

PEER INFLUENCES ON SEXUAL VIOLENCE PERPETRATION AMONG EARLY
ADOLESCENTS

BY

NAMRATA DOSHI

THESIS

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Master's Committee:

Professor Dorothy Espelage, Chair
Professor Helen Neville
Clinical Assistant Professor Anita Hund

ABSTRACT

Multilevel modeling and social network analysis were used to investigate sexual violence perpetration among middle school youth. Specifically, peer group contextual and socialization effects, and the influence of traditional masculinity ideology and dismissive attitudes toward sexual violence on perpetration of sexual violence over a six month period. Participants included 191 6th ($n = 61$), 7th ($n = 55$) and 8th ($n = 75$) grade students from one Midwestern middle school. Results indicated that peer groups play a prominent role in predicting sexual violence perpetration in early adolescence. Additionally, greater adherence to traditional masculinity attitudes was significantly predictive of individual level sexual violence perpetration. Furthermore, peer group level endorsement of dismissive attitudes toward sexual violence was significantly predictive of individual level sexual violence perpetration. Sexual violence prevention programming must address peer influences. This research was supported by Centers for Disease Control & Prevention (#1U01/CE001677) to Dorothy Espelage (PI).

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CHAPTER 1

BACKGROUND & LITERATURE REVIEW

Sexual violence is increasingly being recognized as a significant public health concern as well as a profound violation of basic human rights. As defined by the Centers for Disease Control and Prevention (Centers for Disease Control and Prevention, 2012), sexual violence (SV) is “any sexual act that is perpetrated against someone's will.” Sexual violence includes a nonconsensual completed sex act (i.e., rape), attempted nonconsensual sex act, unwelcome non-penetrative abusive sexual contact, as well as non-contact sexual abuse, like sexual harassment, threatened sexual violence, or exhibitionism (Basile, Espelage, Rivers, McMahon & Simon, 2009; Centers for Disease Control and Prevention, 2012). Broadly, sexual violence involves sexual activity when a victim does not consent, is unable to consent (i.e., due to age, illness, unconsciousness), or unable to say no (i.e., due to threat or physical violence) (Basile & Saltzman, 2002). Sexual harassment is defined as physical or verbal sexual violence in the form of unwanted sexual advances, verbal or physical sexual contact, or unwelcome requests for sexual favors (AAUW, 2001). The term “sexual violence” is presented throughout this text to represent behaviors that could also fall under the umbrella terms of “sexual abuse”, “sexual assault”, and other sexual violations, like sexual harassment or voyeurism (Basile & Saltzman, 2002).

A recent nationally representative survey found that an average of 207,754 Americans (age 12 years or older) are victims of sexual violence each year (Centers for Disease Control and Prevention, 2012). In fact, according to the National Violence Against Women Survey (NVAWS), 1 in 6 women and 1 in 33 men have experienced an attempted or completed rape,

defined as forced vaginal, oral, or anal penetration, in their lifetime (Tjaden & Thoennes, 2000). However, the majority of the national research efforts have focused specifically on partner violence in married or cohabitating partner relationships. Even still, in the longitudinal National Youth Survey, the prevalence of physical violence decreased from a high of 55% when respondents were aged 18 to 24 years to a low of 32% when they were aged 27 to 33 years (Halpern, Oslak, Young, Martin, & Kupper, 2001). Given this higher prevalence of partner violence among the young adult population, it is important to focus prevention and intervention efforts on understanding precursors to dating violence, such as sexual harassment/violence among early adolescents. Moreover, according to the 2009-2010 survey from the National Center for Education Statistics, 66.4% of public schools reported that student sexual harassment of other students was occurring either daily, weekly, monthly, or occasionally. Here, sexual harassment was defined as “conduct that is unwelcome, sexual in nature, and denies or limits student’s ability to participate in or benefit from a school’s education program” (National Center for Education Statistics, 2010). The results indicate that sexual harassment is a relevant issue in schools that needs to be addressed.

