	5	6	7	8	9	10	11
<b>1.Age</b>	1										
<b>2.Gender</b>	-.029**	1									
<b>3.Ethnicity</b>	.020*	.005	1								
<b>4.Sexual Risk</b>	-.105**	-.011	.006	1							
<b>5.Substance Use</b>	.146**	.032**	.001	-.078**	1						
<b>6.Physical Activity</b>	-.079**	-.096**	-.031**	-.045**	.060**	1					
<b>7.Diet</b>	.039**	.031**	.042**	-.003	.050**	.002	1				
<b>8.Sleep</b>	-.030**	-.015	-.014	-.015	-.037**	.326**	.072**	1			
<b>9.TDV</b>	-.045**	.043**	-.021**	.069**	-.003	-.022**	-.009	-.032**	1		
<b>10.Grades</b>	.062**	.072**	-.114**	-.036**	.019*	.394**	.159**	.431**	-.018*	1	
<b>11.Concentrating</b>	-.017*	.095**	.003	.004	.104**	-.129**	-.014	-.186**	.060**	-.182**	1

\*  $p < .05$ , \*\*  $p < .01$

### Differences in School Grades, Substance Use, Physical Activity, Diet, and Sleep between teens with and those with no TDV Victimization

Independent samples t-tests were conducted to examine whether there are significant mean differences in school grades, substance use, physical activity, diet, and sleep between teens who experienced and those who did not experience TDV victimization. The mean for physical activity for teens with no TDV victimization ( $M = 1.61$ ,  $SD = 1.05$ ) was higher than for those with TDV victimization ( $M = 1.55$ ,  $SD = 1.05$ ), and the difference between the means was statistically significant ( $t(6868.52) = 2.73$ ,  $p < .01$ , two tailed, 95% CI = .0150; .0919). The mean for sleep for teens with no TDV victimization ( $M = 2.14$ ,  $SD = 1.36$ ) was higher than for those with TDV victimization ( $M = 2.04$ ,  $SD = 1.38$ ), and the difference between the means was statistically significant ( $t(14763) = 3.93$ ,  $p < .001$ , two tailed, 95% CI = .0502; .1502). Also, the mean for school grades for teens with no TDV victimization ( $M = 3.41$ ,  $SD = 1.47$ ) was higher than for those with TDV victimization ( $M = 3.35$ ,  $SD = 1.53$ ), and the difference between the means was statistically significant ( $t(6604.42) = 2.10$ ,  $p < .05$ , two tailed, 95% CI = .0040; .1150).

On the contrary, the means for substance use between those who did not experience TDV ( $M = 1.12$ ,  $SD = 1.13$ ) and those who did ( $M = 1.11$ ,  $SD = 1.19$ ), and the mean for diet between those who did not experience TDV ( $M=1.62$ ,  $SD = 1.32$ ) and those who did ( $M= 1.60$ ,  $SD = 1.32$ ) were not statistically significant.

### Association between TDV and Concentration

The results of the chi-square show a significant association between TDV victimization and concentration ( $\chi^2 = 53.30$ ,  $df=1$ ,  $p < .001$ ). See Table 1. 6. More teens who experienced TDV victimization (42.3%) than those who did not experience TDV victimization (35.7%) reported difficulty concentrating. In general, the results indicated that teens who had TDV experience were more poor outcomes than those without TDV in terms of grade, concentration, physical activities, and sleep.

Table 1. 6: TDV-Victimization \* Difficulty Concentrating Cross-tabulation

			TDV Victimization		
			No TDV	TDV	Total
Concentrating	No	Count	6999	2241	9240
		Expected Count	6810.0	2430.0	9240.0
		% within TDV Victimization	64.3%	57.7%	62.6%
	Yes	Count	3883	1642	5525
		Expected Count	4072.0	1453.0	5525.0
		% within TDV Victimization	35.7%	42.3%	37.4%
Total	Count	10882	3883	14765	
	Expected Count	10882.0	3883.0	14765.0	
	% within TDV Victimization	100.0%	100.0%	100.0%	

## Hypotheses Testing

### Research question 1:

#### Risk factors associated with TDV

Logistic regression analyses were conducted to examine the association between demographic characteristics (risk factors) and TDV victimization. The results of the logistic regression revealed four factors emerged as significant predictors of TDV victimization. The factors are age (OR =.844,  $p < .001$ ), gender (female) (OR) =1.218,  $p < .001$ ), ethnicity (Hispanic) (OR) =.864,  $p < .05$ ), and sexual risk behaviors (OR) =1.853,  $p < .001$ ). See Table 1. 7. The model has a good fit (-2 log likelihood =16882.06, Hosmer and Lemeshow,  $\chi^2_{(df=7)}=7.621$ ,  $p = .367$ ). The results of the Cox and Snell and Nagelkerke  $R^2$  indicate that the variables accounted for 0.9 and 1.3 percent of the variance in TDV victimization.

Table 1. 7: Factors associated with TDV victimization

	B	S.E.	Wald	df	Sig.	Exp(B)
Age	-.170	.038	19.598	1	.000	.844
Gender (Female)	.197	.038	27.355	1	.000	1.218
Ethnicity (ref= Other)			6.748	2	.034	
Ethnicity (Black)	-.075	.048	2.421	1	.120	.927
Ethnicity (Hispanic)	-.146	.063	5.314	1	.021	.864
Sexual Risk Behaviors	.617	.078	61.944	1	.000	1.853
Constant	-1.572	.085	344.450	1	.000	.208

a. Variable(s) entered on step 1: Age, Gender, Ethnicity2, and Sexual Risk Behaviors.

## Research Question 2:

### Moderating effect of gender and ethnicity

Moderation analysis using the PROCESS macro 3.3 were performed to test the hypothesis that the relationships between TDV victimization and school grades/concentration difficulty would be moderated by gender, or race/ethnicity (Black, and Hispanic). First, I tested the moderating effect of gender. Table 1. 8 shows the simple moderation model tested while controlling for age, being Black, being Hispanic, and sexual risk behaviors. Results revealed that TDV victimization is a negative predictor of school grades ( $\beta = -.063$ ,  $p < .05$ ). Gender (being female) is a significant positive predictor of school grades ( $\beta = .224$ ,  $p < .001$ ). However, the

interaction between gender and TDV victimization ( $\beta = -.004$ ,  $t(14,757) = -.068$ ,  $p = .945$ ), was not significant. Hence, gender did not moderate the relationship between TDV victimization and school grades.

Also, results revealed that TDV victimization ( $\beta = .260$ ,  $p < .001$ ), and gender (being female) ( $\beta = -.132$ ,  $p = .063$ ) are positive predictors of difficulty concentrating. However, the interactions between being female and TDV victimization ( $\beta = .002$ ,  $z(7) = .023$ ,  $p = .982$ ), was not significant. Hence, gender did not moderate the relationship between TDV victimization and concentration.

Table 1. 8: Moderating effect of Gender on the Relationship between TDV and school outcomes (Grades, and concentration)

	Grade		Concentration	
	Coeff	SE	Coeff	SE
<b>Constant</b>	3.538	0.046	-0.492	0.066
TDV Victimization	-0.063	0.027	0.26	0.039
Gender (female)	0.224	0.024	0.383	0.034
Age	0.197	0.025	-0.053	0.035
Black	-0.62	0.031	0.03	0.044
Hispanic	-0.247	0.04	0.009	0.057
Sexual Risk Behaviors	-0.139	0.043	-0.003	0.062
Gender (Female) * TDV Victimization	-0.004	0.055	0.002	0.077

Table 1. 9 shows the results for the moderating effects of ethnicity on the relationship between TDV victimization and school outcomes (grades, concentration) while controlling for age, sexual risk behaviors, and gender. Results revealed that TDV victimization ( $\beta = -.066$ ,  $p < .05$ ), being Black ( $\beta = -.628$ ,  $p < .001$ ), and being Hispanic ( $\beta = -.255$ ,  $p < .001$ ) are negative predictors of school grades. The interactions between TDV victimization and being Black ( $\beta = -.065$ ,  $t(14,756) = -20.42$ ,  $p = .356$ ), and TDV victimization and being Hispanic ( $\beta = .151$ ,  $t(14,756) = 1.65$ ,  $p = .100$ ) were not significant. Hence, support for moderation of ethnicity was not found. Also, results revealed that TDV victimization ( $\beta = .260$ ,  $p < .001$ ) is a positive



predictor of concentration. Ethnicity was not a predictor of concentration, and also not a moderating factor.

Table 1. 9: Moderating effect of Ethnicity the Relationship on TDV and School Outcomes (Grades, and Concentration)

	Grades		Concentration	
	Coeff	SE	Coeff	SE
<b>Constant</b>	3.43	0.048	-0.692	0.035
TDV Victimization	-0.066	0.033	0.271	0.046
Ethnicity (Black)	-0.628	0.031	-0.194	0.25
Ethnicity (Hispanic)	-0.255	0.04	0.016	0.056
Age	0.197	0.025	-0.053	0.035
Gender	-0.139	0.043	0.382	0.034
Sexual Risk Behaviors	0.223	0.024	0.224	0.253
Ethnicity (Black) * TDV Victimization	-0.065	0.07	-0.061	0.099
Ethnicity (Hispanic) * TDV Victimization	0.151	0.092	0.008	0.129

**Research Question 3:**

**Mediating effects of health-related behaviors (substance use, physical activity, diet, sleep) on the association between TDV victimization and School Outcomes (grades, concentration)**

Multiple mediation analysis was conducted to test the mediating effects of substance use, physical activity, diet, and sleep on the relationship between TDV victimization and school grades, and concentration while controlling for age, gender, ethnicity, and sexual risk behaviors.

**See Tables 1. 10-1. 13.** Model 1 (path c) showed that experiencing TDV victimization was negatively related with school grades ( $\beta = -.063, p < .05$ ). Also, model 1 (path c) showed that experiencing TDV victimization was positively related with difficulty concentrating ( $\beta = .237, p < .001$ ).

## Substance Use

Model 2 (path  $a_1$ ) indicated that experiencing TDV victimization was not associated with substance use. Model 3 (path  $b_1$  and  $c_1$ ) showed that substance use was negatively associated with school grades ( $\beta = -.021$ ,  $p < .05$ ). The relative indirect effects show a non-significant negative effect of substance use on the relationships between experiencing TDV victimization and school grades. **Substance abuse is not a mediator of the relationship between TDV victimization and school grades.**

Model 2 (path  $a_1$ ) indicated that experiencing TDV victimization was not associated with substance use. Model 3 (path  $b_1$  and  $c_1$ ) showed that substance use was positively associated with difficulty concentrating ( $\beta = .200$ ,  $p < .001$ ). The relative indirect effects show a non-significant positive effect of substance use on the relationship between experiencing TDV victimization and difficulty concentrating. **Substance abuse is not a mediator of the relationship between TDV victimization and difficulty concentrating.** See Table 1. 10.

Table 1. 10: Mediating Role of Substance Use on the Relationship between TDV and Grades, and Concentration

	Model 1 (c)		Model 2 (a)		Model 3 (b & c')	
	Grade	Concentration	Grade	Concentration	Grade	Concentration
	b	b	b	b	b	b
Age	.197***	–	0.334***	0.334***	.299***	-.170***
Gender	.224***	–	0.081***	0.081***	.314***	.346***
Ethnicity						
Black	-0.620***	–	-0.126***	-0.126***	-.482***	-0.049
Hispanic	-0.247***	–	0.073*	0.073*	-.311***	0.037
Sexual risk	-.139**	–	-0.258***	-0.258***	-0.035	-0.005
TDV	-.063*	–	0.016	0.016	-0.005	.237***
Substance Use					-0.021*	.200***
Constant	3.4392	–	1.116***	1.116***	1.561***	-0.096
Adjusted R <sup>2</sup>	.037***	–	0.029***	.029***	0.312***	–

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

Note: Independent Variable: TDV Victimization

Dependent Variable: School Grades, Concentration

In model 1, TDV Victimization is predictor, School Grades/ Concentration is outcome

In model 2, TDV Victimization is predictor, Substance Use is outcome

In model 3, TDV Victimization is predictor, Substance Use is mediator and School Grades/ Concentration is outcome

### Physical Activity

Model 2 (path  $a_2$ ) indicated that experiencing TDV victimization was negatively associated with physical activity ( $\beta = -.046, p < .05$ ). Model 3 (path  $b_2$  and  $c_2$ ) showed that physical activity was positively associated with school grades ( $\beta = .424, p < .001$ ). See Table 1.

