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ABSTRACT

A LONGITUDINAL INVESTIGATION OF THE RELATIONSHIP BETWEEN GENDER DISCREPANCY STRESS AND TEEN DATING VIOLENCE

By

Samantha Williams

December 16, 2019

Gender discrepancy stress (GDS), or anxiety stemming from perceived nonconformity to traditional gender roles, has exhibited associations with numerous adverse physical and psychological health outcomes. Adolescents are particularly susceptible to socialization regarding prescribed gender role norms, and beliefs regarding appropriate behavior are often established during this key developmental stage. Previous studies have investigated the effects of GDS on deleterious health outcomes, yet causal inference has been limited due to cross-sectional data. The present study will aim to expand upon existing research by examining the longitudinal relationships between GDS, attitudes condoning violence, and physical teen dating violence (TDV). Data are drawn from a sample of male and female high school students (N=648) who completed self-report questionnaires annually over the course of four waves. Structural equation modeling was employed to test the effects of GDS on physical TDV perpetration and victimization, and latent difference scores were used to evaluate acceptance of violence (AoV) as a potential mediator. Findings indicate that an increase in GDS has a direct, positive effect on subsequent changes in physical TDV perpetration, while an increase in GDS has a negative effect on subsequent levels of physical TDV perpetration for females. Results did not reveal a significant link between GDS and physical TDV victimization for either gender, and there was no evidence that AoV mediated the relationship between GDS and physical TDV. These findings suggest that it may prove beneficial to integrate tailored gender socialization topics in the context of social norms within TDV interventions.

A LONGITUDINAL INVESTIGATION OF THE RELATIONSHIP BETWEEN GENDER
DISCREPANCY STRESS AND TEEN DATING VIOLENCE

by

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APPROVAL PAGE

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Author's Statement Page

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Samantha Williams

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I. Introduction

Teen Dating Violence

Teen dating violence (TDV) has emerged as an extensive public health issue owing to its prevalence and association with adverse health and behavioral outcomes (Campbell, 2002; Plichta, 2004; Wolitzky-Taylor et al., 2008). According to the 2017 Youth Risk Behavior Surveillance System (YRBSS) results, approximately 9.1% of high school females and 6.5% of high school males have experienced physical dating violence (CDC, 2018) in the United States. Estimates vary greatly across studies, and results from a recent meta-analysis on the prevalence of TDV demonstrated that rates among economically disadvantaged and cultural minority samples can be even higher. Findings showed that 20% of youth age 13-18 had experienced physical TDV and 9% had experienced sexual TDV (Wincentak et al., 2017). Involvement in TDV has demonstrated deleterious effects from a physical and psychological perspective. Previous studies have shown links to physical injury, substance abuse, risky sexual behavior, depression, posttraumatic stress, anxiety and suicidality (Ackard et al., 2007; Baynard & Cross, 2008; Callahan et al., 2003; Exner-Cortens et al., 2012; Silverman et al., 2001; Silverman et al., 2004; Smith et al., 2003). Additionally, youth who engage in TDV are at greater risk to encounter aggression in future relationships, perpetuating the chain of abuse (Cate et al., 1982; Greenman & Matsuda, 2016; Halpern et al., 2009).

The present study will seek to assess the longitudinal relationship between several potential risk factors and TDV perpetration and victimization. Specifically, the investigation will examine the roles of anxiety stemming from gender nonconformity and attitudes condoning violence as predictors of TDV involvement. Prior research has demonstrated a link between each variable and physical aggression from a cross-sectional perspective (Josephson & Proulx, 2008;

Price & Byers, 1999; Reidy et al., 2018b), though there are limited findings from a longitudinal standpoint (Fernandez-Gonzalez et al., 2018; Foshee et al., 2001; Karlsson et al., 2018). The current study will add to this body of literature by evaluating the associations over time to determine how these factors may influence an individual's tendency toward relationship violence.

Across sexes, physical dating violence is the most prevalent form of TDV (CDC, 2018; Wincentak et al., 2017). According to the CDC (2019), physical abuse occurs when a person hurts or tries to hurt a partner by hitting, kicking, or using another type of physical force. Perpetration and victimization of physical TDV have demonstrated a relatively even split among adolescent males and females (Capaldi et al., 2007; Gray & Foshee, 1997; Miller & White, 2003; O'Keefe & Treister, 1998). Additionally, a strong correlation between physical TDV victimization and perpetration indicates that many adolescent relationships exhibit mutual violence (Coker et al., 2014; Foshee et al., 1996). Individuals who perpetrate TDV are more likely to experience TDV victimization, and vice versa. Comparisons of physical TDV victimization and perpetration by sex have yielded inconsistent findings (Foshee, 1996; Hansen, 1985; Makepeace, 1986; Mangold & Koski, 1990; Miller & White, 2003; Molidor & Tolman, 1998; Reidy et al., 2016b). Yet while the rates of TDV have been shown to vary across different studies, there is consistency in the finding that boys and girls are both victims and perpetrators (Capaldi et al., 2004; Gray & Foshee, 1997; Foshee et al., 2010; O'Keefe & Treister, 2008). Given the prevalence and indiscriminate nature of physical TDV, it is critical to explore the paths to victimization and perpetration for both males and females to identify similarities and differences that can help inform prevention efforts.

Adolescence is a crucial time period for personal development. As teens navigate the transition from childhood to adulthood, they are faced with the dual pressures of increased independence coupled with intense socialization (Berzonsky & Adams, 2003). Attitudes and behaviors established during these formative years have long-standing implications that can persist throughout the lifetime (Erikson, 1982; Fergusson et al., 2007; Huesmann et al., 2009; Odgers et al., 2008). It also marks the time when most individuals experience their first intimate relationships and when the issue of dating violence emerges (Close, 2005). Beliefs regarding gender roles and conflict resolution, both key elements in the risk of TDV (CDC, 2019; Cohen et al., 2018; World Health Organization, 2012), are heavily influenced by adolescent experiences. Social learning theory posits that behavior is the result of imitation based on previous interactions or observations (Bandura, 1973). During this developmental stage, teens are bombarded with messaging, both explicit and subliminal, from friends, family, and society as a whole regarding how to behave and demonstrate emotion. As such, adolescence may be a key time period to effectively intervene with dating violence prevention efforts.

Traditional Gender Roles

Adherence to traditional gender role stereotypes has been deemed a risk factor for dating violence by the CDC (2019) and the World Health Organization (WHO; 2012). These norms are learned at an early age, and adolescents often endorse the traditional ideals that inform TDV (Black & Weisz, 2003; Feldman & Gowen, 1998; Kenway & Fitzclarence, 1997). While everyone experiences some form of socialization, the idealized values are strikingly different for boys and girls (e.g., Mahalik et al., 2003, 2005). To examine the constructs of masculinity and femininity, it is first necessary to distinguish gender from sex. Sex refers to biological differences between males and females while gender is manufactured from social values and

societal standards (Oakley, 1972; Pleck, 1981). Research has demonstrated that attitudes related to gender roles are influential from a psychological and behavioral perspective. (Courtenay, 2000; Gilbert & Scher, 1999; Pleck, 1981, 1995). As such, these ideals may vary by region or evolve over time, though there are persistent characteristics that are commonly considered masculine or feminine. For example, traditional views ascribe characteristics of dominance, aggression, stoicism and toughness to masculinity (Mahalik et al., 2003), while femininity is characterized by submission, deference, modesty and nurturing (Mahalik et al., 2005). These societal norms are socialized from an early age and reinforced by parents, teachers, peers and the media (Bem, 1981; Lytton & Romney, 1991). They serve as a set of standards and guidelines of acceptable social conduct that can exert substantial influence over behavior (Cialdini & Trost, 1999).

Thompson and Pleck (1986) identified three clusters of masculine norms: Status, toughness, and anti-femininity. It has been suggested that these qualities represent the universal standards of masculinity (Dahl et al., 2015). Mahalik and colleagues (2003) expanded on this assessment through the development of the Conformity to Masculine Norms Inventory (CMNI). The CMNI scale accounted for normative measures based on cultural expectations of what it means to be a man. It illustrated masculinity's association with traits like self-reliance, emotional control, power over women, violence and dominance, among others (Mahalik et al., 2003). Generally, it is socially accepted that men should be assertive (by force if necessary), impervious to physical or psychological pain, and domineering over women or those who possess feminine attributes. From this perspective it is unsurprising that men tend toward risk-taking behavior and away from help-seeking actions (Courtenay, 2000; Creighton & Oliffe, 2010).

In comparison to the wealth of research on the structure and effects of masculinity, comparatively little has explored femininity. This observation in itself is somewhat emblematic of the dominant male culture. Mahalik and colleagues (2005) replicated the CMNI approach to develop the Conformity to Feminine Norms Inventory (CFNI). Characteristics ascribed to femininity include modesty, kindness, fidelity and investment in one's appearance (Mahalik et al., 2005). In contrast to masculinity, the feminine construct suggests that women should be docile and compliant, alluring yet chaste. The Adolescent Femininity Ideology Scale (AFIS) addressed two key aspects of femininity as they relate to teen girls: Inauthentic self in relationships with others and objectified relationship with one's body (Tolman & Porche, 2000). The AFIS highlights the social importance placed on female appearance and congeniality.