However, only recently have scholars turned their attention to sexual violence experiences among middle and high school samples. These studies are demonstrating that sexual violence/harassment is occurring extensively in these younger populations (Espelage, Basile, & Hamburger, 2012; Miller et al., 2013). In fact, one national study reported that 66% of adolescent boys and 52% of adolescent girls indicated they have sexually harassed a peer; 58% of students reported experiencing physical sexual harassment; and 70% of adolescent students reported experiencing nonphysical sexual violence (i.e., sexual rumor spreading) (AAUW, 2001). The 2011 Youth Risk Behavior Survey, a national survey of students in grades 9-12, found a lifetime

reported prevalence for unwanted physically forced sexual intercourse of 11.8% for girls and 4.5% for boys (Centers for Disease Control and Prevention, 2012). In addition, physical or verbal sexual harassment is extremely common in schools among adolescents, with one national study reporting that 57% of boys and 50% of girls reported sexually harassing a peer. The same study found that 81% of students experienced some form of physical or non-physical sexual harassment at some point during their lives; the most common form experienced was sexual comments, jokes, gestures, or looks (66%), followed by being touched, grabbed, or pinched in a sexual way (49%) (AAUW, 1993). In order to prevent school-based sexual harassment, this study aims to specifically concentrate on the predictive factors that could be perpetuating sexual violence in the early adolescent population. Furthermore, the study objectives include identifying peer group interactions that are predictive of sexual violence perpetration at the individual level.

The importance of such prevention research becomes imperative when considering that many studies have identified negative outcomes associated with experiences of sexual violence (Coleman-Cowger & Henry, 2012; Gruber & Fineran, 2007, Hand & Sanchez, 2000; Miller, Vachon, & Aalsma, 2012). Not only are there well-documented academic effects, but profound mental health effects of sexually violent experiences. For example, the outcomes for sexual violence victimization can be severe, ranging from lower grades and missing more class to increased rates of risky behavior, depression, anxiety, and suicidality (Ackard & Neumark-Sztainer, 2002; Alleyne-Green, Coleman-Cowger, & Henry, 2012; Gruber & Fineran, 2007). The literature also shows that students who have experienced sexual violence can suffer from negative psychosocial outcomes, like loss of appetite, nightmares or disturbed sleep, and low self-esteem or feelings of fear, embarrassment, or sadness (AAUW, 1993, 2000; Ackard & Neumark-Sztainer, 2002). Moreover, many student victims also report withdrawing from family

and friends along with a loss of interest in activities that were once enjoyable (AAUW, 1993, 2000; Corbett, Gentry, & Pearson 1993; Fredland, 2006; Hand & Sanchez, 2000; Lee, Croninger, Linn, & Chen, 1996).

In addition to the immediate pervasive impact of sexual violence in youth, evidence suggests long-term impacts exist. For instance, two studies of college women identified that sexual victimization during adolescence was associated with increased risk for sexual violence victimization in college (Gidycz, Hanson, & Layman, 1995; Humphrey & White, 2000). Other studies have assessed adolescent sexual violence as a predictor of risky behaviors related to other major areas of adolescent health concerns. For example, studies have shown sexual violence victimization has been linked to future substance abuse, unhealthy weight monitoring, sexually risky behaviors, and suicidality (Briere & Elliot, 1994; Silverman, Raj, Mucci, & Hathaway, 2001).

Most of these outcomes are predominantly observed in the victimized populations and many studies focus on characteristics and predictors of those who are at-risk of being abused or those who have already been victimized. However, this study aims to add to implications for prevention strategies targeting the perpetrators of sexual violence by examining the predictive characteristics of these individuals that could be risk factors associated with sexual violence perpetration within the adolescent age group. Furthermore, prevention research has suggested that a combination of the individual, relational, community, and societal factors contribute to the possibility of becoming a perpetrator of violence (Centers for Disease Control and Prevention, 2012). Therefore, this study will examine multilevel factors that address various influences on sexual violence perpetration in hopes to identify more comprehensive prevention strategies targeted at the early adolescent population.

Specifically, this longitudinal study examines the peer group influences on sexual violence perpetration during adolescence. A peer group is archetypally identified as a small “friendship cluster of adolescents who spend large amounts of time together” (Brown, 2004). It has been widely cited in developmental psychology and sociology that peer group membership is highly influential in shaping and reinforcing the behaviors of its individual members (Brechtwald & Prinstein, 2011; Corsaro & Eder, 1990; Harris, 1995; Rubin, Bukowski, & Parker, 2006). Much of the research in this area shows qualitative differences in peer social influence during early adolescence as compared with other developmental stages. For example, adolescents increasingly spend more time alone or unsupervised with friends than younger youth (Larson & Richards, 1991). Concurrently, friendships increase in intensity and intimacy, with the same-sex cliques emerging as a common social group across early to late adolescence (Hinkle & Brown, 1990; Rubin & Hewstone, 1998). Furthermore, early adolescence is a developmental stage that is often characterized by biological changes, including hormonal changes that increase sexual urges (Dumas & Wolfe, 2012). Thereby, adolescents frequently turn to their peers to engage in conversations about sex and other interpersonal relationships (Larson & Richards, 1991).