11. The relative indirect effects show a significant negative effect of physical activity on the relationship between experiencing TDV victimization and school grades ( $\beta = -.019$ , MC CIs intervals =  $-.036; -.003$ ).

**Physical activity is a mediator of the relationship between TDV victimization and school grades.**

Model 2 (path  $a_2$ ) indicated that experiencing TDV victimization was negatively associated with physical activity ( $\beta = -.046, p < .05$ ). Model 3 (path  $b_2$  and  $c_2$ ) showed that physical activity was negatively associated with difficulty concentrating ( $\beta = -.166, p < .001$ ). The relative indirect effects show a significant positive effect of physical activity on the relationship between experiencing TDV victimization and difficulty concentrating ( $b = .008, MC$  CIs intervals =  $.001; -.015$ ). **Physical activity is a mediator of the relationship between TDV victimization and difficulty concentrating.**

Table 1. 11: Mediating Role of Physical Activity on the Relationship between TDV and Grades, and Concentration

	Model 1 (c)		Model 2 (a)		Model 3 (b & c')	
	Grade	Concentration	Grade	Concentration	Grade	Concentration
	b	b	b	b	b	b
Age	.197***	–	-0.188***	-0.188***	.299***	-.170***
Gender	.224***	–	-.206***	-.206***	.314***	.346***
Ethnicity						
Black	-0.620***	–	-0.194***	-0.194***	-.482***	-0.049
Hispanic	-0.247***	–	0.016	0.016	-.311***	0.037
Sexual risk	-.139**	–	-0.199***	-0.199***	-0.035	-0.005
TDV	-.063*	–	-.046*	-.046*	-0.005	.237***
Physical Activity					.424***	-.166***
Constant	3.4392	–	2.043***	2.043***	1.561***	-0.096
Adjusted R <sup>2</sup>	.037***	–	.025***	.025***	0.312***	

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

Note: Independent Variable: TDV Victimization

Dependent Variable: School Grades, Concentration

In model 1, TDV Victimization is predictor, School Grades/ Concentration is outcome

In model 2, TDV Victimization is predictor, Physical Activity

In model 3, TDV Victimization is predictor, Physical Activity is mediator and School Grades/ Concentration is outcome

## **Diet**

Model 2 (path  $a_3$ ) indicated that experiencing TDV victimization was not associated with diet. Model 3 (path  $b_3$  and  $c_3$ ) showed that diet was positively associated with school grades ( $\beta = .157, p < .001$ ). See Table 1. 12. The relative indirect effects show a non-significant negative effect of diet on the relationship between experiencing TDV victimization and school grades.

**Diet is not a mediator of the relationship between TDV victimization and school grades.**

Model 2 (path  $a_3$ ) indicated that experiencing TDV victimization was not associated with diet. Model 3 (path  $b_3$  and  $c_3$ ) showed that diet was not associated with school grades. The relative indirect effects show a non-significant positive effect of diet on the relationship between experiencing TDV victimization and difficulty concentrating. **Diet is not a mediator of the relationship between TDV victimization and difficulty concentrating.**

Table 1. 12: Mediating Role of Diet on the Relationship between TDV and Grades, and Concentration

	Model 1 (c)		Model 2 (a)		Model 3 (b & c')	
	Grade	Concentration	Grade	Concentration	Grade	Concentration
	b	b	b	b	b	b
Age	.197***	–	0.103***	0.103***	.299***	-.170***
Gender	.224***	–	.085**	.085**	.314***	.346***
Ethnicity						
Black	-0.620***	–	.290***	.290***	-.482***	-0.049
Hispanic	-0.247***	–	0.033	0.033	-.311***	0.037
Sexual risk	-.139**	–	0.006	0.006	-0.035	-0.005
TDV	-.063*	–	-0.022	-0.022	-0.005	.237***
Diet					.157***	-0.012
Constant	3.4392	–	1.451***	1.451***	1.561***	-0.096
Adjusted R <sup>2</sup>	.037***	–	.010***	.010***	0.312***	

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

Note: Independent Variable: TDV Victimization

Dependent Variable: School Grades, Concentration

In model 1, TDV Victimization is predictor, School Grades/ Concentration is outcome

In model 2, TDV Victimization is predictor, Diet is outcome

In model 3, TDV Victimization is predictor, Diet is mediator and School Grades/ Concentration is outcome

## Sleep

Model 2 (path a<sub>4</sub>) indicated that experiencing TDV victimization was negatively associated with sleep ( $\beta = -.101, p < .01$ ). Model 3 (path b<sub>4</sub> and c<sub>4</sub>) showed that sleep was positively associated with school grades ( $\beta = .347, p < .001$ ). See Table 1. 13. The relative indirect effects show a significant negative effect of sleep on the relationships between experiencing TDV victimization and school grades ( $b = -.035, MC\ CIs = -.052; -.017$ ). **Sleep is a mediator of the relationship between TDV victimization and school grades.**

Model 2 (path a<sub>4</sub>) indicated that experiencing TDV victimization was negatively associated with sleep ( $\beta = -.101, p < .01$ ). Model 3 (path b<sub>4</sub> and c<sub>4</sub>) showed that sleep was

negatively associated with difficulty concentrating ( $\beta = -.244, p < .001$ ). The relative indirect effects show a significant positive effect of sleep on the relationship between experiencing TDV victimization and difficulty concentrating ( $b = .025, MC\ CIs = .012; .037$ ). **Sleep is a mediator of the relationship between TDV victimization and difficulty concentrating.**

Table 1. 13: Mediating Role of Sleep on the Relationship between TDV and Grades, and Concentration

	Model 1 (c)		Model 2 (a)		Model 3 (b & c')	
	Grade	Concentration	Grade	Concentration	Grade	Concentration
	B	B	B	B	B	B
Age	.197***	–	-.092**	-.092**	.299***	-.170***
Gender	.224***	–	-0.04	-0.04	.314***	.346***
Ethnicity						
Black	-0.620***	–	-.302***	-.302***	-.482***	-0.049
Hispanic	-0.247***	–	.153***	.153***	-.311***	0.037
Sexual risk	-.139**	–	-0.075	-0.075	-0.035	-0.005
TDV	-.063*	–	-0.101**	-0.101**	-0.005	.237***
Sleep					.347***	-.244***
Constant	3.4392	–	2.331***	2.331***	1.561***	-0.096
Adjusted R <sup>2</sup>	.037***	–	0.012***	0.012***	0.312***	

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

Note: Independent Variable: TDV Victimization

Dependent Variable: School Grades, Concentration

In model 1, TDV Victimization is predictor, School Grades/ Concentration is outcome

In model 2, TDV Victimization is predictor, Sleep is outcome

In model 3, TDV Victimization is predictor, Sleep is mediator and School Grades/ Concentration is outcome

## **Summary of Results**

Hypothesis 1 stated that teens being older (16 to 18 years and old), female, minority (Black or Hispanic), engaging in sexual risk behaviors will have an increased likelihood to experience TDV victimization. However, results showed that being female and engaging in sexual risk behaviors are positively associated with TDV victimization, while being older, and Hispanic is negatively associated with TDV victimization. Thus, hypothesis 1 was partially supported.

Hypothesis 2 stated that being female, and those of minority communities (Black/Hispanic) would moderate the relationship between TDV victimization, and school grades, and difficulty concentrating. Results showed that neither gender nor ethnicity moderates this relationship. Hypothesis 2 was not supported.

Hypothesis 3 stated that the relationship between TDV victimization and school grades or concentration would be mediated by health-related behaviors (substance use, physical activity, diet, and sleep). First, physical activity and sleep were mediators in the relationship between TDV victimization and school grades, while substance use and diet were not mediators. Second, physical activity and sleep were mediators in the relationship between TDV victimization and concentration, while substance use and diet were not mediators. Hypothesis 3 was partially supported.



## **CHAPTER 6**

### **Discussion**

Using a nationally representative sample of adolescents across the U.S., the purpose of this study was to examine: (1) risk factors of TDV; (2) the moderating effect of gender or ethnicity on the relationship between TDV victimization and school outcomes (school grades and concentration); and (3) the mediating effect of health-related behaviors on the relationship between TDV victimization and school outcomes. Findings indicate that, first, being female, engaging in sexual risk behaviors, younger, and non-Hispanic was associated with TDV victimization. Second, neither gender nor ethnicity moderates this relationship between TDV victimization and school grades, or concentration. Finally, two health-related behaviors-physical activity and sleep were mediators in the relationship between TDV victimization and school grades, or concentration. This chapter first presents a discussion of the results of the three research questions, followed by implications, and conclusion.

#### **Risk Factors of TDV Victimization**

Consistent with previous studies, this study found that females had an increased likelihood of experiencing TDV victimization (Vagi et al., 2015; Wolitzky-Taylor et al., 2008). For instance, using a national sample of adolescents, Vagi et al. (2015) found that more females than males experience sexual, physical, and both sexual and physical TDV victimization. On the contrary, other studies argue that boys may experience more physical and psychological violence compared to girls (Taylor, & Mumford, 2016). This study's finding that girls have a higher likelihood of experiencing TDV victimization compared to boys may be related to the idea that males are more likely to initiate violence especially out of a need for control as opposed to females who are more likely to act in self-defense (Muñoz-Rivas, Graña, O'Leary, & González,

2007). Another aspect that may explain this higher likelihood of victimization among girls is because of the severity of victimization. Although this study did not examine the severity of TDV experienced, research shows that girls are more likely to report experiencing more severe injuries than boys associated with TDV victimization (Carroll, Raj, Noel, and Bauchner's, 2011). Research has found that boys are less likely to take girls' perpetration of violence seriously and may not report. This implies that future research and intervention should consider these differential experiences in TDV victimization between boys and girls.

Also, this study found that engaging in sexual risk behaviors was found to have an increased risk for TDV victimization. This finding is also consistent with previous studies that have found that engaging in sexual risk behaviors, for example, multiple sexual partners, non-condom use, early sexual debut, and sex under influence increase the possibility of experiencing TDV (Howard & Wang, 2003). While this study did not examine the individual sexual risk behaviors and types of violence, it is possible that abusers may use some sexual risk behaviors as a form of control against their victims. Studies show that boys than girls are more likely to perpetrate sexual dating violence (Hickman, Jaycox, & Aronoff, 2004). It is plausible that engaging in sexual risk behaviors makes individuals vulnerable to victimization.

This study found that older teens (16 to 18 years and older) had a lower likelihood of experiencing TDV victimization. This finding is contrary to previous findings that indicate that older teens are at an increased likelihood of TDV victimization (Bonomi et al., 2012; Coker et al., 2014; Goncy, Farrell, & Sullivan, 2018). Researchers attributed the higher likelihood of experiencing TDV victimization among older teens to the probability that older teens are more likely to be in dating relationships and more likely to report compared to the younger teens (Bonomi et al., 2012; Coker et al., 2014). This finding that older teens are less likely to

experience TDV victimization may be due to their better coping and communication strategies in dealing with differences in their relationships which younger adolescents may lack leading to increased risk of TDV victimization. Zimmer-Gembeck and Petherick (2006) argued that even though some teens in early adolescence navigate dating experiences well, skills necessary for navigating interpersonal situations may not fully develop until late adolescence or even in emerging adulthood.

Furthermore, results indicate that being Hispanic had reduced likelihood of experiencing TDV victimization. Research indicates that racial minority youth, especially, Black and Hispanic have an increased likelihood of experiencing TDV victimization than White teens (CDC, 2012). Also, studies have noted that Hispanic youth experience less TDV victimization compared to their Black counterparts (Noonan & Charles, 2009). Hispanic teens may have protective factors, for example, holding onto Latino cultural norms was found to be a protective factor against TDV experience (Smokowski, David-Ferdon, & Stroupe, 2009).