Gender role norms, like social norms, serve as a set of unwritten rules that exemplify the standard for masculine and feminine behavior. Previous research has shown that children as young as 5 have a clear understanding of acceptable comportment for men and women (Lytton & Romney, 1991). This is likely due in part to parental reinforcement of gender role norms in children as young as 18 months. Fagot and Hagan (1991) observed that parents exhibited more positive reactions to 18-month-old boys who engaged in male-typical toy play (e.g., building toys, transportation toys) and demonstrated aggressive behavior (e.g., physical aggression, demands for attention) compared to girls. Furthermore, fathers gave fewer positive reactions to boys who participated in female-typical toy play (e.g., art activities, dolls, puppets). As they grow, boys may be reprimanded or mocked for showing emotion by crying, while rough-housing is often considered an ordinary part of growing up (i.e. "boys will be boys.") Boys are commonly instructed to keep their emotions in check, with the exception of anger (Lisak et al., 1996). Girls are conversely taught to be diminutive, nurturing and virtuous. Girls who display more

traditionally masculine attributes may be considered lesbians (Bosson et al., 2006) while those who are categorized as “bad girls” are often shamed on the basis of promiscuity (Glick & Fiske, 1997).

The cultural expectations toward gender guide normative beliefs that can strongly influence an individual’s identity and self-perception (Gilbert & Scher, 1999). Feminist theory posits that these norms are ingrained in a patriarchal society that invokes a gendered and inherently unequal framework (Miller & White, 2003). As a result, male aggression, particularly toward women, has become a socially tolerated byproduct of the environment (White & Kowalski, 1998). Hegemonic masculinity broadly refers to the establishment of dominant male status in society (Connell, 1983; Carrigan, Connell & Lee, 1985). In the context of Connell’s gender order theory, the concept describes a set of practices that validate an imbalanced social structure, placing men in a position of power at the detriment of women (Connell, 1987). This hierarchy, instilled into culture over time, is preserved by both men and women who prescribe to traditional gender roles and the associated definitions of masculinity and femininity (Connell, 1987; Coltra, 1994).

Gender Role Discrepancy and Associated Stress

According to Pleck’s Gender Role Strain Paradigm (GRSP), contemporary gender norms are multidimensional and in some cases contradictory across different cultures, social groups, or generations (Pleck, 1981, 1995). This paradigm suggests that due to the variable and incongruous nature of gender roles, there is a high proportion of people who do not conform to these standards (Pleck, 1981). Gender role discrepancy (GRD) describes the conflict between an individual’s perceived masculinity or femininity and how he or she believes a man or woman should behave relative to social norms.

Gender role discrepancy is inherently tied to beliefs regarding gender role norms. Individuals are generally classified as gender-role discrepant if they do not appear to conform to conventional gender role standards. By contradicting expectations, individuals who do not display the prescribed attributes often experience stigmatization or marginalization (Bosson et al., 2005). They may be subject to social policing of gender roles as others attempt to enforce societal values. Parents who are not comfortable with their child's nonconformity may respond with rejection or detachment (Alanko et al., 2009). Roberts and colleagues (2012) found that youth in the top decile of gender nonconformity are at greater risk for abuse by an adult in the family compared to youth who fall below the median of nonconformity. Throughout childhood and adolescence, results showed that the prevalence of physical abuse by an adult family member was significantly higher in the nonconforming group (Roberts et al., 2012). Similarly, those who do not ascribe to gender role norms may be ostracized or bullied by their peer groups (Evans & Eder, 1993; Langlois, & Downs, 1980; Parrot, 2009; Toomey et al., 2010). GRD is associated with a myriad of damaging health outcomes, including depression, substance abuse, promiscuity and suicidal behavior (Goldbach et al., 2014; Reisner et al., 2015; Rieger & Savin-Williams, 2012). Additionally, individuals may face discrimination in the workplace through prejudicial hiring practices, limited advancement opportunities or wrongful termination (Moss-Racusin, 2014; Rudman & Phelan, 2008). Prior research has shown the public health implications of GRD to be numerous and widespread. However, a closer look at the underlying anxiety borne out of GRD may provide a deeper understanding as to what truly drives the connection to adverse health outcomes.

Attempts to obey traditional gender role norms can be problematic from a public health perspective. The normalization of male dominance and female submission is particularly

alarming in the context of dating violence. Adherence of traditional masculinity has been linked to increased perpetration of relationship violence (Moore and Stuart, 2005), though findings suggest that it may be the underlying gender role stress that is truly influential toward partner aggression (Moore and Stuart, 2005; Reidy et al., 2018b). In their review of the literature, Moore and Stuart (2005) identified a positive association between traditional masculinity and dating violence perpetration when masculinity was operationalized in the context of gender role stress, as in the Masculine Gender Role Stress Scale (MGRS). However, measures of masculinity that purely focused on beliefs regarding which characteristics align with traditional gender roles (e.g., Bern Sex-Role Inventory, Personal Attributes Questionnaire) showed mixed or null results (Moore and Stuart, 2005.) No such review has been conducted in regards to femininity. The MGRS scale was adapted to develop the Feminine Gender Role Stress Scale (FGRS), though it was suggested that the scale evaluated general stress as opposed to anxiety driven by self-perceptions of gender (Gillespie and Eisler, 1992.) Additional research is needed to explore the relationship between feminine gender role stress and dating violence.

Gender role stress broadly describes the resultant tension from pressures related to gender role conformity. Pleck (1995) classified three different forms of gender role stress, designated as discrepancy, dysfunction, and trauma strain. Gender discrepancy stress (GDS) refers to anxiety that stems from the pressure to reconcile any perceived gender role discrepancies for fear of the negative consequences (Pleck, 1995; Reidy et al., 2016a). In this case, individuals may feel a conflict between their real and ideal selves (Weilage & Hope, 1999). Dysfunction strain arises when individuals experience adverse outcomes as a result of satisfying gender role requirements (e.g., risk-taking behavior, substance abuse, promiscuity). Trauma strain reflects the continued anguish and suffering of those who have been subjected to an especially harsh socialization

process. Groups at increased risk of trauma strain include the gay and bisexual community, veterans and professional athletes (Levant, 1996).

While there are serious implications associated with each type of gender role stress, Pleck theorized that GDS pushes individuals to overconform to destructive gender role stereotypes as a means to avoid negative consequences (Pleck, 1981). Men who perceive their masculinity to be inadequate may act out through aggression as a display of toughness (Bosson & Vandello, 2011) while women may resort to eating disorders to achieve feminine ideals of thinness (Low et al., 2003). These harmful outcomes exemplify the notion of dysfunction strain, and the consequences of strict gender role adherence can also lead to trauma strain. GDS thus serves as a catalyst for damaging behaviors associated with gender role norms while dysfunction and trauma strain are the resulting consequences. In this vein, prevention efforts to curb the aforementioned behaviors may prove more effective by targeting GDS as opposed to dysfunction or trauma strain.

Previous studies have demonstrated that GRD has a direct effect on GDS for both males and females, indicating that those who experience GRD are also more likely to report GDS (Reidy et al., 2018a; Reidy et al., 2018b). Importantly, not all individuals who experience GRD are afflicted with corresponding GDS. Moreover, findings show that when GDS is controlled for in statistical models, GRD has no effect on psychosocial maladjustment for females and reveals a protective effect for males (Reidy et al., 2018a; Reidy et al., 2018b). These results suggest that GRD itself is likely not responsible for deleterious health outcomes. On the other hand, stress related to gender conformity can bring on the development of internalizing and externalizing symptoms as individuals attempt to cope with their perceived deficiencies (Goldback et al., 2013; Reidy et al., 2018a; Reidy et al., 2018b).

Closely tied to GDS is the concept of precarious masculinity, which suggests that manhood is a temporary achievement that can be lost at any time (Vandello & Bosson, 2013). To maintain masculine status, boys and men must constantly prove themselves through displays of traditionally masculine behavior. Boys are socialized to expect social and physical ramifications for any violation of masculine norms, and they often overestimate the level of masculinity demanded to meet expectations (Vandello & Bosson, 2013). As a means to proactively counter or deflect any perceived threats to their manhood, boys will act in a hypermasculine manner to re-assert their status. These demonstrations of masculinity can manifest in relationship violence to simultaneously show traits of dominance, aggression and power over women (Bosson & Vandello, 2011; Cohen et al., 1996; Vandello & Bosson, 2013).

The limited research on feminine GDS indicates that females who experience anxiety as a result of gender role discrepancy are more likely to suffer from adverse behavioral and mental health outcomes compared to their peers who do not experience GDS (Reidy et al., 2018b). While traditional feminine norms generally endorse more conservative behaviors, they also instill the notion that females should passively comply with male prerogatives (Amick & Calhoun, 1987). Additionally, in a sample of adolescent girls, GDS showed a direct, positive effect on psychosocial maladjustment, a superordinate construct comprising indicators related to sexual behavior, mood disorder symptoms, hopelessness and substance abuse (Reidy et al., 2018b). This empirical evidence demonstrates a link between GDS and maladaptive internalizing behaviors for females. However, there has been no research to our knowledge examining feminine discrepancy stress in relation to TDV victimization or perpetration.

Acceptance of Violence

In the same way that gender role norms can impact gender role stress, traditional views may also heavily influence attitudes condoning physical TDV. Stereotypical beliefs idealize male aggression as a desirable trait and proponents often deem the use of force against women to be natural and acceptable (Burt, 1980). Acceptance of violence (AoV) is a risk factor for relationship violence perpetration and victimization (Josephson & Proulx, 2008; Malik et al., 1997; Price & Byers, 1999; Riggs & O’Leary, 1996). Men use aggression against their partners to exhibit dominance and power, while women play a more passive and obedient role to comply with traditional feminine tropes (Amick & Calhoun, 1987; Richardson & Hammock, 2007). The interplay between traditional gender role beliefs and views condoning violence has proven influential in the path to aggressive behavior, with AoV acting as a moderator (Reyes et al., 2016; Poteat et al., 2010; Smith-Darden et al., 2016). Additionally, sex role stereotyping and acceptance of interpersonal violence were found to be predictive of rape myth acceptance (e.g., “only bad girls get raped,” “women ask for it,” or “any healthy women can resist a rapist if she really wants to.”) (Burt, 1980). It is of note that while boys and men generally endorse AoV to a higher degree than women (Josephson & Proulx, 2008; Malik et al., 1997; Smith-Darden et al., 2016), both men and women perpetuate gender role norms and report AoV in a relationship (Lichter & McCloskey, 2004; Sears et al., 2007).