Social behaviors can also be promoted or discouraged by peer groups. These behaviors can range from prosocial behaviors and academic achievement to problem behaviors, including aggression and delinquency (Steinberg & Morris, 2001). In fact, in one recent study, researchers found that adolescents who joined an aggressive group were more likely to increase their individual aggressive behaviors (Berger & Rodkin, 2012). Furthermore, research has classified early adolescence, specifically, as a time when youth identification with their peers is elevated (Contanzo & Shaw, 1966; Gavin & Furman, 1989). Similarly, it has been shown that youth between the ages of 10 and 14 years have more difficulty resisting peer influence (Steinberg &

Monahan, 2007). Thus, youth are especially at risk of being influenced by their peers during the early adolescent period (Rubin et al., 2006).

According to research on social influence theory, peers do not influence individual behavior through coercive measures in adolescence, but rather, individuals are malleable to peer influence because they respect the peer group characteristics and value their peers' opinions (Susman et al., 1994). Furthermore, it has been shown that adolescents do not show similarities with their peer groups through influence alone, but instead are initially drawn to spend time with friends that project similar behaviors, attitudes, and identities as their own (Akers, Jones, & Coyl, 1995; Hartup 1996; Hogue & Steinberg, 1995; Steinberg & Morris, 2001). This phenomenon is known as homophily. The word "homophily" literally translates to "love of the same." Stated further, it holds the same theoretical notion as that of the one behind the saying, "birds of a feather flock together." Principally, homophily is defined as the tendency of individuals to associate and bond with similar others (McPherson, Smith-Lovin, & Cook, 2001).

Essentially, the homophily hypothesis in relation to the formation of peer groups states that "peer groups during late childhood and early adolescence form based on behavioral similarities" (Ennet & Bauman, 1994). Homophily in this context comprises of selection and socialization. According to Kandel (1978), the process of selection refers to how those who are similar to each other are more likely to form "groups", whereas socialization denotes the process by which these social groups influence their members over time, with their individuals acquiring behaviors and attitudes of other group members. Both selection and socialization can play a role at different points throughout the friendship formation process (Kandel, 1978). The homophily hypothesis will be applied in this study as a theoretical framework to assess for peer influence and sexually violent behaviors.

Few studies have been conducted to investigate the homophily hypothesis as it relates to sexual violence among middle school youth in terms of peer group formation. However, a few studies have alluded to the connection. For example, with respect to peer context, the American Association of University Women national surveys that were distributed to eighth through eleventh graders revealed perpetrators of sexual harassment felt their behaviors were justified because “all kids do it” and because of pressure from peers to engage in such behaviors (Espelage & Low, 2012). Another study found ‘male peer support groups’ (groups that promote what group members believe to be “masculine behaviors”) encourage and justify sexual violence against women and actually create opportunities for their group members to engage in sexual violence against women (DeKeseredy & Schwartz, 1998). Furthermore, DeKeseredy and Kelly (1993) found that college students’ peer informational support (defined as guidance that influences men to sexually assault their dating partners) was significantly associated with sexual assault of a dating partner. However, most of the studies focused on peer groups that condone traditional views of masculinity predominantly concentrate on fraternities in the college “Greek system” environment.

Another longitudinal study was conducted (started when subjects were 9-10 years of age and ended when subjects were about 20-33 years of age) where hostile talk about women during videotaped male friendship interactions was hypothesized to indicate a process by which aggression toward women is reinforced with male peer networks. Results showed that involvement in male deviant peer groups in mid-adolescence was significantly correlated with the occurrence of hostile talk about women with a male peer in late adolescence. Mid-adolescent deviant peer association was significantly associated with engagement in antisocial and delinquent behavior in late adolescence, even when the contributions of late childhood and mid-

adolescent antisocial behavior were controlled. Thus, participants that associated with antisocial male peer group behaviors in early and mid-adolescence had expressed hostile attitudes toward women with their friends in later adolescence and displayed aggression toward their partners in young adulthood (Capaldi, Dishion, & Stoolmiller, 2001).