PBT theory describes risk factors as variables that are associated with a reduced likelihood for positive outcomes (Jessor et al., 1998). This study found that being younger, female, non-Hispanic, and engaging in sexual risk behaviors are associated with TDV victimization. These findings highlight a need for prevention programs that target these risk profiles to avert potential victimization.

### **Moderating Role of Gender/Ethnicity**

Gender and ethnicity did not modify the effect of TDV victimization on schools outcomes. Specifically, being female, or Black or Hispanic does not modify the effect of TDV victimization on grades or concentration. It is possible that gender did not modify this relationship between TDV victimization and school outcomes due to how TDV was measured

(i.e., combined to *yes/no* responses that combined physical and sexual TDV victimization). Some research shows that both boys and girls experience TDV and differences in TDV victimization experience is based on the severity of injuries with girls experiencing more severe violence compared to boys (Muñoz-Rivas, Graña, O’Leary, & González, 2007; Wolitzky-Taylor et al., 2008). While no study known has focused on this relationship, the current findings resonate with studies that have found no differences in TDV experiences based on gender (O’Leary et al., 2008; Sears et al., 2006). Also, Temple, & Freeman (2011) found no difference in TDV victimization in African American, White, and Hispanic teens. It is possible that differences in TDV experiences would be captured by including other demographic factors that indicate structural disadvantages which increase negative outcomes among teens from minority teens, such as, income, education, and residential area. These findings suggest that interventions for teens should target all genders and ethnicities.

### **Mediating effect of Physical Activity, Sleep, Substance Use, and Diet**

PBT theory proposes that problem behaviors in the behavior system covary, but are negatively associated with conventional behaviors. This study assumed that the relationship between TDV and school outcomes occur through health-related behaviors. Thus, this study examined physical activity, sleep, substance use, and diet as the mediators in the relationship between TDV and school outcomes because these are behaviors that have been adversely mentioned in studies. First, I discuss the relationships between TDV victimization and school outcomes followed by mediation effects where I explore relationships between TDV and health-related behaviors, health-related behaviors and school outcomes, and finally mediation where mediation was present.

### **TDV and School Outcomes**

This study found that TDV victimization had an effect on school grades, and concentration. Specifically, TDV victimization was associated with lower school grades and more difficulty in concentration. This finding is consistent with previous research that found associations between TDV victimization and poor grades (Banyard & Cross, 2008; Chronister et al. 2014; Edwards & Neal, 2017; Eaton, Davis, Barrios, Brener & Noonan, 2007), as well as difficulty concentrating (Chronister et al. 2014). However, Foshee et al., (2013) found that physical victimization did not lead to a drop in grades, while, Martz et al., (2016) found that the decline in grades happened only for girls, not for boys. Chronister and colleagues (2014) elucidate that teens who experience TDV victimization may prioritize their school work and maintain good grades so as not to cause concern about their declining performance and draw attention to their TDV experience which they may be keeping away from their parents. There is a possibility that experiencing TDV victimization may affect cognitive functioning hence interfere with concentrating in class and academic performance as seen through poor grades. TDV victimization is also associated with negative mental health outcomes such as, depression, anxiety, self-harm, and suicidality (Ackard, Eisenberg, & Neumark-Sztainer, 2007; Edwards & Neal, 2017) which may interfere with student's class concentration and academic performance.

### **TDV, Physical Activity, and School Outcomes**

This study found that experiencing TDV victimization was negatively associated with physical activity. This finding supports previous studies which found that teens who experience TDV victimization may not engage in physical activities such as team sports and other extra-curricular activities (Chronister et al., 2014). Chronister et al. (2014) found that this non-participation in physical activities may be due to diminished motivation as well as interference

by abusive partners. The experience of TDV may limit an individuals' motivation to participate in activities they once felt strongly about due to social isolation as a result of depression and low self-esteem that often accompanies TDV. On the contrary, Chronister and colleagues (2014) also reported that some teens who experience TDV might engage in extra-curricular activities against their will, i.e., due to pressure from their abusive partners.

Physical activity had a positive effect on school grades and a negative effect on concentration. This means that as teens engaged in more physical activity, their school grades were better, and they had less difficulty concentrating in class. These findings provide support for studies that have shown that teens who engage in sports teams, PE, and other physical activities reported better grades, school connectedness, and attentiveness in class (Kim, & So, 2012; Rasberry et al., 2011). However, there is limited evidence on the relationship between physical activity and school grades (Rees & Sabia, 2010; Taras, 2005). Physical activity may have a positive effect on the cognitive abilities of teens (Arday et al., 2016; Wolitzky-Taylor et al., 2008) thus enhancing their ability to concentrate in class and excel in tests.

Physical activity was found to be a mediating factor in the relationship between TDV victimization and school outcomes. First, TDV victimization had a significant effect on school grades through physical activity. Perhaps, teens who experienced TDV victimization were less likely to engage in physical activity which led to poor grades. Second, TDV victimization had a significant effect on concentration through physical activity. This implies that teens who experience TDV victimization may not engage in physical activity hence have difficulty concentrating in class. Researchers argued that physical activity has buffering effects even for teens who have experienced TDV victimization. For example, physical activity leads to improved cognitive functioning and sleep patterns (Brand et al., 2010), high self-esteem, and less

involvement in high risk behaviors (Nelson, & Gordon-Larsen, 2005) which are essential for concentration in class as well as good grades that may be lacking when teens experience TDV victimization.

### **TDV, Sleep, and School Outcomes**

TDV had a negative effect on sleep, TDV victimization experience was associated with fewer hours of sleep on school nights. This finding supports previous research which found that TDV was associated with a host of sleep problems such as inability to fall or stay asleep, waking up several times at night, and insufficient sleep (Zhabenko et al., 2016). Sleep problems indicate trauma. Zhabenko and colleagues (2016) attributed sleep problems among teens who have experienced TDV to depression. Teens who experience TDV victimization may be traumatized by the experiences hence end up sleeping fewer hours than expected.

Students who had more sleep had better grades and no difficulty concentrating in class. Similarly, previous studies show that teens who have sleep problems and disturbances tend to have poor grades (Wong et al., 2013) and difficulty concentrating in class (National Sleep Foundation, 2013). While previous studies found a significant negative impact of sleep on grades and concentration, it is worth noting that most studies have focused on a variety of sleep problems such as delayed sleep, restless legs when trying to sleep, oversleeping, and sleepiness in school (Pagel et al., 2007; Sivertsen et al., 2015; Wolfson & Carskadon, 2003). However, one study that focused on Korean teens found that fewer hours of sleep led to sleepiness in school and eventually poor grades (Shin et al., 2003). Therefore, this study contributes to the literature by adding the relevance of the number of hours of sleep to teens' academic achievement

Sleep, in this study, was found to be a mediating factor in the relationship between TDV victimization and school grades, and concentration. First, TDV victimization had a significant

effect on school grades through sleep. Second, TDV victimization had a significant effect on concentration through sleep. Teens who experienced TDV victimization were less likely to have enough hours of sleep leading to poor school grades and difficulty concentrating in class. While there is limited literature in this relationship among TDV, sleep, and school outcomes, Chronister et al. (2014) found that TDV victimization may bring disruptions in sleep patterns hence significantly impact school grades and attendance. Chronister and colleagues reported that some girls indicated that their abusive partners would keep them awake to escort them to work thus interfering with their sleep which eventually affected their grades. Also, other studies have associated sleep problems with trauma; experiencing TDV victimization may be traumatic. Researchers indicate that sleep problems have a significant relationship with anxiety, depression, and substance use (Saxvig et al., 2012; Zhabenko et al., 2016) which may negatively impact school outcomes. This is the first quantitative study to examine the mediating effect of TDV on the relationship between TDV and school outcomes.

### **TDV, Substance Use, and School Outcomes**

First, unlike previous studies that have found an association between experiencing TDV victimization and substance use (Baker, 2016; Chronister et al., 2014; Edwards & Neal, 2017; Foshee, Reyes, Gottfredson, Chang & Ennett, 2013), this study found that TDV did not have a significant effect on substance use. Specifically, TDV victimization had a non-significant positive effect on substance use. This implies that though experiencing TDV victimization is positively related to an increase in substance use, the difference is minimal. This is evidence that substance use has no mediating effect on the relationship between TDV victimization and school outcomes. This non-significance may be due to combining the types of TDV, and the various substance use options since most previous studies have looked at the individual effects of



physical TDV or sexual TDV (Parker & Bradshaw, 2015) or both types of TDV (physical and sexual) on individual substances (e.g., alcohol use, marijuana, inhalant use). Some differences in the impact of TDV on substance use may be attributed to aspects not explored in this study such as differences in gender –mostly female (Huffhines et al., 2014), type of victimization, and type of substance. For example, Howard and Wang (2003) found an association between physical dating violence among girls and binge drinking and inhalant use or cocaine.

This study found that substance use had a negative effect on school grades and concentration. Other studies have found similar associations between substance use and school outcomes, especially, cigarette smoking, alcohol, marijuana, and inhalants (Balsa, Giuliano, & French, 2011; Barry, Chaney, & Chaney, 2011; Crosnoe, Benner, & Schneider, 2012). However, unlike the findings in this study, Balsa, Giuliano, and French (2011) found that alcohol had different effects on males and females. Balsa and colleagues found that alcohol affected GPAs in males, but for females, it led to a suspension, missing school, lower concentration in class and incomplete homework. Most previous studies that studied the relationship between substance use and academic outcomes focused on individual substances as opposed to combining the substances, and still found the negative effect of substance use on school outcomes. These findings imply that substance use interferes with individual functioning thus impacting the ability to concentrate in class as well as perform well in class as evidenced by poor grades. Also, it is possible that teens may also skip school to engage in substance use activities which may negatively affect their grades.

### **TDV, Diet, and School Outcomes**

This study found that TDV victimization did not have a significant effect on diet. This finding is an indicator that diet has no mediating effect on the relationship between TDV

victimization and school outcomes. Though previous studies have found that teens who have experienced TDV victimization struggle with maintaining a healthy diet, especially, engaging in unhealthy weight control such as, diet pills, laxatives, vomiting and fasting (Ackard & Neumark-Sztainer, 2002), and unhealthy eating habits (Chronister et al., 2014), no study has explored specific diets, such as, eating breakfast, vegetables, fruit, and green salads. This study finding suggests that teens who experience and those who do not experience TDV may equally have challenges maintaining a healthy diet.

Also, in this study, findings indicate that diet had a positive effect on school grades, and a negative effect on concentration, i.e., a healthy diet was associated with higher grades up, and no difficulty concentrating. These findings are consistent with past research which has shown that teens who have breakfast, three meals a day and a regular intake of fruits have better attendance, concentration, and grades compared to their counterparts who lacked in those areas (Ogunsile, 2012; Rampersaud et al., 2005). These findings highlight the important role of nutrition among teens in enhancing their school outcomes.

### **Strengths and Limitations**

This study used secondary data based on a national sample that is diverse which provides room for generalizability of the study findings to a larger population. The larger sample size provides statistical power for the researcher to employ various statistical analyses. Also, the use of secondary data is economical as it saves the researcher time and money that would be used in collecting and preparing data from such a large sample. Especially, collecting data on risk behaviors of youth would be tedious especially because of the IRB clearance needed to collect such data among teens who would need parental/guardian assent.

Despite the numerous benefits of using secondary data for understanding social problems like TDV, its use also presents several limitations. First, since the researcher did not collect data for this study, the researcher had to work with whatever variables were available. In some cases, as in this study, the variables may not match the researcher's ideal. For example, the researcher wanted to use attendance as a third school outcome but, the question on attendance in the survey asked whether students did not attend school due to safety concerns as opposed to explicitly asking about safety concerns related to TDV victimization. Other variables include exposure to violence, such as, childhood maltreatment, previous victimization, and peer victimization which are all associated with TDV victimization. Thus, the researcher is limited in what she can do with the variables. Also, the researcher created multiple composite scores for variables (sexual risk behaviors, substance use, physical activity, and diet) and for some especially, diet had low reliability (Cronbach's alpha = .661) which could have contributed to non-significance.