There is considerable empirical research that supports an association between AoV and involvement in physical TDV (Josephson & Proulx, 2008; Malik et al., 1997; Price & Byers, 1999; Riggs & O’Leary, 1996). Several investigations using adolescent samples found that AoV was a significant predictor of physical TDV perpetration among male and female high school students (O’Keefe, 1997; Malik et al., 1997; Smith-Darden et al., 2016). Interestingly, in the

Malik et al sample, AoV was associated with both perpetration and victimization, indicating that victims may be tolerant of an abusive relationship, which could consequently increase the risk of being victimized (Malik et al., 1997). Similar results from Karlsson and colleagues (2016) demonstrated a link between attitudes condoning relationship violence and physical TDV victimization (Karlsson et al., 2016).

Several longitudinal analyses have shown a decrease in AoV over time among youth (Karlsson et al., 2018; Orpinas et al., 2013), though findings were inconsistent in terms of the link between AoV and TDV. One study found a concurrent and prospective association between AoV and TDV perpetration (Fernandez-Gonzalez et al., 2018), though the TDV measurement scale included psychological abuse. Foshee and colleagues (2001) determined that acceptance of prescribed TDV norms predicted aggressive behavior for males, though the association was not significant for females. It is of note that the comparative cross-sectional analysis showed a strong and significant relationship for both males and females (Foshee et al., 2001). In another study, a sample of ethnically diverse teenagers exhibited an overall decrease in their acceptance of violence over a four-year time period, yet a parallel process model did not find a relationship between the change in AoV and the change in physical TDV perpetration (Karlsson et al., 2018). While most studies found a decrease in AoV, evidence from Shorey and colleagues (2018) indicated that attitudes are relatively stable during adolescence.

Several investigations have focused their research on how the rates of physical TDV victimization and perpetration change over time. Some found a positive association between age and TDV (Hokoda et al. 2012; Silverman et al., 2004), though it has been proposed that this may be explained in part by increased dating experience at older ages (Halpern et al., 2001). Others encountered distinct paths dependent on groupings within the sample population (e.g., high-risk

youth). Orpinas and colleagues (2013) showed that trajectories for perpetration and victimization were distinct based on youth with a high probability of TDV versus a low probability of TDV. Those in the high probability group demonstrated an increasing trajectory while those in the low probability group remained relatively stable. Brooks-Russell et al. (2013) found a similar separation between classes of individuals, though the trajectories of high victimization in this case showed a curvilinear pattern as victimization generally peaked around 10th grade for girls. For boys, victimization increased through 9th grade, decreased until 11th grade and then steadily increased again. Given the inconsistency across prior research regarding change in AoV and TDV over time along with the predictive value of longitudinal data, a longitudinal investigation will be essential to understanding the temporal sequence between the variables.

Exposure to Violence

Researchers have proposed that in the context of social learning theory, AoV and violent behavior for both males and females is learned through previous experience and observation of others, particularly influential figures (Bandura, 1973; Riggs & O’Leary, 1989). Children who witness abuse in the home or experience personal victimization may interpret violence as a normal and justified means to control others or resolve conflict (Foshee et al., 1999; Herrenkohl et al., 2003). Peer encounters are also an influential source of learned behavior. Foshee and colleagues (2001) found that having friends who experienced TDV predicted one’s own involvement in dating violence.

Numerous studies have linked exposure to violence with subsequent perpetration or victimization of dating violence (Duke et al., 2010; Smith-Marek et al., 2015; Wolfe et al., 2001). Family and peer contexts are strongly influential with regard to interpersonal communication and behavior. However, several researchers have noted that witnessing

relationship violence does not deterministically lead to one's own involvement in partner aggression (Margolin & Gordis, 2004). Instead, studies have demonstrated that those who observe or experience abuse are generally more condoning of TDV than those who have not (Price & Byers, 1999; Karlsson et al., 2016). This AoV has been shown to mediate the relationship between childhood exposure to violence and consequent dating violence (Temple et al., 2013; Karlsson et al., 2016). As exposure to parental violence typically decreases from childhood to adolescence (Fantuzzo et al., 1997), the psychological effects have likely already been established as individuals enter their teen years.

Relationship between AoV and GDS

Given the link between AoV and TDV, it follows that changing attitudes condoning relationship violence may influence the rates of physical partner aggression. As such, it is essential to understand what drives beliefs regarding AoV and identify potential risk factors. The traditional societal standards for masculinity and femininity are tied to AoV as the ideals of male aggression and female submission may normalize dating violence (White & Kowalski, 1998). Gender norms are also linked to GDS as individuals who don't feel that they meet those standards may consequently experience anxiety (Reidy et al., 2018a; Reidy et al., 2018b). Yet, the association between GDS and AoV has not previously been investigated and could provide valuable insights toward future interventions.

The Use of Longitudinal Data

Longitudinal data will provide insight into how the variables under investigation change over time and how they may relate to each other sequentially. In contrast to cross-sectional data, longitudinal results allow for causal inference based on an established temporal sequence. Logically, causal effects take time to develop, and longitudinal statistical models account for this

time interval while cross-sectional models assume that the effects are instantaneous (Gollob & Reichardt, 1987). This temporal order is particularly important when testing for mediation, as the mediating variable should necessarily follow the predictor and precede the outcome.

Longitudinal models avoid biased estimates and logical fallacies by specifying the directionality of the hypothesized relationships (Gollob & Reichardt, 1987; Maxwell & Cole, 2007; Selig & Preacher, 2009). As such, the current study will investigate the sequential effects of GDS on AoV and subsequent TDV perpetration and victimization, testing for direct and indirect effects.

Research Aims and Hypotheses

The aim of this study is to expand on current research by leveraging longitudinal data to examine the temporal relationships between gender role discrepancy stress, acceptance of dating violence and physical TDV victimization and perpetration. It will also add to the existing literature on femininity and its influence on partner abuse. The investigation will focus on physical violence given its prevalence as well as the relatively even likelihood of both girls and boys to be victims and perpetrators (Baynard & Cross, 2008; Wincentak et al., 2017). Based on the stark differences in traditional gender role behaviors as they relate to aggression, males and females will be analyzed separately and then compared to understand how associations may vary by gender.

Aim 1: Demonstrate the prospective association between GDS and AoV. Given the interwoven relationship between GDS, adherence to traditional gender norms, and attitudes condoning violence (Moore & Stuart, 2005; Pleck, 1985; Poteat et al., 2010), we hypothesize that GDS has a positive longitudinal effect on AoV.

Aim 2: Demonstrate the longitudinal relationship between AoV and physical TDV victimization and perpetration. Based on cross-sectional evidence (Josephson &

Proulx, 2008; Price & Byers, 1999) and limited longitudinal findings (Foshee et al., 2001) suggesting a relationship between AoV and physical TDV, we hypothesize that AoV will exhibit a prospective effect on both physical TDV perpetration and victimization.

Aim 3: Determine the temporal association between GDS and physical TDV victimization and perpetration. Given prior research indicating that GDS can result in over-conformity to maladaptive gender norms (Pleck, 1981, 1995; Reidy et al., 2018a; Reidy et al., 2018b; Vandello & Bosson, 2013), including violence, we hypothesize that GDS will predict physical TDV perpetration and victimization.

Aim 4: Evaluate the role of AoV as a potential mediator in the relationship between GDS and physical TDV. Based on previous findings regarding the mediating and influence of attitudes condoning violence on involvement in TDV (Temple et al., 2013), we hypothesize that AoV will mediate the association between GDS and physical TDV victimization for girls and physical TDV perpetration for boys.

Aim 5: Determine whether the association between GDS and physical TDV perpetration and victimization differs for boys and girls. Given the differences in traditional gender role norms for males and females (Mahalik et al., 2003, 2005), we hypothesize that GDS will have a positive effect on physical TDV victimization for girls while GDS will have a positive effects on physical TDV perpetration for boys.

II. Methods

Participants and Procedure

The present sample includes 648 adolescents (wave 1 $M_{\text{age}} = 14.4$; $SD = 1.04$; Range = 13-20 years) from seven Michigan high schools. Beginning in 2013, a cohort of ninth grade

students completed self-administered paper and pencil questionnaires, repeated annually over the course of four waves. The sample was stratified by community risk-level (categorized as low-, moderate-, and high-risk schools) and gender with random sampling in each stratum. Community risk was evaluated through a composite index of several measures from publicly available data sources. Measures included rates of poverty, unemployment, percent minority, percent rental housing, percent female-headed households and community violence. Sample demographics were representative of the participating schools relative to race and gender (see Table 1 for sample characteristics).

Table 1. Sample Demographic Distribution

	2013 (N = 648)	2014 (N = 586)	2015 (N = 524)	2016 (N = 464)
Community Risk				
Low	29%	31%	33%	34%
Medium	28%	28%	29%	30%
High	43%	41%	38%	37%
Race/Ethnicity				
Caucasian	71%	73%	74%	75%
African-American	23%	22%	20%	20%
Hispanic	8%	8%	7%	7%
Asian	2%	3%	1%	2%
Native American	5%	4%	4%	2%
Arab American	2%	2%	1%	2%
Other	3%	3%	2%	1%
Gender				
Female	53%	52%	53%	54%
Male	47%	48%	47%	46%

Note. Students could endorse more than one racial category

Passive consent procedures were followed to align with recommended ethical guidelines. A packet containing an introductory letter and information sheet was sent home to all parents detailing the study and explaining a passive consent process. Parents/guardians were given the opportunity to refuse consent for participation on behalf of their child by submitting a written

form or by calling a toll-free telephone number. All participants provided assent and were informed of their right to withdraw from the study at any time prior to survey administration. A social worker was present at each survey administration to assist in the event a participant was distressed by a question or disclosed imminent harm to self or others. Passive parental consent procedures and student assent procedures were repeated annually before each new wave of data collection. Retention was 72% between wave 1 and wave 4. All procedures were approved by Institutional Review Board at Wayne State University.