Though much of the research conducted to test the homophily hypothesis of these behaviors in a peer group context has been focused on college samples, there have been a few studies aimed at middle school-aged students to investigate peer group contextual and socialization effects on homophobic name-calling. In one such study of middle school youth, results found that peer groups play an important role in the formation of homophobic name-calling (Birkett & Espelage, in press). In another study, researchers investigated the role of friendship networks in Canadian middle school students' experiences of sexually offensive behaviors and found that students with comparatively more other-sex peers were reportedly more likely to experience sexually harassing behaviors (Craig & Smith, 2000). This also emphasizes the significance of examining the gender composition of such peer networks. Furthermore, social network analysis was recently used in a pilot study of social networks to investigate the contextual analysis of sexual harassment in seventh and eighth graders (Mumford, Okamoto, Taylor, & Stein, 2013). Results indicated that boys and girls reported sexual harassment at comparable rates, though boys' peer networks reported greater sexual harassment perpetration and victimization outcomes than girls' peer networks. Further, findings indicated that the structural descriptors of social networks were not significantly predictive of individual sexual harassment experiences. However, the methodological approach used in this study restricted respondents to report only five friendship nominations, which limits the construction on the complete network structural metrics (McCarty, Killworth, & Rennell, 2007; Mumford et al.,

2013). Therefore, further research with more flexibility regarding the number of friendship nominations is warranted.

Individual Predictors of Sexual Violence Perpetration

As noted above, very few studies have investigated the influence of peer group factors on sexual violence perpetration at the individual level. However, some studies have examined individual-level characteristics that are associated with these behaviors. One such characteristic that has been identified in various studies as a predictor of aggressive behavior is traditional masculinity, or “masculinity that values dominance, assertiveness, and a lack of emotion” (Birkett & Espelage, in press; Epstein, 2001; Kimmel & Mahler, 2004; Mandel & Shakeshaft, 2000, Phoenix, Frosh, & Pattman, 2003). Specifically, this literature suggests that endorsement of traditional gender role ideology is strongly predictive of homophobic attitudes and homophobic name-calling (Mandel & Shakeshaft, 2000; Phoenix et al., 2003; Skelton, 1996; Whitley, 2001). Furthermore, one meta-analysis examined thirty-nine studies across 11 different measures that assessed masculine ideology and its association with sexually aggressive behaviors and found that all but one measure was significantly linked with sexual aggression toward women (Murren, Wright, & Kaluzny, 2002). Moreover, harassing and labeling others as gay or lesbian has been deemed a form of sexual harassment and has been shown in one qualitative study to have lead to blatant sexual assault (AAUW, 2001; Espelage & Low, 2012; Fineran, 2002; Rivers, 2001; Stratton & Backes, 1997). Thus, because traditional masculine ideology has been shown to be associated with sexually aggressive behaviors, assessing peer-level traditional masculinity attitudes seems warranted to identify effects of peer group influence on sexual violence perpetration.

In addition to traditional masculinity attitudes, dismissiveness, or tolerant attitudes toward sexual harassment and/or sexual violence, has been classified as a significant predictor of sexual violence perpetration. Research has shown that these dismissive attitudes add to an environment where students can perpetrate violence without fearing consequences for their actions (Stein & Mennemeier, 2011; Vogt, Bruce, Street, & Staddord, 2007). Furthermore, the literature suggests that adults who hold dismissive attitudes towards sexual violence are not only more likely to perpetrate sexual violence, but also more likely to tolerate being victims of sexual violence perpetration (Hull & Burke, 1991; Malamuth, 1989). It has also been shown that students who are in a climate where dismissive attitudes toward sexual violence overtly displayed often adopt the same tolerant attitudes toward acts of sexual harassment (Chesire, 2004; Ormerod et al., 2008; Rinehart & Espelage, in prep). However, there is little known about dismissive attitudes effects on sexually aggressive behaviors among middle school youth, and even less is known about peer group effects in terms of this domain. Thus, it is important to determine the extent to which dismissive attitudes at the peer-level could influence individuals' propensity to perpetrate sexual violence.

Study Hypotheses

The present study intends to add to the literature by applying social influence theory in assessing sexual violence perpetration in early adolescence. Specifically, this research undertaking examined peer influence on sexually violent behaviors using a short-term longitudinal design. Furthermore, the individual- and peer group-levels of masculinity and dismissive attitudes of sexual violence were assessed for their potential influence on sexual violence perpetration. Social network analysis and hierarchical linear modeling methodology were employed in the analysis of this study (Raudenbush & Bryk, 2002).

Individual Predictors of Sexual Violence Perpetration.

Based on the existing literature, gender and grade-level differences on sexual violence perpetration was anticipated. Most of the literature suggests that males are overwhelmingly the perpetrators of physically forced forms of sexual violence (e.g., rape, etc.; Black, Basile, Breiding, Smith, et al., 2011; Tjaden & Thoennes, 2006). Males also report sexual harassment perpetration more often, even though girls engage in this behavior as well (AAUW, 2001; Fineran & Bennett, 1998). Thus, it was hypothesized that (1) that males would score higher than females and (2) that students in the seventh and eighth grades would score higher than students in the sixth grade on sexual violence perpetration, as levels of peer violence often increase throughout middle school (DeVoe & Kaffenberger, 2005).