Even though students had an assurance of confidentiality, it is worth noting that teachers administer the surveys and required students to report about their sexual experiences, dating violence experiences, alcohol and drug use, and other risky behaviors. Brener, Billy, and Grady (2003) argue that adolescents tend to over-report or under-report some health behaviors depending on whether they are desirable or undesirable. Due to the nature of these questions, students may not respond truthfully to the questions or may be tempted to respond in a way that they feel would be appealing, hence may threaten validity.

In addition, it is very common that students who engage in most risky behaviors may have dropped out of school, and thus, many risky behaviors may be underreported in this YRBS data since the YRBS only collects data through schools. For example, Balsa et al. (2011) found that teens who engaged in substance use were at increased risk of drop out. Furthermore, the

YRBS is conducted in English, which may present a language barrier to students who do not speak English as a first language especially those who may have just relocated to the country. Finally, due to the cross-sectional nature of the study, I can only assume associations that preclude conclusions about the causality of these relationships. For example, previous studies have found that TDV victimization is a risk factor for sexual risk behaviors (Silverman, Raj, & Clements, 2004; Vagi et al., 2014). Also, Ramisetty-Mikler and colleagues found that substance use is a risk factor for TDV victimization (2006). This calls for future researcher to establish causal relationships.

Despite these limitations, this study explored relationships that have not been explored before, i.e., the mediating effect of multiple health-related behaviors on the relationship between TDV victimization and two school outcomes. Specifically, most previous studies on TDV have focused on the relationship between TDV and individual health-related behaviors especially, substance use. Also, most studies on TDV and school outcomes have significantly examined school grades. Therefore, this study extends our knowledge of the impact of TDV by examining the different mediating effects and adding support to our evidence that the relationship between TDV and school grades and concentration happens through physical activity and sleep.

### **Implications for Practice**

The study's findings have implications for social workers and teachers as they work with teens in school settings known to have high rates of TDV. The significance of these relationships among TDV, health-related behaviors, school outcomes implies that social workers and teachers may want to consider these health-related behaviors especially physical activity and sleep in understanding and to intervene with adolescent issues in academic and social settings. TDV victimization is associated with problems in school grades and concentration through physical

activity and sleep. Thus, teachers and social workers should take the time to understand the role of health-related behaviors in academic performance and become advocates for the implementation of school-wide policies that require active participation in physical activity, and teaching teens how sleep affects their productivity. Teachers may also advocate for delayed school start times (Noland, Price, Dake, & Telljohann, 2009), and a manageable amount of homework on school nights.

When working with teens who have experienced TDV, social workers should also assess for health-related behaviors, including physical activity, and sleep, that may have an impact on their school outcomes. There is a need for innovative psychoeducational interventions, specifically designed to raise awareness and affect attitudes toward positive physical activity and sleep behaviors, among teens who have experienced TDV to improve their school outcomes. Also, it is vital that practitioners working with teenagers screen for these health-related behaviors when working with teens who have experienced TDV in order to avert adverse school outcomes.

Moreover, social workers and teachers should consider working with parents in implementing some preventive measures such as enforcing sleep routines for adolescents and encouraging teens to engage in physical activity when they are not in school. Finally, according to social learning theory, teens tend to imitate the behavior of their models. Teachers, social workers, and other school personnel can influence social norms in schools by modeling healthy lifestyles and integrating these practices into the curriculum. Parents may influence a teen's social norms by modeling positive relationships with their partners, integrating physical activity in their routines, and setting and adhering to healthy sleep patterns. This way teens may more easily adopt such behaviors in their daily routines.

## **Implications and Recommendations for Future Research**

Health-related behaviors are at the intersection of TDV and school outcomes, and thus, it is crucial that researchers pay attention to the role that health-related behaviors play in school outcomes in teens who experienced TDV. More studies should focus on the experience of TDV in males and females as both genders experience TDV; the impact of TDV may be felt differently by males and females. It is equally essential for researchers to explore the severity of violence since this is one aspect that research (Hird, 2000) has shown to bring the difference in TDV victimization experiences between males and females. Also, females in other studies have reported that they are more likely to be terrified and have an intense emotional reaction to TDV victimization (Barter, 2009; Davis, 2008). Similarly, future research should explore the individual impacts of sexual, and physical TDV victimization, substance use (such as alcohol, marijuana, synthetic marijuana), and dietary behaviors (such as, eating regular breakfast, vegetables, fruit) because previous studies have found associations amongst these behaviors, and how health-related behaviors may mediate outcomes differently.

Furthermore, since some of the studies reviewed herein show that TDV may either have a causal effect on health-related behaviors or vice-versa, and this study found a possible causal link between TDV and school outcomes, there is a need for researchers to establish whether TDV precedes health-related behaviors. This may be done by conducting more longitudinal studies or asking direct questions on what event preceded the other when conducting cross-sectional studies. In addition, more research should explore the context of TDV victimization, such as family conflict, individual and peer perceptions of intimate relations, and peer relationships, in order to know where to direct prevention efforts.

Most studies on the relationships between TDV, health-related behaviors, and school outcomes overly address substance use behaviors and grades. There is a need for more research on various health-related behaviors especially physical activity and sleep, and other school outcomes such as concentration due to the important role they play in adolescents' wellbeing. Also, the non-significant findings in the moderating effects of ethnicity despite research findings that support significant differences in TDV experiences by ethnicity, calls for the inclusion of other demographic factors that could influence TDV experiences such as standards of living such as zip codes, and income level. Guerra and Williams (2006) argue that concentrated disadvantages, danger, inequality, and oppression rather than ethnicity produce heightened rates of violence in many ethnic communities. Similarly, teens who stayed in less traditional households, i.e., households with one parent or grandparents (mostly among ethnic minority) were more likely to engage in problem behavior (Temple, & Freeman, 2011). Therefore, including other contextual factors would improve our understanding of differences in TDV experiences across ethnicities and how the moderators may operate differently among diverse populations.

### **Implications for Policy**

TDV does not have a stand-alone policy and funding programs at the federal level. However, the society has made progress in including TDV issues in conversations about IPV and made provisions through VAWA as well as mandates to states to have policies that address TDV. States, in turn, require schools to implement state policies on TDV as well as have programs in place to address this social problem (Hoefler, Black, and Ricard, 2015). Despite the progress, there is more that needs to be addressed. For example, according to *Break the Cycle* report card (2010), only 41 states allowed victims of dating violence access to protective orders.

Furthermore, a recent study by Black, Ravi, and Hoefler (2019) found that only 26 states mandate schools to have TDV policies, and there are significant disparities in what states require of school policies and programs on TDV violence. For example, some states require schools to have TDV policies, while others require schools to have protocols for reporting. Also, some states require schools to have TDV content in the curriculum, and others mandate schools to provide training to personnel (Black, Ravi & Hoefler, 2019). Thus, there is much more to be done at the state policy level to address TDV because of the capacity they have to create mandates and oversee implementation.

This study found that sleep and physical activity have a significant role in the relationship between TDV and school outcomes. Most programs that address TDV in school settings focus on healthy relationships, the impact of substance use, and grades. Policymakers can have a significant role in ensuring that these health-related behaviors (especially, physical activity and sleep) that impact school outcomes are included in the curriculum on TDV. In recent years, policymakers have advocated for the inclusion of physical activities and lunch programs in schools. However, there is a tendency to exclude these programs whenever the budget is tight, and some programs need to be cut (Farrelly, Niederdeppe, & Yarsevich, 2003).

Schools have a significant role in not only enhancing academic achievement but also implementing relevant policies that influence the overall wellbeing of students. The majority of the worst TDV incidents happens on school grounds (Molidor, Tolman, & Kober, 2000), and also, school environments may contribute to TDV by providing weak sanctions against disrespectful behavior, bullying and sexual harassment (Pellegrini, 2002). Additionally, some states require or urge schools to develop curricula and policies around TDV (Break the Cycle, 2010), but, none include diet, sleep, or physical activity. These policies and programs need to



include health-related behaviors in prevention and intervention planning. Furthermore, policies should mandate schools to not only create policies and programs on TDV but also to provide a supportive environment for these policies and programs to thrive.

Meyer and Stein (2004) recommend integration of prevention strategies into the curriculum as opposed to offering separate programs. Integration would allow all students to be exposed to resources they may need as well as reduce stigmatization that may come with participation in particular programs meant for victims of violence. Therefore, it is essential that policymakers collaborate with educators and practitioners in creating inclusive policies that would address TDV, health-related behaviors, and school outcomes.

### **Implications for Theory**

This study is the first to use PBT to examine the mediating effect of health-related behaviors on the relationship between TDV victimization and school outcomes. In particular, substance use has received much attention as a health-related behavior that tends to occur with TDV, and thus, this study extends the focus by exploring physical activity, sleep, and concentration using causal models. A significant strength of PBT that is not captured by most theories that address TDV is that PBT considers the relationship between TDV and other problem behaviors (health-related behaviors- substance use, physical activity, diet, and sleep), risk factors, and conventional behaviors (school grades and concentration). The findings in the study reinforce the notion of PBT –that, risk factors/ problem behaviors cluster together. Precisely, young age, being female, and engaging in sexual risk behaviors clustered together, and TDV victimization, physical activity, and sleep clustered together.

The findings suggest proneness to behavior problem in the behavior system, in that, TDV victimization co-varies with health-related behaviors (i.e., physical activity and hours of sleep)

leading to less involvement in conventional behaviors (i.e., academic achievement). Teens who experience TDV victimization engage in health-related behaviors which are health-compromising (less physical activity, fewer hours of sleep). This is consistent with previous studies which found that TDV is a problem behavior that may co-occur with health-related behaviors (Choi et al., 2017), and health-related behavior may impact conventional behaviors (academic achievement) (Cox et al., 2007).

Furthermore, the findings suggest that health-related behaviors may act as protective factors for teens who have experienced TDV victimization. Such that, teens who engage in physical activity and get enough hours of sleep on school nights would have higher school grades, and not have less difficulty concentrating. Evidence suggests that sleep and physical activity is related to other health behaviors other than TDV and school outcomes. For example, studies found that teens who reported having sufficient sleep did not have a depressed mood, sleepiness, or caffeine consumption (Boergers, Gable, & Owens, 2014), unintentional injuries, stress, and obesity (Noland, Price, Dake, & Telljohann, 2009). While physical activity has been shown to decrease disruptive behavior in school (Trudeau, & Shephard, 2008), emotional distress, suicidality (Harrison et al., 2003), and improve emotional regulation (Hansen et al., 2003). These study findings highlight the relevance of including physical activity and sleep in school-based prevention programs for academic performance.

PBT has other concepts that were not used in this study (contextual factors) that are important in explaining TDV experience especially, parental support, home climate, peer-influence, and personal belief structure (Jessor, 1987). Thus, future focus on TDV using PBT should consider including these variables. Also, since this study considers risk factors, future

studies will find it helpful to include protective factors of TDV victimization in order to understand what individual characteristics protect teens against the threat of TDV victimization.

PBT adequately applied to this study. However, researchers should be careful when applying PBT to TDV victimization to examine TDV as a social problem as opposed to a deviance perspective which may pathologize victims. Also, PBT was built in person and the environment concept, and thus, it would be beneficial to include some contextual factors to capture TDV victimization experiences.

### **Implications for Social Work Education**

Social workers work with teens both in school and in other settings. Social work education plays a significant role in educating prospective practitioners about the needs of the clientele. This goal of delivering information to students may not be achieved without the cooperation of social work programs and faculty who focus on intimate partner violence research. A study of TDV content in the social work curriculum showed that most social work programs include little to no TDV content in their curriculum (Black & Ombayo, 2018). Thus, social work programs should consider including TDV content in their curriculum and highlight these complex relationships that exist amongst TDV victimization, health-related behaviors, and school outcomes.