Measures

Gender role discrepancy and gender discrepancy stress

Gender role discrepancy and gender discrepancy stress were measured via the Masculine Discrepancy Stress Scale (MDSS) (Reidy et al., 2016a) for males while females answered variants of the items from the MDSS. Participants answered five Likert-style questions each relating to personal experience of GRD and GDS. Responses ranged from strongly disagree to strongly agree on a 5-point scale. Questions related to GRD assessed the respondents' perceived gender role conflict as compared to social norms (e.g., "I am less masculine than the average guy," "Most guys I know would say that I'm not as feminine as my friends"). Questions pertaining to GDS evaluated the respondents' stress and anxiety as a result of perceived GRD (e.g., "I wish I was more manly," "I worry that people find me less attractive because I'm not as feminine as other girls"). Feminine GRD and GDS measures adapted the MDSS to create female variants of items, trading out terms like "manly" and "masculinity" for "girly" and "femininity," respectively. Terminology about specific behaviors, attributes, or cognitions related to masculinity or femininity was avoided as this language was deemed too directive and not accurately assessing subjective constructions of masculinity or femininity.

Exposure to violence (ETV)

Exposure to violence in the household was measured via five indicators derived from the Conflict Tactics Scale (Straus, 1979) to define physical abuse during childhood and abuse against respondent's parents. The five indicators specifically tapped physical abuse, either through personal victimization ("Did a parent or adult in the household ever hit you so hard that you had marks or were injured?" "Did a parent or adult in the household often push, grab or slap you or throw something at you?") or witnessing abuse ("Was your parent or guardian often pushed, grabbed, slapped or had something thrown at him/her?" "Was your parent or guardian often kicked, bitten, hit with a fist, or hit with something hard?") Binary responses of "yes" or "no" recorded whether respondents had experienced the given circumstances.

Acceptance of dating violence

Acceptance of dating violence was assessed through the Attitudes about Aggression in Dating Situations (AADS) Scale (Slep et al., 2001). The AADS scale is designed to measure the degree to which adolescents perceive TDV to be acceptable or justifiable. The scale is made up of 12 indicators that present a variety of dating scenarios in which one or both partners exhibits aggressive behavior toward the other. Items include both male-to-female and female-to-male violence (e.g., "Lisa won't stop making fun of Charlie in front of their friends. Charlie loses his temper and pushes her." "David is following Maria and won't leave her alone. Maria pushes him out of her way.") Respondents indicated whether they agreed that the use of physical violence was acceptable in each scenario on 4-point Likert scale, ranging from strongly disagree to strongly agree.

Physical dating violence perpetration and victimization

The Safe Dates Dating Violence Perpetration Scale (Foshee et al., 1996) was used to assess physical dating violence perpetration and victimization. Respondents were asked about 15 behaviors associated with physical aggression (e.g. scratching, slapping, pushing, hitting with a fist). Participants indicated how many times they had committed each act against a dating partner in the past year as well as how many times they had been a victim of each behavior. Responses were recorded on a scale of 0 to 4 based on frequency, ranging from never (0) to 10 or more times (4). While the original scale included 15 indicators, two indicators (“burned them/me” and “assaulted them/me with a knife or a gun”) were perfectly correlated for both victimization and perpetration factors. As a result, the “burned them/me” indicator was dropped from the analysis, and the present study evaluated perpetration and victimization of TDV based on a 14-item scale.

Data Analysis

All analyses employed structural equation modeling (SEM) in Mplus version 8.0, using weighted least squares with mean and variance adjustment (WLSMV) for categorical data. Structural equation modeling allows for the exploration of relationships between latent or unobserved constructs and covariates through a system of linear regressions. As a latent factor is assumed to be the underlying cause of the observed correlation among its indicators, SEM strips away the biasing effects of measurement error.

Unconditional models at the indicator-level were used to calculate the intraclass correlation coefficients (ICC) estimating what proportion of variance is between schools. All ICC values were <0.05 , signifying that for all indicators, less than 5% of the variance is between schools. Due to the minimal between-school variance, it was determined that a single-level model would suffice and no additional steps were needed to control for the clustering of data

within schools. Confirmatory factor analyses were utilized to establish the best-fitting measurement model for each latent variable and verify the hypothesized relationship between the indicators and associated construct. Models were deemed to fit the underlying data adequately when the root mean square error of approximation (RMSEA) ≤ 0.08 and the Comparative Fit Index (CFI)/Tucker Lewis Index (TLI) $\geq .90$.

We also tested the invariance of constructs across gender and across time to ensure comparability for statistical modeling and interpretation. The first stage evaluated configural invariance to determine whether the same items measure the construct of interest across groups. As this is considered a baseline model, standard fit indices were used to confirm configural invariance. In the second stage, metric invariance was tested by constraining the item factor loadings to be equal across groups. Metric invariance was achieved when there was no significant difference in the fit of the metric and configural models according to the chi-square difference test. The third stage of scalar invariance built upon metric invariance by also constraining the item intercepts to be equal across groups. Scalar invariance was achieved when there was no significant difference in the fit of the scalar and metric models according to the chi-square difference test. The same invariance testing process used for the multiple group analysis across gender was repeated across time to evaluate longitudinal invariance.

Following invariance testing, item parcels were created for AoV, perpetration and victimization of physical TDV due to the number of indicators associated with these variables. Parceling aggregates individual items into a set of parcels which are then used as the indicators for a latent construct. Parcels help to improve model efficiency and provide more stable estimates, particularly in instances where there is considerable noise or small sample size (Bandalos, 2002; Matsunaga, 2008). For each variable, three parcels were created by taking the

mean of a subset of indicators. For the AoV variable, each parcel averaged four items while for perpetration and victimization of physical TDV, two parcels averaged five items while the third averaged four.

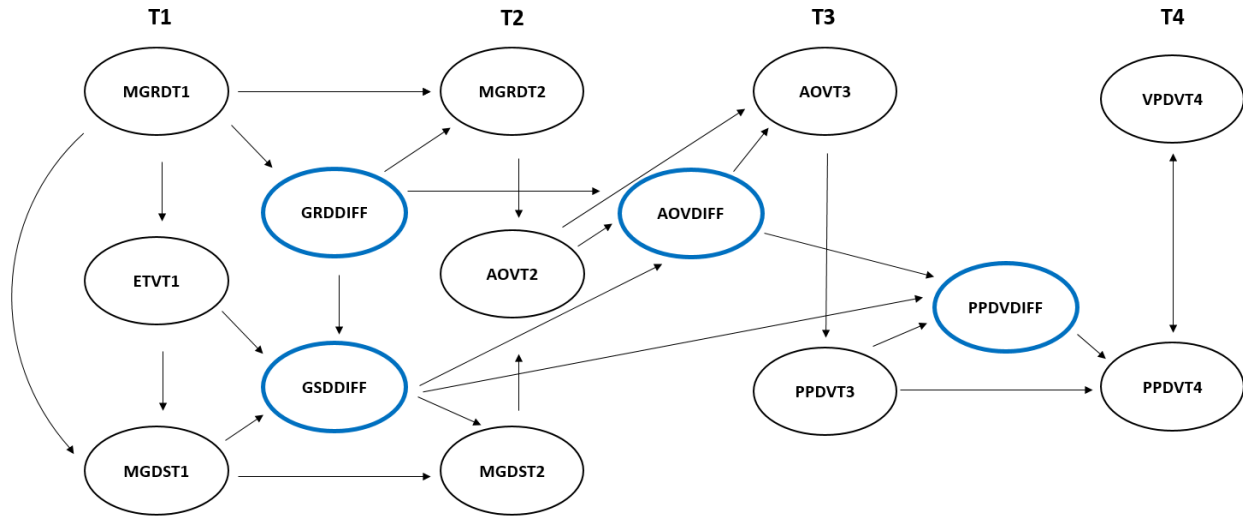
Latent change scores were then created to directly measure change across time points (Geiser, 2012). Also known as latent difference scores (LDS), these changes in adjacent observations are represented as their own latent constructs. The use of latent change scores allows for sequential mediation through the ability to test for indirect effects for any combination of the initial status and change factors (Selig & Preacher, 2009). This method provides informative measures of absolute effects rather than relative effects, and LDS models are preferable to cross-lagged panel models when the goal is to evaluate intraindividual change as opposed to interindividual change (Selig & Preacher, 2009). The LDS model was selected in place of the latent growth curve alternative in order to truly model the sequential effects. While growth curve parallel process models measure change over time, the association between variables is repeatedly measured at the same time point, and it is assumed that for at least one variable, individuals on average are changing in a systematic way (Selig & Preacher, 2009).

To establish the hypothesized temporal sequence, change scores for GRD and GDS measured the difference between wave 1 and wave 2, the change score for AoV measured the difference between wave 2 and wave 3, and the change score for perpetration of physical TDV measured the difference between wave 3 and wave 4. No change score was created for ETV as it was theorized that this variable would already be well-established at the start of high school. Change scores reflect the difference between two time points. As such, each change variable was derived by regressing the time two variable on the time one variable plus the difference between

time points. Variance at the second time point was fixed to zero and item residuals were correlated across time.