Social work education should also prepare future social workers to intervene when dealing with teens in TDV situations. However, a study on the knowledge of MSW students to intervene in TDV situations showed that most MSW graduates could not adequately intervene when working with teens who have experienced TDV victimization (Rueda, Hawley, Black, & Ombayo, 2017). Additionally, while learning about TDV interventions, social work students should be provided with content on evidence-based interventions, such as safety planning as a

first step to the intervention process (Ravi, Black, & Rueda, 2018). Therefore, social work students should be provided with TDV scenarios and service learning in agencies so they can have opportunities to work with potential issues and decisions they will encounter in practice. Offices of field practice within social work programs should liaise with agencies within the community to provide more opportunities for field practicum for students.

### **Conclusion**

TDV victimization is an important social problem that has a significant negative impact on health-related behaviors and school outcomes. The only study known to examine relationships among TDV victimization, health-related behaviors, and school outcomes was based on a qualitative design. This study is the first quantitative study based on a national survey -YRBS 2017 to explore these relationships. The purpose of this study was to examine the risk factors of TDV victimization, the moderating effect of gender or ethnicity on the relationship between TDV victimization and school outcomes, and the mediating effects of health-related behaviors on the relationship between TDV victimization and school outcomes. Findings indicate that first, being younger, female, non-Hispanic, and engaging in sexual risk behaviors were risk factors for TDV victimization. Second, neither gender nor ethnicity moderates the relationship between TDV victimization and school outcomes. Third, physical activity and sleep mediate the relationship between TDV victimization and school outcomes.

This study provides generalizable findings and implications for prevention and intervention research initiatives. This study provides evidence of a cluster of risk factors that predispose teens to TDV victimization which affects health-related behaviors and school outcomes. Health-related behaviors are at the center of TDV victimization and academic

achievement, and thus, school-based TDV prevention programs should include content on physical activity and sleep in the curriculum when addressing healthy relationships.

All stakeholders in prevention programs should focus on engaging all teens while paying attention to teens who have risk profiles. Separate TDV prevention strategies should be made for girls and boys. Furthermore, the findings of the mediating role of physical activity and sleep have implications for adolescents, may be an important consideration when working with women who have been abused in shelters. IPV shelters might consider instituting physical activities in the daily routines of residents.

These findings emphasize a need for collaborative efforts between all parties involved (i.e., teens, parents, teachers, social workers, schools, and policymakers) to enhance prevention and intervention efforts. Researchers have a critical role in establishing causality to adequately inform prevention and prevention initiatives to address TDV.

## References

- Ackard, D. M., & Neumark-Sztainer, D. (2002). Date violence and date rape among adolescents: Associations with disordered eating behaviors and psychological health. *Child Abuse and Neglect*, 26(5), 455-473.
- Ackard, D. M., Eisenberg, M. E., & Neumark-Sztainer, D. (2007). Long-term impact of adolescent dating violence on the behavioral and psychological health of male and female youth. *The Journal of pediatrics*, 151(5), 476-481. Chicago
- Acock, A. C. (2005). Working with missing values. *Journal of Marriage and Family*, 67(4), 1012-1028.
- Anderson, K. L. (2002). Perpetrator or victim? Relationships between intimate partner violence and well-being. *Journal of Marriage and Family*, 64(4), 851-863.
- Arday, D. N., Fernández-Rodríguez, J. M., Jiménez-Pavón, D., Castillo, R., Ruiz, J. R., & Ortega, F. B. (2014). A Physical Education trial improves adolescents' cognitive performance and academic achievement: the EDUFIT study. *Scandinavian Journal of Medicine & Science in Sports*, 24(1), e52-e61.
- Arriaga, X. B., & Foshee, V. A. (2004). Adolescent dating violence: Do adolescents follow in their friends', or their parents', footsteps? *Journal of interpersonal violence*, 19(2), 162-184.
- Baker, C. K. (2016). Dating violence and substance use: Exploring the context of adolescent relationships. *Journal of Interpersonal Violence*, 31(5), 900-919. doi: 10.1177/0886260514556768
- Baker, C., & Stein, N. (2016). Obscuring gender-based violence: Marriage promotion and teen dating violence research. *Journal of Women, Politics and Policy*, 37(1), 87-109.

- Ball, B., Holland, K. M., Marshall, K. J., Lippy, C., Jain, S., Souders, K., & Westby, R. P. (2015). Implementing a targeted teen dating abuse prevention program: challenges and successes experienced by expert respect facilitators. *Journal of Adolescent Health, 56*(2), S40-S46.
- Ball, B., Kerig, P. K., & Rosenbluth, B. (2009). Like a family but better because you can actually trust each other. *Health Promotion Practice, 10*(1\_suppl), 45S-58S.
- Balsa, A. I., Giuliano, L. M., & French, M. T. (2011). The effects of alcohol use on academic achievement in high school. *Economics of Education Review, 30*(1), 1–15.  
<http://doi.org/10.1016/j.econedurev.2010.06.015>
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs: Prentice-Hall.
- Bandura, A., Ross, D., & Ross, S. A. (1963). Imitation of film-mediated aggressive models. *The Journal of Abnormal and Social Psychology, 66*(1), 3.
- Banyard, V. L., & Cross, C. (2008). Consequences of teen dating violence: Understanding intervening variables in ecological context. *Violence against Women, 14*, 998-1013. doi: 14/9/998 [pii] 10.1177/1077801208322058
- Banyard, V. L., Moynihan, M. M., & Plante, E. G. (2007). Sexual violence prevention through bystander education: An experimental evaluation. *Journal of Community Psychology, 35*(4), 463-481.
- Barrera, M., Biglan, A., Ary, D., & Li, F. (2001). Replication of problem behavior model with American Indian, Hispanic, and Caucasian youth. *Journal of Early Adolescence, 21*, 133-157.

- Barry, A. E., Chaney, B., & Chaney, J. D. (2011). The impact of truant and alcohol-related behavior on educational aspirations: a study of US high school seniors. *Journal of school health*, 81(8), 485-492.
- Barter, Christine. 2009. "In the Name of Love: Partner Abuse and Violence in Teenage Relationships." *British Journal of Social Work* 39:211–233.
- Bell, K. M., & Naugle, A. E. (2008). Intimate partner violence theoretical considerations: Moving towards a contextual framework. *Clinical psychology review*, 28(7), 1096-1107.
- Best, D., Manning, V., Gossop, M., Gross, S., & Strang, J. (2006). Excessive drinking and other problem behaviours among 14–16-year-old schoolchildren. *Addictive behaviors*, 31(8), 1424-1435.
- Black, M. C., Noonan, R., Legg, M., Eaton, D., & Breiding, M. J. (2006). Physical dating violence among high school students—United States, 2003. *Morbidity and Mortality Weekly Report*, 55, 532-535.
- Black, B., Ravi, K., & Hoefler, R., (2019). *Determining Strong School TDV Policy: Testing A Comparative State Internal Determinants Model*. Conference Presentation.
- Black, B. & Ombayo, B. (2018). Do MSW programs address teen dating violence content? *Journal of Social Work Education*
- Boergers, J., Gable, C. J., & Owens, J. A. (2014). Later school start time is associated with improved sleep and daytime functioning in adolescents. *Journal of Developmental & Behavioral Pediatrics*, 35(1), 11-17.
- Bonomi, A. E., Anderson, M. L., Nemeth, J., Bartle-Haring, S., Buettner, C., & Schipper, D. (2012). Dating violence victimization across the teen years: Abuse frequency, number of abusive partners, and age at first occurrence. *BMC Public Health*, 12(1), 637.



- Brand, S., Gerber, M., Beck, J., Hatzinger, M., Pühse, U., & Holsboer-Trachsler, E. (2010). High exercise levels are related to favorable sleep patterns and psychological functioning in adolescents: a comparison of athletes and controls. *Journal of Adolescent Health, 46*(2), 133-141.
- Break the Cycle. (2010). *State law report cards*. Retrieved from <https://www.breakthecycle.org/sites/default/files/pdf/2010-Dating-Violence-State-Law-Report-Card-Full-Report.pdf>
- Brener, N. D., Billy, J. O., & Grady, W. R. (2003). Assessment of factors affecting the validity of self-reported health-risk behavior among adolescents: evidence from the scientific literature. *Journal of adolescent health, 33*(6), 436-457.
- Burton, J. M., & Marshall, L. A. (2005). Protective factors for youth considered at risk of criminal behaviour: Does participation in extracurricular activities help? *Criminal Behaviour and Mental Health, 15*, 46-64.
- Button, D. M., & Miller, S. L. (2013). Teen dating relationships and outcomes of well-being: Examining gender differences in nonviolent and violent dating relationships. *Women & Criminal Justice, 23*(3), 247-265.
- Callahan, M. R., Tolman, R. M., & Saunders, D. G. (2003). Adolescent dating violence victimization and psychological well-being. *Journal of Adolescent research, 18*(6), 664-681.
- Carroll, B. C., Raj, A., Noel, S. E., & Bauchner, H. (2011). Dating violence among adolescents presenting to a pediatric emergency department. *Archives of pediatrics & adolescent medicine, 165*(12), 1101-1106.

Centers for Disease Control and Prevention. (2012, June 8). Youth risk behavior Surveillance- United States, 2011. *Morbidity and Mortality Weekly Report*, 61(4).

Centers for Disease Control and Prevention (2015, June 4). *How much physical activity do children need?* Retrieved from:

<https://www.cdc.gov/physicalactivity/basics/children/index.htm>

Centers for Disease Control and Prevention. (2016). Understanding teen dating violence: Fact sheet. *Injury Center: Violence Prevention*. Retrieved from:

<https://www.cdc.gov/violenceprevention/pdf/teen-dating-violence-factsheet-a.pdf>

Centers for Disease Control and Prevention. Understanding teen dating violence: fact sheet, 2014. Retrieved from:<https://www.cdc.gov/violenceprevention/pdf/teen-dating-violence-factsheet-a.pdf>

Choi, H. J., & Temple, J. R. (2016). Do gender and exposure to interparental violence moderate the stability of teen dating violence? Latent transition analysis. *Prevention science*, 17(3), 367-376.

Choi, H. J., Elmquist, J., Shorey, R. C., Rothman, E. F., Stuart, G. L., & Temple, J. R. (2017). Stability of alcohol use and teen dating violence for female youth: A latent transition analysis. *Drug and Alcohol Review*, 36(1), 80-87. doi:10.1111/dar.12462

Chronister, K. M., Marsiglio, M. C., Linville, D., & Lantrip, K. R. (2014). The influence of dating violence on adolescent girls' educational experiences. *The Counseling Psychologist*, 42(3), 374-405. doi: 10.1177/0011000012470569

Cicchetti, D., & Rogosch, F. A. (2002). A developmental psychopathology perspective on adolescence. *Journal of Consulting and Clinical Psychology*, 70(1), 6-20.  
doi:10.1037/0022-006X.70.1.6

- Coker, A. L., Clear, E. R., Garcia, L. S., Asaolu, I. O., Cook-Craig, P. G., Brancato, C. J., & ... Fisher, B. S. (2014). Dating violence victimization and perpetration rates among high school students. *Violence Against Women*, 20(10), 1220-1238. doi: 10.1177/1077801214551289
- Connolly, J., Craig, W., Goldberg, A., & Pepler, D. (2004). Mixed-gender groups, dating, and romantic relationships in early adolescence. *Journal of Research on Adolescence*, 14(2), 185-207.
- Cooper, S. B., Bandelow, S., & Nevill, M. E. (2011). Breakfast consumption and cognitive function in adolescent schoolchildren. *Physiology and Behavior*, 103(5), 431-439.
- Cox, R. G., Zhang, L., Johnson, W. D., & Bender, D. R. (2007). Academic performance and substance use: findings from a state survey of public high school students. *Journal of School Health*, 77(3), 109-115.
- Crosnoe, R. (2006). The connection between academic failure and adolescent drinking in secondary school. *Sociology of Education*, 79(1), 44-60. doi: 10.1177/003804070607900103
- Crosnoe, R., Benner, A. D., & Schneider, B. (2012). Drinking, socioemotional functioning, and academic progress in secondary school. *Journal of Health and Social Behavior*, 53(2), 150–164. <http://doi.org/10.1177/0022146511433507>
- Davis, Antoinette. 2008. “Interpersonal and Physical Dating Violence among Teens.” *Focus: Views from the National Council on Crime and Delinquency*, September: 1–8.

- Donovan, J. E., Jessor, R., & Costa, F. M. (1991). Adolescent health behavior and conventionality-unconventionality: An extension of problem-behavior therapy. *Health Psychology, 10*(1), 52.
- Earnest, A. A., & Brady, S. S. (2016). Dating violence victimization among high school students in Minnesota: Associations with family violence, unsafe schools, and resources for support. *Journal of Interpersonal Violence, 31*(3), 383-406. doi: 10.1177/0886260514555863
- Eaton, D. K., Davis, K. S., Barrios, L., Brener, N. D., & Noonan, R. K. (2007). Associations of dating violence victimization with lifetime participation, co-occurrence, and early initiation of risk behaviors among U.S. high school students. *Journal of Interpersonal Violence, 22*(5), 585-602.
- Eaton, D. K., Kann, L., Kinchen, S., Shanklin, S., Flint, K. H., Hawkins, J., ... & Whittle, L. (2012). Youth risk behavior surveillance—United States, 2011. *Morbidity and Mortality Weekly Report: Surveillance Summaries, 61*(4), 1-162.
- Ebin, V. J., Sneed, C. D., Morisky, D. E., Rotheram-Borus, M. J., Magnusson, A. M., & Malotte, C. K. (2001). Acculturation and interrelationships between problem and health-promoting behavior among Latino adolescents. *Journal of Adolescent Health, 28*, 62-72.
- Eddy, K. T., Thomas, J. J., Hastings, E., Edkins, K., Lamont, E., Nevins, C. M., ... & Becker, A. E. (2015). Prevalence of DSM-5 avoidant/restrictive food intake disorder in a pediatric gastroenterology healthcare network. *International Journal of Eating Disorders, 48*(5), 464-470.

- Edwards, K. M., & Neal, A. M. (2017). School and community characteristics related to dating violence victimization among high school youth. *Psychology of Violence, 7*(2), 203-212. doi: 10.1037/vio0000065
- Ehrensaft, M. K., Cohen, P., Brown, J., Smailes, E., Chen, H., & Johnson, J. G. (2003). Intergenerational transmission of partner violence: a 20-year prospective study. *Journal of consulting and clinical psychology, 71*(4), 741.
- Engberg, J., & Morral, A. R. (2006). Reducing substance use improves adolescents' school attendance. *Addiction, 101*(12), 1741-1751.
- Erdfelder, E., Faul, F., & Buchner, A. (1996). GPOWER: A general power analysis program. *Behavior Research Methods, Instruments, & Computers, 28*(1), 1–11. <https://doi.org/10.3758/BF03203630>.
- Exner-Cortens, D., Eckenrode, J., Bunge, J., & Rothman, E. (2017). Revictimization after adolescent dating violence in a matched, national sample of youth. *Journal of Adolescent Health, 60*(2), 176-183.
- Exner-Cortens, D., Eckenrode, J., & Rothman, E. (2013). Longitudinal associations between teen dating violence victimization and adverse health outcomes. *Pediatrics, 131*(1), 71.
- Farrelly, M. C., Niederdeppe, J., & Yarsevich, J. (2003). Youth tobacco prevention mass media campaigns: past, present, and future directions. *Tobacco Control, 12*(suppl 1), i35-i47.
- Field, T., Miguel, D., & Sanders, C. (2001). Adolescent depression and risk factors. *Adolescence, 36*(143), 491.
- Forbes, G. B., Adams-Curtis, L. E., Pakalka, A. H., & White, K. B. (2006). Dating aggression, sexual coercion, and aggression-supporting attitudes among college men as a function of participation in aggressive high school sports. *Violence Against Women, 12*(5), 441-455.

- Foshee, V. A., Bauman, K. E., Ennett, S. T., Suchindran, C., Benefield, T., & Linder, G. F. (2005). Assessing the effects of the dating violence prevention program “Safe Dates” using random coefficient regression modeling. *Prevention Science, 6*(3), 245.
- Foshee, V. A., Reyes, H. M., Gottfredson, N. C., Chang, L., & Ennett, S. T. (2013). A longitudinal examination of psychological, behavioral, academic, and relationship consequences of dating abuse victimization among a primarily rural sample of adolescents. *Journal of Adolescent Health, 53*(6), 723-729. doi: 10.1016/j.jadohealth.2013.06.016
- Fredricks, J. A., & Eccles, J. S. (2002). Children’s competence and value beliefs from childhood through adolescence. *Developmental Psychology, 38*, 519–533. doi:10.1037/0012-1649.38.4.519
- Giordano, P. C., Soto, D. A., Manning, W. D., & Longmore, M. A. (2010). The characteristics of romantic relationships associated with teen dating violence. *Social Science Research, 39*(6), 863-874.
- Gómez, M. A. (2011). Testing the cycle of violence hypothesis: Child abuse and adolescent dating violence as predictors of intimate partner violence in young adulthood. *Youth & Society, 43*(1), 171-192.
- Goncy, E. A., Farrell, A. D., & Sullivan, T. N. (2018). Patterns of change in adolescent dating victimization and aggression during middle school. *Journal of Youth and Adolescence, 47*(3), 501-514. doi: <http://dx.doi.org/10.1007/s10964-017-0715-3>
- Gover, A. R., Kaukinen, C., & Fox, K. A. (2008). The relationship between violence in the family of origin and dating violence among college students. *Journal of Interpersonal Violence, 23*, 1667–1693.

- Guerra, N. G., & Williams, K. R. (2006). Ethnicity, Youth Violence, and the Ecology of Development.
- Halpern, C. T., Oslak, S. G., Young, M. L., Martin, S. L., & Kupper, L. L. (2001). Partner violence among adolescents in opposite-sex romantic relationships: Findings from the National Longitudinal Study of Adolescent Health. *American Journal of Public Health*, 91(10), 1679-1685.
- Hansen, D. M., Larson, R. W., & Dworkin, J. B. (2003). What adolescents learn in organized youth activities: A survey of self-reported developmental experiences. *Journal of Research on Adolescence*, 13(1), 25-55.
- Harrison, P. A., & Narayan, G. (2003). Differences in behavior, psychological factors, and environmental factors associated with participation in school sports and other activities in adolescence. *Journal of School Health*, 73(3), 113-120.
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Publications.
- Haynie, D. L., Farhat, T., Brooks-Russell, A., Wang, J., Barbieri, B., & Iannotti, R. J. (2013). Dating Violence Perpetration and Victimization among US Adolescents: Prevalence, Patterns, and Associations with Health Complaints and Substance Use. *The Journal of Adolescent Health: Official Publication of the Society for Adolescent Medicine*, 53(2), 194–201. <http://doi.org/10.1016/j.jadohealth.2013.02.008>
- Henry, K. L., & Huizinga, D. H. (2007). School-related risk and protective factors associated with truancy among urban youth placed at risk. *Journal of Primary Prevention*, 28(6), 505-19. doi: <http://dx.doi.org/10.1007/s10935-007-0115-7>
- Herman, J. L. (1992). *Trauma and recovery*. New York, NY: Basic Books.

- Hickman, L. J., Jaycox, L. H., & Aronoff, J. (2004). Dating violence among adolescents: Prevalence, gender distribution, and prevention program effectiveness. *Trauma, violence, & abuse, 5*(2), 123-142.
- Hildenbrand, A. K., Daly, B. P., Nicholls, E., Brooks-Holliday, S., & Kloss, J. D. (2013). Increased risk for school violence-related behaviors among adolescents with insufficient sleep. *Journal of school health, 83*(6), 408-414.
- Hird, M. J. (2000). An empirical study of adolescent dating aggression in the UK. *Journal of Adolescence, 23*(1), 69-78.
- Hishinuma, E. S., Chang, J. Y., McArdle, J. J., & Hamagami, F. (2012). Potential causal relationship between depressive symptoms and academic achievement in the Hawaiian high schools health survey using contemporary longitudinal latent variable change models. *Developmental Psychology, 48*(5), 1327-1342. doi: 10.1037/a0026978
- Hoefler, R., Black, B., & Ricard, M. (2015). The impact of state policy on teen dating violence prevalence. *Journal of Adolescence, 44*, 88-96.
- Howard, D. E., & Wang, M. Q. (2003). Risk profiles of adolescent girls who were victims of dating violence. *Adolescence, 38*(149), 1.
- Hudson, J. L., Hiripi, E., Pope, H. G., & Kessler, R. C. (2007). The prevalence and correlates of eating disorders in the national comorbidity survey replication. *Biological Psychiatry, 61*, 348 – 358. <https://doi.org/10.1016/j.biopsyc.2006.03.040>
- Huesmann, L. R., Moise-Titus, J., Podolski, C. L., & Eron, L. D. (2003). Longitudinal relations between children's exposure to TV violence and their aggressive and violent behavior in young adulthood: 1977-1992. *Developmental Psychology, 39*(2), 201.



- Huffhines, L., Zale, E., Thamocharan, S., Sferra, M., Lange, K., Ditre, J., & Fields, S. (2014). Intimate Partner Violence, Sexual Abuse, and Cigarette Smoking Risk in Adolescents. *Journal of Child & Adolescent Trauma*, 7(3), 175-183. doi: 10.1007/s40653-014-0024-x
- Hutchison, E.D. (2015). *Dimensions of human behavior: The changing life course* (5th ed.). Thousand Oaks, CA: Sage Publications. ISBN: 9781483303901
- Jackson, S. M., Cram, F., & Seymour, F. W. (2000). Violence and sexual coercion in high school students' dating relationships. *Journal of Family Violence*, 15(1), 23-36.
- Jessor, R. (1987). Problem-behavior theory, psychosocial development, and adolescent problem drinking. *Addiction*, 82(4), 331-342.
- Jessor, R. (1991). Risk behavior in adolescence: A psychosocial framework for understanding and action. *Journal of Adolescent Health*, 12, 597-605.
- Jessor, R. (2016). Problem Behavior Theory over the Years. In *The Origins and Development of Problem Behavior Theory* (pp. 15-42). Springer, Cham.
- Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth*. New York: Academic Press.
- Jessor, R., Donovan, J. E., & Costa, F. M. (1991). *Beyond adolescence: Problem behavior and young adult development*. New York: Cambridge University Press.
- Jessor, R., Graves, T. D., Hanson, R. C., & Jessor, S. L. (1968). *Society, personality, and deviant behavior: A study of a tri-ethnic community*. New York: Holt, Rinehart & Winston.
- Jessor, R., Turbin, M. S., & Costa, F. M. (1998). Protective factors in adolescent health behavior. *Journal of personality and social psychology*, 75(3), 788.
- Johnson, M. P. (2011). Gender and types of intimate partner violence: A response to an anti-feminist literature review. *Aggression and Violent Behavior*, 16(4), 289-296.

- Jouriles, E. N., Mueller, V., Rosenfield, D., McDonald, R., & Dodson, M. C. (2012). Teens' experiences of harsh parenting and exposure to severe intimate partner violence: Adding insult to injury in predicting teen dating violence. *Psychology of Violence, 2*(2), 125.
- Kabiru, C. W., Beguy, D., Ndugwa, R. P., Zulu, E. M., & Jessor, R. (2012). "Making it": Understanding adolescent resilience in two informal settlements (slums) in Nairobi, Kenya. *Child & youth services, 33*(1), 12-32.
- Kann, L., McManus, T., Harris, W. A., Shanklin, S. L., Flint, K. H., Queen, B., ... & Lim, C. (2018). Youth risk behavior surveillance—United States, 2017. *MMWR Surveillance Summaries, 67*(8), 1.
- Kann, L., McManus, T., Harris, W.A., Shanklin, S.L., Flint, K.H., Hawkins, J., et al., (2016). Youth risk behavior surveillance—United States, 2015. *MMWR. Surveillance Summaries, 65*.
- Khubchandani, J., Price, J. H., Thompson, A., Dake, J. A., Wiblishauser, M., & Telljohann, S. K. (2012). Adolescent dating violence: A national assessment of school counselors' perceptions and practices. *Pediatrics, 130*(2), 202-210.
- Khubchandani, J., Telljohann, S. K., Price, J. H., Dake, J. A., & Hendershot, C. (2013). Providing assistance to the victims of adolescent dating violence: A national assessment of school nurses' practices. *Journal of school health, 83*(2), 127-136.
- Kim, S.-Y., & So, W.-Y. (2012). The relationship between school performance and the number of physical education classes attended by Korean adolescent students. *Journal of Sports Science & Medicine, 11*(2), 226–230.