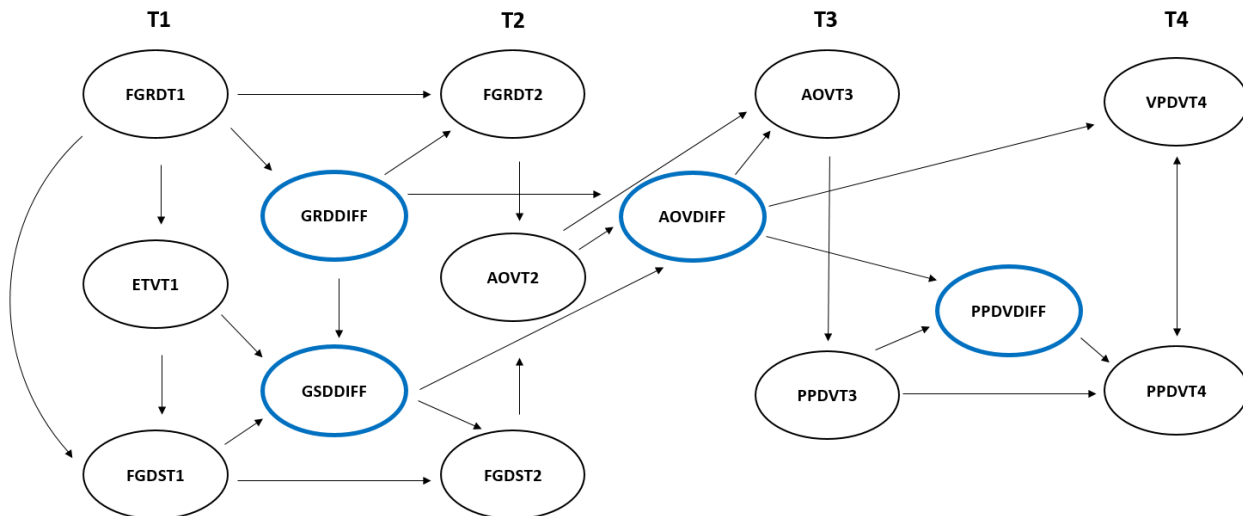
We then built and tested the fit of the full structural model including the initial latent constructs as well as the change scores. The model was built iteratively, beginning with wave 1 variables and subsequently adding wave 2, wave 3 and wave 4, respectively, along with associated latent change score variables. The model building strategy was executed separately for males and females. The decision to run a separate analysis by gender was driven by the documented differences in gender role expectations as they relate to physical aggression and different hypothesized models (Mahalik et al., 2003, 2005). Each structural model examined the relationship between GDS, AoV and physical TDV while controlling for GRD and ETV. Nonsignificant paths between variables were retained to avoid biased estimates, and paths from earlier to later time points were deemed to be causal versus correlated. Figures 1 and 2 depict the conceptual SEM that was tested for males and females, respectively. In the final step of the analysis, we tested the indirect effects of GDS on physical TDV victimization and perpetration through AoV to assess AoV as a potential mediator. Bootstrapped confidence intervals were implemented to account for the non-normality of the estimate.

Figure 1. Conceptual model of paths among Masculine Discrepancy and Discrepancy Stress, Acceptance of Violence, Physical Teen Dating Violence Perpetration and Victimization, controlling for Exposure to Violence.



Note. MGRD = Masculine Gender Role Discrepancy; MGDS = Masculine Gender Discrepancy Stress; ETV = Exposure to Violence; AOV = Acceptance of Violence; PPDV = Physical Perpetration of Dating Violence; VPDV = Victimization of Physical Dating Violence; T1-T4 = Time 1-Time 4; DIFF = Difference Score.

Figure 2. Conceptual model of paths among Feminine Discrepancy and Discrepancy Stress, Acceptance of Violence, Physical Teen Dating Violence Perpetration and Victimization, controlling for Exposure to Violence.



Note. FGRD = Feminine Gender Role Discrepancy FGDS = Feminine Gender Discrepancy Stress; ETV = Exposure to Violence; AOV = Acceptance of Violence; PPDV = Physical Perpetration of Dating Violence; VPDV = Victimization of Physical Dating Violence; T1-T4 = Time 1-Time 4; DIFF = Difference Score.

III. Results

Table 2 displays the fit indices for the measurement models of all latent constructs prior to parceling. Adequate fit was achieved for all constructs, though modification was needed for several factors. Constructs related to female GDS and GRD each necessitated one correlated residual while male GRD and ETV each required two correlated residuals. All indicators of latent constructs loaded onto their respective factor at .45 or higher, suggesting that the items were sufficiently measuring a single latent construct.

Table 2. Fit Indices for the Measurement Models of the Latent Constructs (Pre-Parceling)

Latent Construct	Indicators	RMSE A	90% CI	CFI	TLI	χ^2 (df)	p	Factor Loadings
MGRDT1	5	.044	[.000, .081]	.99	.98	10.685 (5)	.06	≥.65
MGRDT2	5	.038	[.000, .093]	.997	.991	5.111 (3)	.16	≥.71
FGRDT1	5	.047	[.000, .086]	.993	.983	9.466 (4)	.05	≥.62
FGRDT2	5	.031	[.000, .078]	.997	.992	5.981 (4)	.20	≥.74
MGDST1	5	.043	[.000, .081]	.986	.973	10.439 (5)	.06	≥.52
MGDST2	5	.050	[.002, .090]	.989	.979	11.089 (5)	.05	≥.58
FGDST1	5	.067	[.033, .104]	.985	.962	15.237 (4)	.00	≥.48
FGDST2	5	.034	[.000, .080]	.995	.988	6.370 (4)	.17	≥.60
ETVT1	5	.019	[.000, .055]	1.000	.999	4.301 (3)	.23	≥.64
AOVT2	12	.077	[.069, .086]	.971	.956	281.708 (43)	.00	≥.45
AOVT3	12	.076	[.066, .086]	.978	.965	228.292 (41)	.00	≥.53
PPDVT3	14	.035	[.021, .048]	.992	.991	115.947 (77)	.00	≥.75
PPDVT4	14	.024	[.000, .040]	.999	.998	92.321 (77)	.11	≥.83
VPDVT4	14	.030	[.009, .046]	.993	.992	100.948 (77)	.04	≥.80

Note. MGRD = Masculine Gender Role Discrepancy; MGDS = Masculine Gender Discrepancy Stress; FGRD = Feminine Gender Role Discrepancy FGDS = Feminine Gender Discrepancy Stress; ETV = Exposure to Violence; AOV = Acceptance of Violence; PPDV = Physical Perpetration of Dating Violence; VPDV = Victimization of Physical Dating Violence; T1-T4 = Time 1-Time 4; RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; χ^2 = χ -square value with degrees of freedom in parentheses; p = significance value.

Constructs proved to be invariant across gender and time. Tables 3 and 4 provide details of model fit at the configural, metric and scalar stages of invariance across time and gender, respectively. While all constructs achieved scalar invariance, in some cases adequate fit was met only when the equality constraints were relaxed across select items. These instances, known as

partial invariance, are denoted in the tables by asterisks. As effect sizes were <0.05, the constructs were deemed sufficiently invariant.

Table 3. Fit Indices for Longitudinal Invariance Testing (Wave 1-Wave 4)

Model	χ^2	df	p	CFI	RMSEA	$\Delta\chi^2$	Δdf	Δp	Effect Size (w)
Female Gender Role Discrepancy									
Configural	210.57	134	.00	.977	.031	--	--	--	--
Metric	230.367	149	.00	.976	.030	19.797	15	.00	.05
Scalar	259.171	164	.00	.972	.031	28.804	15	.00	.05
Male Gender Role Discrepancy									
Configural	224.986	132	.00	.978	.038	--	--	--	--
Metric	251.369	147	.00	.975	.035	26.383	15	.00	.05
Scalar	266.591	162	.00	.975	.033	15.222	15	.00	.05
Feminine Gender Discrepancy Stress									
Configural	263.465	133	.00	.963	.039	--	--	--	--
Metric	283.984	148	.00	.961	.038	20.519	15	.00	.05
Scalar	321.893	163	.00	.955	.039	37.909	15	.00	.06
Masculine Gender Discrepancy Stress									
Configural	210.57	134	.00	.977	.031	--	--	--	--
Metric	230.367	149	.00	.976	.030	19.797	15	.00	.05
Scalar	259.171	164	.00	.972	.031	28.804	15	.00	.05
Acceptance of Violence*									
Configural	2646.371	963	.00	.901	.063	--	--	--	--
Metric	2694.068	997	.00	.900	.037	47.697	34	.00	.03
Scalar	2721.195	1027	.00	.975	.033	27.127	30	.00	.03
Physical Perpetration of Teen Dating Violence*									
Configural	2259.673	1313	.00	.900	.025	--	--	--	--
Metric	2306.555	1352	.00	.900	.025	46.882	39	.00	.03
Scalar	2358.035	1391	.00	.900	.025	51.480	39	.00	.03
Physical Victimization of Teen Dating Violence*									
Configural	2031.152	1297	.00	.901	.024	--	--	--	--
Metric	2054.820	1338	.00	.903	.023	23.668	41	.00	.02
Scalar	2101.581	1378	.00	.900	.025	46.761	40	.00	.03

Note. χ^2 = χ -square value; df= degrees of freedom; p = significance value; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation. Asterisks denote partial invariance.