- Kwak, L., Kremers, S. P., Bergman, P., Ruiz, J. R., Rizzo, N. S., & Sjöström, M. (2009). Associations between physical activity, fitness, and academic achievement. *The Journal of Pediatrics*, 155(6), 914-918.
- Langkamp, D. L., Lehman, A., & Lemeshow, S. (2010). Techniques for handling missing data in secondary analyses of large surveys. *Academic Pediatrics*, 10(3), 205-210.
- Li, Y., & Lerner, R. M. (2011). Trajectories of school engagement during adolescence: Implications for grades, depression, delinquency, and substance use. *Developmental Psychology*, 47(1), 233-247. doi: 10.1037/a0021307
- Lopez-Frias, M., De La Fe Fernandez, M., Planells, E., Miranda, M. T., Mataix, J., & Llopis, J. (2001). Alcohol consumption and academic performance in a population of Spanish high school students. *Journal of Studies on Alcohol*, 62(6), 741-744.
- Lormand, D. K., Markham, C. M., Peskin, M. F., Byrd, T. L., Addy, R. C., Baumler, E., & Tortolero, S. R. (2013). Dating Violence Among Urban, Minority, Middle School Youth and Associated Sexual Risk Behaviors and Substance Use. *The Journal of School Health*, 83(6), 415-421. <http://doi.org/10.1111/josh.12045>
- Madden, S., Morris, A., Zurynski, Y. A., Kohn, M., & Elliot, E. J. (2009). Burden of eating disorders in 5-13-year-old children in Australia. *Med J Aust*, 190(8), 410-4.
- Martz, D. M., Jameson, J. P., & Page, A. D. (2016). Psychological health and academic success in rural Appalachian adolescents exposed to physical and sexual interpersonal violence. *American Journal of Orthopsychiatry*, 86(5), 594-601. doi: 10.1037/ort0000174
- McPhail, B. A., Busch, N. B., Kulkarni, S., & Rice, G. (2007). An integrative feminist model: The evolving feminist perspective on intimate partner violence. *Violence against women*, 13(8), 817-841.

- Meyer, H., & Stein, N. (2004). Relationship violence prevention education in schools: What's working, what's getting in the way, and what are some future directions. *American Journal of Health Education*, 35(4), 198-204.
- Miller, J. W., Naimi, T. S., Brewer, R. D., & Jones, S. E. (2007). Binge drinking and associated health risk behaviors among high school students. *Pediatrics*, 119(1), 76-85.
- Miller, S., Williams, J., Cutbush, S., Gibbs, D., Clinton-sherrod, M., & Jones, S. (2013). Dating violence, bullying, and sexual harassment: Longitudinal profiles and transitions over time. *Journal of Youth and Adolescence*, 42(4), 607-18. doi: <http://dx.doi.org/10.1007/s10964-013-9914-8>
- Molidor, C., Tolman, R., & Kober, J. (2000). Gender and contextual factors in adolescent dating violence. *Prevention Researcher*, 7(1), 1-4.
- Muñoz-Rivas, M. J., Graña, J. L., O'Leary, K. D., & González, M. P. (2007). Aggression in adolescent dating relationships: Prevalence, justification, and health consequences. *Journal of Adolescent Health*, 40(4), 298-304.
- National Conference of State Legislatures (2018). State laws on teen dating violence. Retrieved from: <http://www.ncsl.org/research/health/teen-dating-violence.aspx#State Laws>
- National Conference of State Legislatures. (2017). State laws on teen dating violence. Retrieved from: <http://www.ncsl.org/research/health/teen-dating-violence.aspx#State Laws>
- National Sleep Foundation. (2013). *Teens and sleep*. Retrieved from <https://sleepfoundation.org/sleep-topics/teens-and-sleep>
- Nelson, M. C., & Gordon-Larsen, P. (2006). Physical activity and sedentary behavior patterns are associated with selected adolescent health risk behaviors. *Pediatrics*, 117(4), 1281-1290.

- Newcomb, M. D., Abbott, R. D., Catalano, R. F., Hawkins, D., Battin-Pearson, S., and Hill, K. (2002). Mediational & deviance theories of late high school failure: Process roles of structural strains, academic competence, and general versus specific problem behaviors. *Journal of Counseling Psychology* 49: 172–186.
- Noland, H., Price, J. H., Dake, J., & Telljohann, S. K. (2009). Adolescents' sleep behaviors and perceptions of sleep. *Journal of School Health*, 79(5), 224-230.
- Noonan, R. K., & Charles, D. (2009). Developing teen dating violence prevention strategies: Formative research with middle school youth. *Violence Against Women*, 15(9), 1087-1105.
- Ogunsile, S. E. (2012). The effect of dietary pattern and body mass index on the academic performance of in-school adolescents. *International Education Studies*, 5(6), 65.
- O'Leary, K. D., Slep, A. M. S., Avery-Leaf, S., & Cascardi, M. (2008). Gender differences in dating aggression among multiethnic high school students. *Journal of Adolescent Health*, 42(5), 473-479.
- Pagel, J. F., Forister, N., & Kwiatkowi, C. (2007). Adolescent sleep disturbance and school performance: the confounding variable of socioeconomic. *Journal of Clinical Sleep Medicine: JCSM: official publication of the American Academy of Sleep Medicine*, 3(1), 19-23.
- Parker, E. M., & Bradshaw, C. P. (2015). Teen dating violence victimization and patterns of substance use among high school students. *Journal of Adolescent Health*, 57(4), 441-447. doi:10.1016/j.jadohealth.2015.06.013
- Parker, E. M., Debnam, K., Pas, E. T., & Bradshaw, C. P. (2016). Exploring the link between alcohol and marijuana use and teen dating violence victimization among high school

- students: The influence of school context. *Health Education and Behavior*, 43(5), 528-536. doi: 10.1177/1090198115605308
- Patrician, P. A. (2002). Multiple imputation for missing data. *Research in Nursing & Health*, 25(1), 76-84.
- Pellegrini, A. D. (2002). Bullying, victimization, and sexual harassment during the transition to middle school. *Educational psychologist*, 37(3), 151-163.
- Pittman, A. L., Wolfe, D. A., & Wekerle, C. (2000). Strategies for evaluating dating violence prevention programs. *Journal of Aggression, Maltreatment & Trauma*, 4(1), 217-238.
- Preacher, K. J., & Selig, J. P. (2012). Advantages of Monte Carlo confidence intervals for indirect effects. *Communication Methods and Measures*, 6(2), 77-98.
- Ramisetty-Mikler, S., Goebert, D., Nishimura, S., & Caetano, R. (2006). Dating violence victimization: Associated drinking and sexual risk behaviors of Asian, Native Hawaiian, and Caucasian high school students in Hawaii. *Journal of School Health*, 76(8), 423-429.
- Rampersaud, G. C., Pereira, M. A., Girard, B. L., Adams, J., & Metz, J. D. (2005). Breakfast habits, nutritional status, body weight, and academic performance in children and adolescents. *Journal of the American Dietetic Association*, 105(5), 743-760.
- Raspberry, C. N., Lee, S. M., Robin, L., Laris, B. A., Russell, L. A., Coyle, K. K., & Nihiser, A. J. (2011). The association between school-based physical activity, including physical education, and academic performance: a systematic review of the literature. *Preventive Medicine*, 52, S10-S20.
- Ravi, K., Black, M., & Rueda, H., (2019). *MSW Students Interventions for Teen Dating Violence: What Influences Their Recommendations?* Conference Presentation.

- Reed, E., Raj, A., Miller, E., & Silverman, J. G. (2010). Losing the “gender” in gender-based violence: The missteps of research on dating and intimate partner violence. *Violence Against Women*, 16(3), 348-354.
- Rees, D. I., & Sabia, J. J. (2010). Sports participation and academic performance: Evidence from the National Longitudinal Study of Adolescent Health. *Economics of Education Review*, 29(5), 751-759. Chicago
- Renner, Lynette M., and Kristen Shook Slack. "Intimate partner violence and child maltreatment: Understanding intra-and intergenerational connections." *Child Abuse & Neglect* 30.6 (2006): 599-617.
- Reyes, H. L. M., Foshee, V. A., Bauer, D. J., & Ennett, S. T. (2014). Proximal and time-varying effects of cigarette, alcohol, marijuana and other hard drug use on adolescent dating aggression. *Journal of Adolescence*, 37(3), 281-289.
- Rhea, D. J., & Lantz, C. D. (2004). Violent, delinquent, and aggressive behaviors of rural high school athletes and non-athletes. *Physical Educator*, 61(4), 170-176. Retrieved from <https://login.ezproxy.uta.edu/login?url=https://search.proquest.com/docview/232999567?accountid=7117>
- Rhee, D., Yun, S. C., & Khang, Y. H. (2007). Co-occurrence of problem behaviors in South Korean adolescents: findings from Korea Youth Panel Survey. *Journal of Adolescent Health*, 40(2), 195-197.
- Rothman, E. F., & Xuan, Z. (2014). Trends in physical dating violence victimization among U.S. high school students, 1999–2011. *Journal of School Violence*, 13(3), 277–290.  
<http://doi.org/10.1080/15388220.2013.847377>

- Rothman, E. F., Linden, J. A., Baughman, A. L., Kaczmarzsky, C., & Thompson, M. (2016). 'The alcohol just pissed me off': Views about how alcohol and marijuana influence adolescent dating violence perpetration, results of a qualitative study. *Youth and Society*, 48(3), 366-382. doi: 10.1177/0044118X13491973
- Rubin, A. & Babbie, E. (2014). *Research methods for social work* (8th ed.). Pacific Grove, CA: Brooks/Cole Publishing Co.
- Rueda, H. A., Hawley, A., Black, B. M., & Ombayo, B. (2017). Graduating MSW students' recommended interventions for teen dating violence: A descriptive analysis. *Advances in Social Work*, 17(2), 203-220.
- Ryan, A. M., & Patrick, H. (2001). The classroom social environment and changes in adolescents' motivation and engagement during middle school. *American Educational Research Journal*, 38, 437-460. Doi: 10.3102/00028312038002437
- Sabia, J. (2007). The Effect of Body Weight on Adolescent Academic Performance. *Southern Economic Journal*, 73(4), 871-900. Retrieved from <http://www.jstor.org/stable/20111933>
- Sales, E., Lichtenwalter, S., & Fevola, A. (2006). Secondary analysis in social work research education: Past, present, and future promise. *Journal of Social Work Education*, 42(3), 543-560.
- Saxvig, I. W., Pallesen, S., Wilhelmsen-Langeland, A., Molde, H., & Bjorvatn, B. (2012). Prevalence and correlates of delayed sleep phase in high school students. *Sleep medicine*, 13(2), 193-199.
- Sears, H. A., Byers, E. S., Whelan, J. J., & Saint-Pierre, M. (2006). "If it hurts you, then it is not a joke" Adolescents' ideas about girls' and boys' use and experience of abusive behavior in dating relationships. *Journal of Interpersonal Violence*, 21(9), 1191-1207.