Table 4. Fit Indices for Multi-Group Invariance Testing Across Gender

Model	χ^2	df	p	CFI	RMSEA	$\Delta\chi^2$	Δdf	Δp	Effect Size (w)
Exposure to Violence (Wave 1)									
Configural	3.404	4	.49	1.000	.000	--	--	--	--
Metric	10.273	8	.25	.999	.022	6.869	4	-.25	.04
Scalar	13.097	12	.36	1.000	.012	2.824	4	.12	.03
Acceptance of Violence (Wave 2)*									
Configural	246.48	78	.00	.942	.068	--	--	--	--
Metric	267.314	90	.00	.939	.065	20.834	12	.00	.04
Scalar	286.131	101	.00	.037	.063	18.817	11	.00	.04
Acceptance of Violence (Wave 3)									
Configural	229.097	80	.00	.934	.069	--	--	--	--
Metric	245.013	92	.00	.932	.065	15.916	12	.00	.04
Scalar	261.322	104	.00	.930	.062	16.309	12	.00	.04
Physical Perpetration of Violence (Wave 3)*									
Configural	117.408	86	.01	.946	.042	--	--	--	--
Metric	127.642	89	.00	.933	.046	10.234	3	-.01	.07
Scalar	140.861	97	.00	.924	.047	13.219	8	.00	.05
Physical Perpetration of Violence (Wave 4)*									
Configural	221.834	110	.00	.922	.077	--	--	--	--
Metric	243.117	123	.00	.917	.075	21.283	13	.00	.05
Scalar	261.173	133	.00	.911	.075	18.056	10	.00	.05
Physical Victimization of Violence (Wave 4)									
Configural	194.550	110	.00	.941	.067	--	--	--	--
Metric	203.800	124	.00	.945	.062	9.250	14	.00	.03
Scalar	223.681	138	.00	.940	.061	19.881	14	.00	.04

Note. χ^2 = χ -square value; df= degrees of freedom; p = significance value; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation. Asterisks denote partial invariance.

Table 5 displays the fit indices for the measurement models of all latent constructs following the creation of item parcels for AoV and physical TDV perpetration and victimization. Measurement models for these constructs resulted in perfect fit as they were just identified. All indicators of latent constructs loaded onto their respective factor at .48 or higher (slightly higher than pre-parceling), and all factor loadings improved for all parceled factors.

Table 5. Fit Indices for the Measurement Models of the Latent Constructs (Post-Parceling)

Latent Construct	Indicators	RMSEA A	90% CI	CFI	TLI	χ^2 (df)	p	Factor Loadings
MGRDT1	5	.044	[.000, .081]	.99	.98	10.685 (5)	.06	$\geq .65$
MGRDT2	5	.038	[.000, .093]	.997	.991	5.111 (3)	.16	$\geq .71$
FGRDT1	5	.047	[.000, .086]	.993	.983	9.466 (4)	.05	$\geq .62$
FGRDT2	5	.031	[.000, .078]	.997	.992	5.981 (4)	.20	$\geq .74$
MGDST1	5	.043	[.000, .081]	.986	.973	10.439 (5)	.06	$\geq .52$
MGDST2	5	.050	[.002, .090]	.989	.979	11.089 (5)	.05	$\geq .58$
FGDST1	5	.067	[.033, .104]	.985	.962	15.237 (4)	.00	$\geq .48$
FGDST2	5	.034	[.000, .080]	.995	.988	6.370 (4)	.17	$\geq .60$
ETVT1	5	.019	[.000, .055]	1.000	.999	4.301 (3)	.23	$\geq .64$
AOVT2	3	.000	[.000, .000]	1.000	1.000	0.000 (0)	.00	$\geq .75$
AOVT3	3	.000	[.000, .000]	1.000	1.000	0.000 (0)	.00	$\geq .66$
PPDVT3	3	.000	[.000, .000]	1.000	1.000	0.000 (0)	.00	$\geq .85$
PPDVT4	3	.000	[.000, .000]	1.000	1.000	0.000 (0)	.00	$\geq .90$
VPDVT4	3	.000	[.000, .000]	1.000	1.000	0.000 (0)	.00	$\geq .83$

Note. MGRD = Masculine Gender Role Discrepancy; MGDS = Masculine Gender Discrepancy Stress; FGRD = Feminine Gender Role Discrepancy FGDS = Feminine Gender Discrepancy Stress; ETV = Exposure to Violence; AOV = Acceptance of Violence; PPDV = Physical Perpetration of Dating Violence; VPDV = Victimization of Physical Dating Violence; T1-T4 = Time 1-Time 4; RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; χ^2 = χ -square value with degrees of freedom in parentheses; p = significance value.

Latent change scores were first evaluated individually by variable before entry into the full model. The change score model for physical TDV victimization did not achieve adequate fit. As such, it was not possible to create a reliable victimization change score and victimization at wave 4 was instead used to test longitudinal effects. The unadjusted change score estimates for intercepts and regression coefficients are provided in Table 6. Differences in feminine GDS and female AoV showed significant overall decreases across the sample while the intercept values for other constructs were not significantly different from zero. However, significant regression coefficients across all change score constructs indicated that teens who had higher starting values experienced significant decreases over time. For example, males who reported greater GDS in wave 1 demonstrated a significant decline in GDS between wave 1 and wave 2 while their counterparts who did not experience GDS in wave 1 showed no difference.

Table 6. Unadjusted Change Score Estimates

Change Score Construct	Intercept			Regression on Initial Time Point		
	Est.	SE	p	Est.	SE	p
Males						
GSDDIFF	-.12	.07	.08	-.52	.05	<.001**
GRDDIFF	-.12	.07	.08	-.40	.06	<.001**
AOVDIFF	-.11	.07	.13	-.48	.06	<.001**
PPVDIFF	-.08	.10	.45	-.60	.06	<.001**
Females						
GSDDIFF	-.26	.07	<.001**	-.56	.05	<.001**
GRDDIFF	-.07	.07	.28	-.47	.06	<.001**
AOVDIFF	-.15	.07	.03*	-.48	.05	<.001**
PPVDIFF	-.09	.09	.34	-.73	.04	<.001**

Note. MGRD = Masculine Gender Role Discrepancy; MGDS = Masculine Gender Discrepancy Stress; FGRD = Feminine Gender Role Discrepancy FGDS = Feminine Gender Discrepancy Stress; AOV = Acceptance of Violence; PPDV = Physical Perpetration of Dating Violence; DIFF = Difference Score; Est = estimate; SE = standard error; p = significance value.

*p ≤ .05,

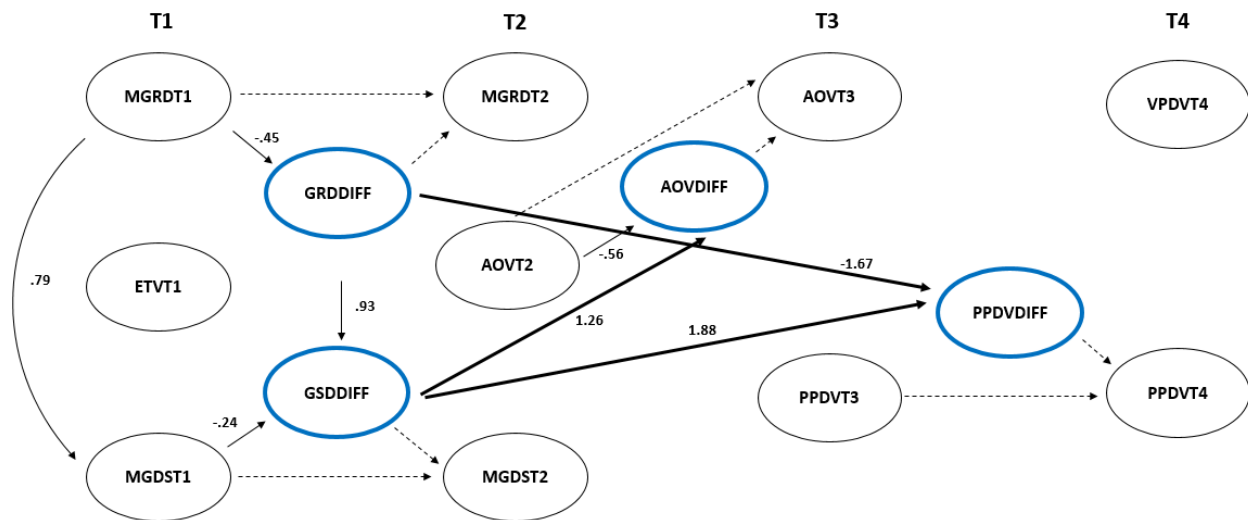
**p ≤ .01.

Tables 7 and 8 provide the covariances and correlations among all latent variables for males and females, respectively. In both cases, the goodness of fit test for the full structural model was non-significant, suggesting no lack of fit (Males: $\chi^2(707) = 758.387, p = .09$; Females: $\chi^2(711) = 764.570, p = .08$). Fit indices also confirmed that the models adequately fit the data (Males: RMSEA = .015, 90% CI [.000, .024]; CFI = .977; TLI = .974; Females: RMSEA = .015, 90% CI [.000, .023]; CFI = .970; TLI = .967).

Figure 3 shows the significant paths revealed from the full structural model for males. As expected, the change in GRD demonstrated a significant direct effect on the change in GDS ($\beta = .93, SE = .05, p < .001$). The GDS change score was positively associated with the change in AoV ($\beta = 1.26, SE = .61, p = .04$) and the change in physical perpetration of TDV ($\beta = 1.88, SE = .74, p = .01$). The GRD change score also exhibited a direct effect on the physical perpetration of TDV change score ($\beta = -1.67, SE = .70, p = .02$), though in this case the association was negative. In the full model, higher initial levels of GDS, GRD and AoV were associated with greater decreases between the initial and subsequent time points according to the associated

change scores (GDS: $\beta = -.24$, $SE = .11$, $p = .03$; GRD: $\beta = -.45$, $SE = .07$, $p < .001$; AoV: $\beta = -.56$, $SE = .10$, $p < .001$). Contrary to expectation, changes in AoV did not show a direct effect on physical TDV victimization or perpetration. Results did not reveal any significant effects on victimization of physical TDV from any of the latent constructs.

Figure 3. Structural model of paths among Masculine Discrepancy and Discrepancy Stress, Acceptance of Violence, Physical Teen Dating Violence Perpetration and Victimization, controlling for Exposure to Violence.

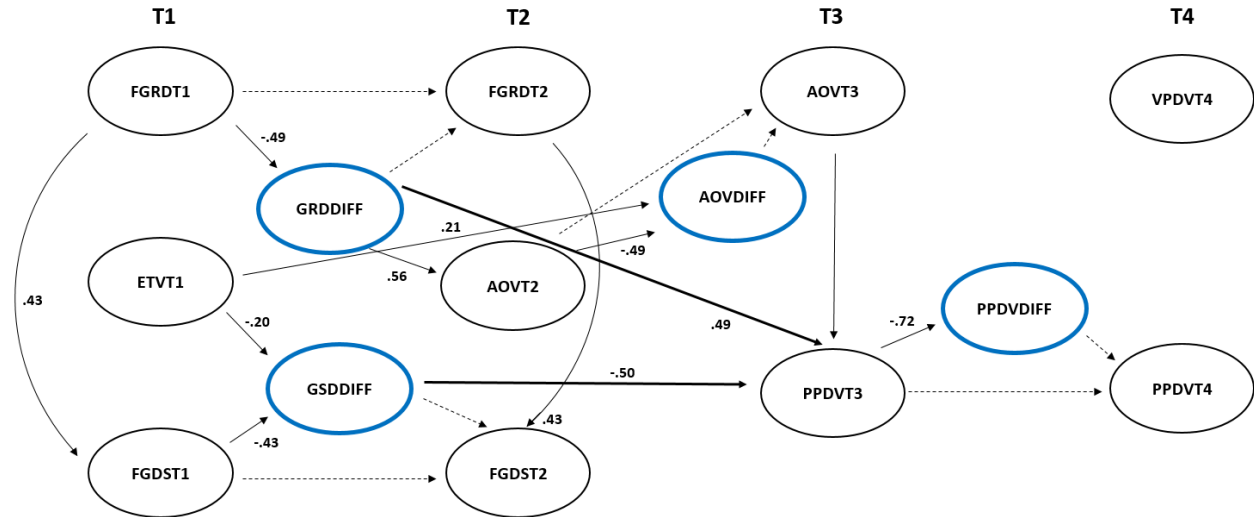


Note. MGRD = Masculine Gender Role Discrepancy; MGDS = Masculine Gender Discrepancy Stress; ETV = Exposure to Violence; AOV = Acceptance of Violence; PPDV = Physical Perpetration of Dating Violence; VPDV = Victimization of Physical Dating Violence; T1-T4 = Time 1-Time 4; DIFF = Difference Score. Dashed lines represent paths that were fixed for model specification purposes. Only significant paths are shown and all paths are significant at $p \leq .05$. Standardized coefficients are displayed.

Significant paths from the full structural model for females are presented in Figure 4 in standardized form. Higher initial levels of GDS, GRD, AoV and physical perpetration of TDV were associated with significant declines between the initial and subsequent time points (GDS: $\beta = -.43$, $SE = .12$, $p < .001$; GRD: $\beta = -.49$, $SE = .08$, $p < .001$; AoV: $\beta = -.49$, $SE = .07$, $p < .001$; PPDV: $\beta = -.72$, $SE = .06$, $p < .001$). Exposure to violence demonstrated direct effects on the change in GDS ($\beta = -.20$, $SE = .10$, $p = .05$) and AoV ($\beta = .21$, $SE = .09$, $p = .02$). While the change scores for GDS and GRD did not reveal direct associations with the change in physical

perpetration of TDV, they did reveal direct effects on perpetration at wave 3 (GDS: $\beta = -.50$, SE = .18, $p < .01$; GRD: $\beta = .49$, SE = .21, $p = .02$).

Figure 4. Structural model of paths among Feminine Discrepancy and Discrepancy Stress, Acceptance of Violence, Physical Teen Dating Violence Perpetration and Victimization, controlling for Exposure to Violence.



Note. FGRD = Feminine Gender Role Discrepancy FGDS = Feminine Gender Discrepancy Stress; ETV = Exposure to Violence; AOV = Acceptance of Violence; PPDV = Physical Perpetration of Dating Violence; VPDV = Victimization of Physical Dating Violence; T1-T4 = Time 1-Time 4; DIFF = Difference Score. Dashed lines represent paths that were fixed for model specification purposes. Only significant paths are shown and all paths are significant at $p \leq .05$. Standardized coefficients are displayed.

Several indirect paths were tested to evaluate the role of AoV as a potential mediator in the relationship between GDS and physical TDV. Paths from the GDS change score to physical perpetration at wave 3, wave 4, the associated change score and physical victimization at wave 4 were all modeled. The same set of paths was also assessed using GDS at wave 1 as the predictor. However, the tests for sequential mediation yielded no significant findings for any indirect paths.

IV. Discussion

The aim of the current study was to expand upon previous findings that showed deleterious effects of GDS on numerous health outcomes (Reidy et al., 2018a; Reidy et al., 2018b). The present investigation leveraged longitudinal data to allow for causal inference and

sequential mediation testing. Overall, hypotheses were partially supported. Findings suggest that GDS does exert influence on attitudes condoning violence and physical perpetration of violence, though results revealed distinct effects for boys and girls. Below is a brief summary of the findings as they relate to the hypotheses.

Hypothesis 1: Partially supported. As expected, GDS had a direct, positive effect on AoV for males, but there was no significant association between GDS and AoV for females.

Hypothesis 2: Not supported. Changes in AoV did not demonstrate a longitudinal relationship with physical TDV victimization or perpetration for girls or boys

Hypothesis 3: Partially supported. Changes in GDS did have a direct, positive effect on change in physical TDV perpetration for males and a direct, negative effect on physical TDV perpetration in wave 3 for females. However, GDS did not exhibit any significant effects on victimization for either gender.

Hypothesis 4: Not supported. Sequential mediation testing did not reveal any significant indirect paths from GDS to physical TDV through AoV for boys or girls. As such, AoV did not mediate the relationship between GDS and physical TDV.

Hypothesis 5: Partially supported. Findings showed that GDS did have a positive effect on physical TDV perpetration for boys. Contrary to expectation, GDS did not have a significant effect on physical TDV victimization for girls, though it did have a protective effect on physical TDV perpetration at wave 3.

Consistent with previous research (Reidy et al., 2016a; Reidy et al., 2018b), findings showed that GDS led to adverse health behaviors for males. The change in GDS had a direct, positive effect on the change in AoV as well as the change in physical perpetration of TDV. This

indicates that boys who experience increases in GDS over time are also more likely to experience subsequent increases in AoV and dating violence perpetration. Interestingly, AoV did not demonstrate any effect on involvement in physical TDV perpetration or victimization. While this finding conflicts with empirical support for an association between AoV and TDV (Malik et al., 1997; O’Keefe, 1997), it aligns with results from Karlsson and colleagues’ (2018) previous study that did not reveal a longitudinal relationship between the two variables. It is possible that a longer timeframe is needed to understand the long-term effects of changes in AoV.

Findings also reinforced existing evidence (Reidy et al., 2018b) that GRD is protective against certain harmful behaviors for boys when GDS is taken into account. The change in GRD produced a direct negative effect on the change in physical perpetration of TDV. In other words, boys who experienced an increase in GRD but no corresponding increase in GDS showed decreases in dating aggression. Nonconformity itself does not appear to predict attitudes condoning relationship violence for boys in their adolescent years, and it was actually linked to decreases in physical dating aggression. However, nonconformity may bring on fear of negative consequences, and this resulting anxiety (i.e., GDS) has been shown to exhibit deleterious effects (Reidy et al., 2016a; Reidy et al., 2018b). Boys who experience GDS may overcompensate toward damaging gender-role stereotypes such as power over women as a means to prove their masculinity and avoid ostracism and stigmatization (Bosson & Vandello, 2011; Goldback et al., 2013; Reidy et al., 2018b).

Changes in GDS and GRD also proved influential for girls with regard to subsequent violent behavior, though the effects were opposite those for boys. The change score for discrepancy stress produced a negative effect on physical perpetration of TDV at wave 3 while the change in GRD had a direct positive effect on the same construct. Traditional gender role

ideals may help to explicate these findings. While masculinity is characterized by dominance and aggression, values of submission and passivity are instilled through femininity (Mahalik et al., 2003; 2005). As such, girls who experience stress due to their perceived lack of femininity may purposely avoid perpetration of TDV so as not to appear manly. In contrast, girls who identify with more masculine traits but do not experience corresponding GDS could take on more traditionally masculine behaviors in a relationship, such as aggression. It is of note that contrary to the results for boys, changes in GDS and GRD did not impact the change in perpetration of dating violence between wave 3 and wave 4. This may suggest that changes regarding gender role take longer to affect changes in physical behavior for girls than for boys or that significant changes in dating aggression have already taken place by the time girls reach late adolescence. Changes in GDS did not reveal any significant effects on changes in AoV, and changes in AoV again had no bearing on changes in physical TDV engagement.

Contrary to our hypotheses, neither change in GDS nor AoV was found to predict physical TDV victimization for girls. In fact, none of the constructs demonstrated an association with victimization at wave 4. Specifically related to AoV, these results generally conflict with findings from prior research (Josephson & Proulx, 2008; Malik et al., 1997; O’Keefe, 1997), though Karlsson and colleagues (2018) similarly found no longitudinal association between AoV and victimization. One possible explanation could stem from reporting bias. Girls may feel a sense of shame or stigma associated with reporting victimization, which could mask its true connection to variables of interest. In that vein, they may also downplay any incidents of violence in their own relationships, chalking them up to playful misunderstandings or jokes. It is also possible to consider the directionality of the associations. While AoV was not predictive of physical TDV victimization, victimization may instead predict AoV as a means of rationalization

or justification. Further investigation is needed to understand the temporal relationship between physical TDV victimization and the other modeled constructs.