- Shin, C., Kim, J., Lee, S., Ahn, Y., & Joo, S. (2003). Sleep habits, excessive daytime sleepiness and school performance in high school students. *Psychiatry and Clinical Neurosciences*, 57(4), 451-453.
- Silverman, J. G., Raj, A., & Clements, K. (2004). Dating violence and associated sexual risk and pregnancy among adolescent girls in the United States. *Pediatrics*, 114(2), e220-e225.
- Silverman, J. G., Raj, A., Mucci, L. A., & Hathaway, J. E. (2001). Dating violence against adolescent girls and associated substance use, unhealthy weight control, sexual risk behavior, pregnancy, and suicidality. *JAMA: Journal of the American Medical Association*, 286(5), 572-579. doi:10.1001/jama.286.5.572
- Sivertsen, B., Glozier, N., Harvey, A. G., & Hysing, M. (2015). Academic performance in adolescents with delayed sleep phase. *Sleep medicine*, 16(9), 1084-1090.
- Siziya, S., Muula, A. S., & Rudatsikira, E. (2007). Prevalence and correlates of truancy among adolescents in Swaziland: findings from the Global School-Based Health Survey. *Child and adolescent psychiatry and mental health*, 1(1), 15.
- Slashinski, M. J., Coker, A. L., & Davis, K. E. (2003). Physical aggression, forced sex, and stalking victimization by a dating partner: An analysis of the National Violence Against Women Survey. *Violence and Victims*, 18(6), 595.
- Smith, P. H., White, J. W., & Holland, L. J. (2003). A longitudinal perspective on dating violence among adolescent and college-age women. *American Journal of Public Health*, 93, 1104-1109.
- Smokowski, P. R., David-Ferdon, C., & Stroupe, N. (2009). Acculturation and violence in minority adolescents: A review of the empirical literature. *The Journal of Primary Prevention*, 30(3-4), 215-263.

- Stith, S. M., Rosen, H., McCollum, E. E., & Thomsen, C. J. (2004). Treating intimate partner violence within intact couple relationships: Outcomes of multi-couple versus individual couple therapy. *Journal of marital and family therapy*, 30(3), 305-318.
- Stuart, G. L., Moore, T. M., Hellmuth, J. C., Ramsey, S. E., & Kahler, C. W. (2006). Reasons for intimate partner violence perpetration among arrested women. *Violence against Women*, 12(7), 609-621.
- Taras, H. (2005). Physical activity and student performance at school. *Journal of school health*, 75(6), 214-218.
- Taylor, B. G., & Mumford, E. A. (2016). A national descriptive portrait of adolescent relationship abuse: Results from the National Survey on Teen Relationships and Intimate Violence. *Journal of interpersonal violence*, 31(6), 963-988. Doi: 10.1177/0886260514564070
- Taylor, M. J., Wamser, R. A., & Sanchez, M. W. (2010). The impact of sports participation on violence and victimization among rural minority adolescent girls. *Women in Sport and Physical Activity Journal*, 19, 3-13.
- Taylor, M. J., Wamser, R. A., Welch, D. Z., & Nanney, J. T. (2012). Multidimensional self-esteem as a mediator of the relationship between sports participation and victimization: A study of African American girls. *Violence and Victims*, 27, 434-452.
- Temple, J. R., & Freeman Jr, D. H. (2011). Dating violence and substance use among ethnically diverse adolescents. *Journal of interpersonal violence*, 26(4), 701-718.
- Tharp, A. T., DeGue, S., Valle, L. A., Brookmeyer, K., Massetti, G., & Matjasko, J. (2012). A systematic qualitative review of risk and protective factors for sexual violence

perpetration. *Trauma, Violence & Abuse*, 14(2), 133e167.

<http://dx.doi.org/10.1177/1524838012470031>

- Theriot, M. T. (2008). Conceptual and methodological considerations for assessment and prevention of adolescent dating violence and stalking at school. *Children & Schools*, 30(4), 223-233.
- Thompson, K. M., Wonderlich, S. A., Crosby, R. D., & Mitchell, J. E. (2001). Sexual violence and weight control techniques among adolescent girls. *International Journal of Eating Disorders*, 29(2), 166-176.
- Trudeau, F., & Shephard, R. J. (2008). Physical education, school physical activity, school sports and academic performance. *International Journal of Behavioral Nutrition and Physical Activity*, 5(1), 10.
- United States Agency for International Development (2012). United States Strategy to Prevent and Respond to Gender-Based Violence Globally. Washington, DC: United States Agency for International Development.
- United States Department of Justice (2017, October 20). *FY 2017 OVW grant awards by state*. Retrieved from: <https://www.justice.gov/ovw/awards/fy-2017-ovw-grant-awards-by-state>
- Vagi, K. J., Olsen, E. O. M., Basile, K. C., & Vivolo-Kantor, A. M. (2015). Teen dating violence (physical and sexual) among US high school students: Findings from the 2013 National Youth Risk Behavior Survey. *JAMA pediatrics*, 169(5), 474-482. doi:10.1001/jamapediatrics.2014.3577
- Villani, S. (2001). Impact of media on children and adolescents: a 10-year review of the research. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40(4), 392-401.

- Weinstein, S. M., & Mermelstein, R. J. (2013). Influences of mood variability, negative moods, and depression on adolescent cigarette smoking. *Psychology of Addictive Behaviors, 27*(4), 1068-1078. doi: 10.1037/a0031488
- Wekerle, C., Leung, E., Wall, A. M., MacMillan, H., Boyle, M., Trocme, N., & Waechter, R. (2009). The contribution of childhood emotional abuse to teen dating violence among child protective services-involved youth. *Child Abuse & Neglect, 33*(1), 45-58.
- Whitaker, D. J., Haileyesus, T., Swahn, M., & Saltzman, L. S. (2007). Differences in frequency of violence and reported injury between relationships with reciprocal and nonreciprocal intimate partner violence. *American journal of public health, 97*(5), 941-947.
- Wilke, A. M. (2017). Sports team participation and dating violence victimization among high school students: Is there an association? (Order No. 10275810). Available from ProQuest Dissertations & Theses Global. (1916502564). Retrieved from <https://login.ezproxy.uta.edu/login?url=https://search-proquest-com.ezproxy.uta.edu/docview/1916502564?accountid=7117>
- Wolfson, A. R., & Carskadon, M. A. (2003). Understanding adolescent's sleep patterns and school performance: a critical appraisal. *Sleep medicine reviews, 7*(6), 491-506.
- Wolitzky-Taylor, K. B., Ruggiero, K. J., Danielson, C. K., Resnick, H. S., Hanson, R. F., Smith, D. W., ... Kilpatrick, D. G. (2008). Prevalence and Correlates of Dating Violence in a National Sample of Adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 47*(7), 755–762. <http://doi.org/10.1097/CHI.0b013e318172ef5f>
- Wong, M. L., Lau, E. Y. Y., Wan, J. H. Y., Cheung, S. F., Hui, C. H., & Mok, D. S. Y. (2013). The interplay between sleep and mood in predicting academic functioning, physical

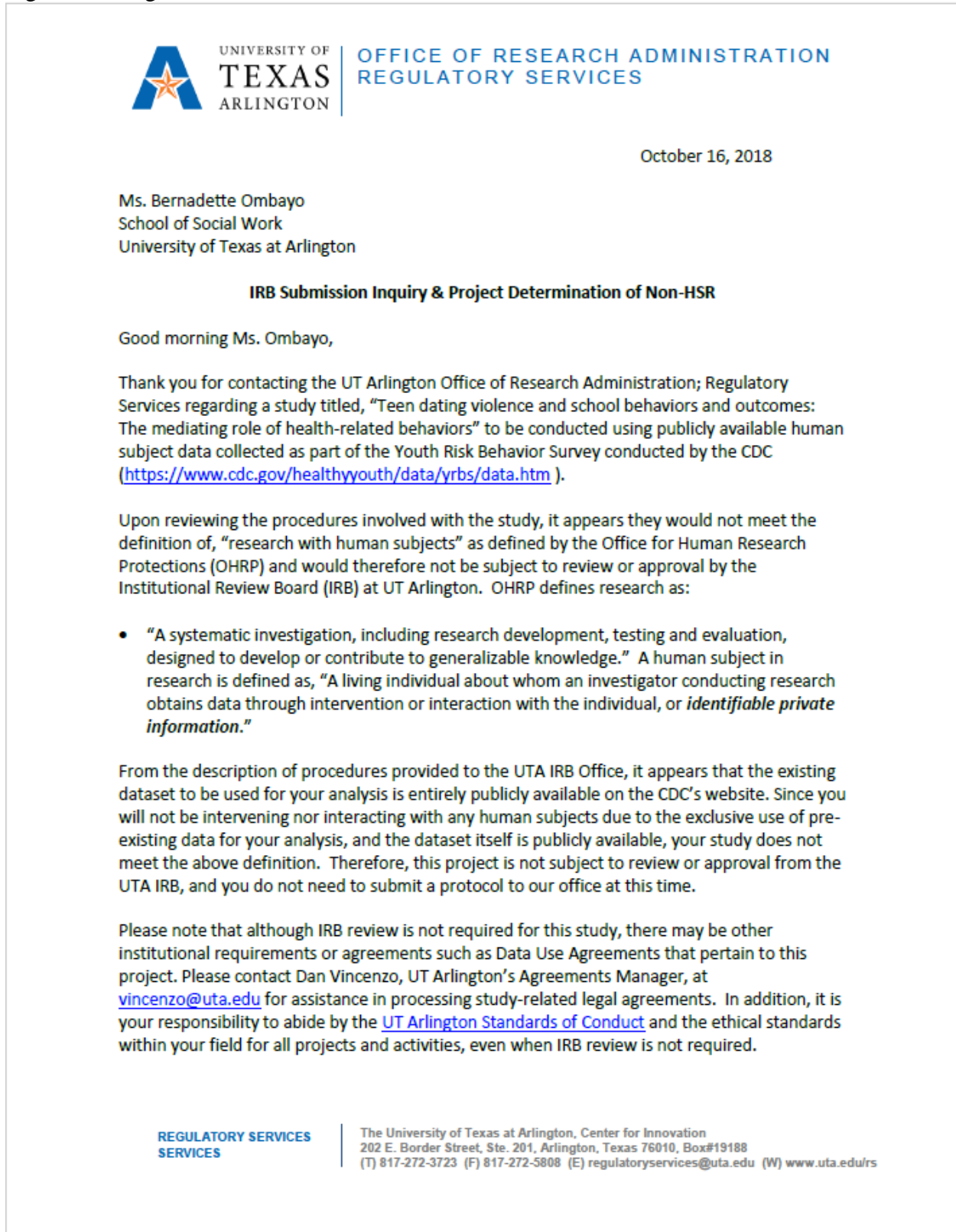
health and psychological health: a longitudinal study. *Journal of psychosomatic research*, 74(4), 271-277.

Zhabenko, O., Austic, E., Conroy, D. A., Ehrlich, P., Singh, V., Epstein-Ngo, Q., & ... Walton, M. A. (2016). Substance use as a risk factor for sleep problems among adolescents presenting to the emergency department. *Journal of Addiction Medicine*, 10(5), 331-338. doi:10.1097/ADM.0000000000000243\

Zimmer-Gembeck, M. J., & Petherick, J. (2006). Intimacy dating goals and relationship satisfaction during adolescence and emerging adulthood: Identity formation, age and sex as moderators. *International Journal of Behavioral Development*, 30, 167–177. doi: 10.1177/0165025406063636.

Appendix A:

Figure 2. 5: Figure 2. : IRB Document





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OFFICE OF RESEARCH ADMINISTRATION  
REGULATORY SERVICES

In addition, if the procedures that were outlined and provided to our office change such that IRB approval might be necessary, or you have any questions regarding this determination, you are responsible for contacting our office at [RegulatoryServices@uta.edu](mailto:RegulatoryServices@uta.edu).

I have included the link for decision charts provided from OHRP from which this determination is made for your reference below.

Thank You,

A handwritten signature in black ink, appearing to read 'Alyson Stearns'.

Alyson Stearns  
Regulatory Services Manager  
Office of Research Administration;  
Regulatory Services

OHRP reference: <http://www.hhs.gov/ohrp/policy/checklists/decisioncharts.html>

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