Adolescence is a key time period for personal development, and habits formed during this stage influence lifelong behaviors (Arnett, 1999; Guyer et al., 2016; Wheaton & Clarke, 2003). The present study's findings provide valuable insights that could help inform future studies of TDV prevention efforts. Based on the association between GDS and physical perpetration of relationship violence, it may prove beneficial to evaluate measures of gender norms or gender socialization in the context of TDV interventions, particularly for a pre-post evaluation. In addition to the previously established links between GDS and a variety of damaging health outcomes (Reidy et al., 2016a; Reidy et al., 2018a; Reidy et al., 2018b), the current investigation demonstrated a clear effect of gender-related anxiety on both perpetration of dating aggression as well as attitudes condoning violence for boys. Strategies targeted toward reducing GDS could therefore assuage subsequent negative effects across multiple behaviors. The present study also highlighted a distinction between the effects of GRD and GDS on physical perpetration of TDV for males and females. Given the dramatic difference in ideal characteristics associated with traditional masculinity and femininity, it is understandable that gender-related beliefs would result in varied trajectories for boys and girls. As such, gender-specific interventions should take care to ensure that content does inadvertently perpetuate these stereotypes. The harmful consequences of TDV not only affect the individuals involved in the short and long-term (Ackard et al., 2007; Baynard & Cross, 2008; Exner-Cortens et al., 2012; Greenman & Matsuda, 2016; Halpern et al., 2009; Smith et al., 2003;), they also have ramifications across peers groups (Garthe et al., 2017) and across generations (Gover et al., 2008; Jankowski et al., 1999; Malik et

al., 1997). These widespread effects highlight the importance of addressing risk factors early before they become entrenched.

V. Limitations

There are several important limitations to note related to the current study. While the investigation expands upon existing research through the use of longitudinal data, the full dataset spans only four years. Similarly, as the questionnaires were administered annually, the time between each wave is one year. Changes to constructs and their associated effects may not be reflected in such a short timeframe. Additionally, we were unable to evaluate a difference score for physical victimization of TDV due to lack of adequate model fit. This could have contributed to the lack of association between victimization and other modeled constructs. Further assessment is needed to understand potential causes and effects of victimization. Previous research has shown that teens' own involvement in TDV is influenced by their peers' involvement. As that data was not captured, we were unable to account for peer TDV in statistical models. In order to create latent difference scores, the residual variance of each construct's second timepoint (wave 2 for GRD and GDS, wave 3 for AoV, wave 4 for physical perpetration of TDV) was fixed to zero. As a result, no bidirectional paths could be established for these constructs, even where theoretically plausible. Though the model specification was necessary for the purposes of producing latent difference scores, we acknowledge the potential for additional paths. The present study is also limited by the lack of attention to non-heterosexual or non-cisgender measurement as this data was not collected in the questionnaires. It is possible that the GDS construct functions differently for sexual and gender minority youth and may therefore generate effects distinct from those demonstrated in the current investigation.

VI. Directions for Future Research

Despite these limitations, the present study adds to the existing landscape by demonstrating the longitudinal effect of GDS and GRD on attitudes condoning dating violence and physical TDV involvement. Future research would benefit from a longer duration via extended follow-up to capture data throughout adolescence and into early adulthood. This would allow for a better understanding of potential long-term effects and more robust trajectories over time. It will also be important to test the direction of the temporal sequence between constructs. Future studies may seek to answer whether engaging in physical TDV is actually predictive of AoV as opposed to the other way around. Another logical extension of existing research is to examine the GDS construct and its corresponding effects for non-heterosexual and non-cisgender youth to identify whether results deviate from previous findings. Finally, while this study's focus centered on TDV, it is of interest to investigate if the effects of GDS and GRD hold across other forms of violence (e.g. bullying) or if they are specific to relationship violence.

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Table 7. Covariances and Correlations Among Latent Constructs in Full Structural Model for Males

	MGRD T1	MGDS T1	ETV T1	GRD Diff	GDS Diff	MGRD T2	MGDS T2	AOV T2	AOV Diff	AOV T3	PPDV T3	PPDV Diff	PPDV T4	VPDV T4
MGRD T1	1	.791**	-.095	-.448**	-.390**	.635**	.434**	-.018	-.023	-.040	-.080	.031	-.057	.074
MGDS T1	.583**	1	-.075	-.355	-.397**	.502**	.630**	-.082	-.062	-.144	.081	-.142	-.050	.187**
ETV T1	-.057	-.043	1	.042	-.028	-.060	-.096	.121	-.105	.011	.160	-.107	.069	.028
GRD Diff	-.294**	-.221**	.022	1	.916**	.406**	.433**	-.063	.105	.047	.047	.013	.063	-.031
GDS Diff	-.252**	-.244**	-.014	.500**	1	.393**	.463**	-.013	.278**	.273**	-.196	.283*	.063	-.097
MGRD T2	.481**	.362**	-.035	.260**	.248**	1	.818	-.072	.068	-.001	-.041	.043	-.003	.049
MGDS T2	.331**	.457**	-.057	.279**	.294**	.610	1	-.090	.175*	.092	-.088	.103	.005	.099
AOV T2	-.008	-.035	.042	-.024	-.005	-.031	-.039	1	-.505**	.459**	.125	.214**	.340**	.033
AOV Diff	-.011	-.028	-.038	.042	.108**	.031	-.028*	-.136**	1	.535**	-.041	.063	.016	.104
AOV T3	-.018	-.062	.004	.018	.103**	.000	.041	.119**	.147**	1	.079	.274**	.350**	.139
PPDV T3	-.016	.015	.025	.008	-.033	-.008	-.017	.014	-.005	.009	1	-.523**	.568**	.300*
PPDV Diff	.005	-.024	-.015	.002	.042*	.007	.018	.022**	.007	.029**	-.024**	1	.405**	-.240
PPDV T4	-.011	-.009	.010	.010	.010	-.001	.001	.036**	.002	.038**	.027**	.017**	1	.089
VPDV T4	.035	.084**	.010	-.012	-.038	.023	.046	.009	.029	.038	.036*	-.026	.010	1

Note. Values on and above the diagonal are correlations; values below the diagonal are covariances. MGRD = Masculine Gender Role Discrepancy; MGDS = Masculine Gender Discrepancy Stress; AOV = Acceptance of Violence; PPDV = Physical Perpetration of Dating Violence; VPDV = Victimization of Physical Dating Violence; T1-T4 = Time 1 – Time 4; DIFF = Difference Score.

* $p \leq .05$,

** $p \leq .01$.

Table 8. Covariances and Correlations Among Latent Constructs in Full Structural Model for Females

	FGRD T1	FGDS T1	ETV T1	GRD Diff	GDS Diff	FGRD T2	FGDS T2	AOV T2	AOV Diff	AOV T3	PPDV T3	PPDV Diff	PPDV T4	VPDV T4
FGRD T1	1	.424**	-.092	-.491**	-.617**	.543**	.240**	-.106	-.021	-.131*	.074	-.082	.021	.079
FGDS T1	.212**	1	.014	-.208**	-.622**	.230**	.674**	-.016	-.103	-.113	.214**	-.188**	.031	-.056
ETV T1	-.054	.007	1	.045	-.162	-.050	-.115	.129	.094	.224*	.099	-.225	-.255	-.361
GRD Diff	-.280**	-.099**	.025	1	.689**	.465**	.450**	.107	-.078	.040	.138*	-.068	.069	-.089*
GDS Diff	-.208**	-.174**	-.054	.220	1	.037	.066	-.078	.113	.024	-.169	.190	.041	.096
FGRD T2	.321**	.113**	-.029	.260**	.012	1	.678**	-.005	-.096	-.095	.209*	-.149	.088	-.005
FGDS T2	.122**	.284**	-.057	.216**	.019	.337**	1	-.070	-.068	-.137*	.188**	-.124	.095	.006
AOV T2	-.049	-.006	.058	.047	-.020	-.002	-.027	1	-.502**	.585**	.080	-.017	.000	-.271*
AOV Diff	-.009	-.035	.038	-.030	.026	-.039	-.023	-.158**	1	.408**	-.103	-.058	-.155	.154
AOV T3	-.057*	-.041	.096	.017	.006	-.041	-.050*	.196**	.121**	1	-.011	-.072	-.145	-.142
PPDV T3	.015	.037**	.020	.027	-.020	.043*	.033**	.013	-.015	-.002	1	-.736**	.321**	-.263**
PPDV Diff	-.016	-.030*	-.043	-.013	.021	-.029	-.020	-.003	-.008	-.010	-.050**	1	.375*	.374
PPDV T4	.003	.004	-.040	.011	.004	.014	.013	.000	-.017	-.017	.018**	.020	1	.422**
VPDV T4	.015	-.009	-.068	-.016	.010	-.001	.001	-.039*	.020	-.020	-.017**	.023	.021**	1

Note. Values on and above the diagonal are correlations; values below the diagonal are covariances. FGRD = Feminine Gender Role Discrepancy; FGDS = Feminine Gender Discrepancy Stress; AOV = Acceptance of Violence; PPDV = Physical Perpetration of Dating Violence; VPDV = Victimization of Physical Dating Violence; T1-T4 = Time 1 – Time 4; DIFF = Difference Score.

* $p \leq .05$,

** $p \leq .01$.