Peer Contextual Model and Socialization of Sexual Violence Perpetration

It has been shown in the extant literature that peer groups often influence individual attitudes and behaviors (Brechwald & Prinstein, 2011; Brown, 2004; Corsaro & Eder, 1990; Espelage, Holt, & Henkel, 2003; Harris, 1995; Rubin et al., 2006; Steinberg & Monahan, 2007). Thus, it was hypothesized that (3) peer groups would vary in the level of sexual violence perpetration and that peer-level masculinity and dismissiveness would explain the variation among peer groups, with higher peer-level traditional masculinity and dismissive attitudes yielding higher incidence rates of individual sexual violence perpetration. Moreover, the gender and grade demographics of the peer groups were analyzed as factors that may account for peer group differences in sexual violence perpetration. Finally, the peer group socialization effect on the outcome variable was also assessed in this research undertaking. Specifically, it was hypothesized that (4) peer-level sexual violence perpetration would significantly predict the individual-level sexual violence perpetration over time, while controlling for the individual-level

of prior sexual violence perpetration. Moreover, it was predicted that the level of sexual violence perpetration would increase for individual members of peer groups with high levels of sexual violence perpetration.

CHAPTER 2

METHODOLOGY

Participants & Consent Procedures

Participants included 191 6th ($n = 61$), 7th ($n = 55$) and 8th ($n = 75$) grade students from one Midwestern middle school. The sample is 68.6% White, 16.2% Black, and 15.2% Other.

Additionally, the sample is 52.4% Female ($n = 100$) and 47.6% Male ($n = 91$). The survey was administered at two time points: once in the Spring of 2008 and once in the Fall of 2008. IRB approval to use a waiver of active consent was obtained from the University of Illinois and the Centers of Disease and Control granted a certificate of confidentiality for the data. Permission forms were sent to all students registered at the middle schools prior to data collection, and parents were asked to sign and return the parent information letter only if they wished that their child would *not* participate in the study. Students were also read an assent script prior to data collection and could opt out of the survey. Participation rates were 90% and 95% and retention rates from Wave 1 to Wave 2 were 76% and 84%.

Measures

Demographic variables. Self-reports of sex and grade were considered to identify demographic characteristics.

Sexual Violence Perpetration. The American Association of University Women Sexual Harassment Survey (AAUW, 2001) was used to measure the frequency with which students experienced and perpetrated sexually harassing behaviors within the last year. The self-report instrument consists of 26 items that measure 13 separate behaviors (e.g., “Spread sexual rumors about you” and “Pulled your clothing off or down”). Participants first indicated how often other

students at school had done each of the 13 behaviors to them, and then indicated how often they had perpetrated each of the 13 behaviors against another student in school. The behaviors measured range in severity from non-physical behaviors such as making sexual jokes or comments to more intrusive physical behaviors such as forcing another student to do something sexual against his or her will. Response options range from 1 (*Not sure*) to 5 (*Often*). The first 13 item responses are summed to get a score for sexual harassment experience and the second 13 item responses are summed to get a score for sexual harassment perpetration. Higher scores indicate higher frequency of experience or perpetration of sexual harassment.

Numerous studies have obtained empirical support for the reliability and validity of the AAUW Sexual Harassment Survey in adolescent samples. In a longitudinal randomized controlled trial study supported by the National Institute of Justice, the measure was completed by 1,678 sixth and seventh grade students from three racially, ethnically, and economically diverse school districts (Taylor & Stein, 2007). Across the three waves of data collection, Cronbach's alpha ranged from .68 through .75 for experiencing peer sexual harassment and from .67 through .72 for perpetrating peer sexual harassment. McMaster et al. (2002) administered a modified version of the AAUW Sexual Harassment Survey to a sample of 636 boys and 577 girls in grades 6-8. The researchers asked participants to indicate how often students had perpetrated and experienced each behavior in the last 6 weeks. Internal consistency estimates were high for perpetration ($\alpha = .94$) and victimization ($\alpha = .84$). Internal consistency estimates for the sexual harassment victimization items have ranged from .90 (Espelage & Holt, 2001) to .92 (Gruber & Fineran, 2008) in samples of high school students.

Support for the criterion-related validity of the AAUW Sexual Harassment Survey was obtained in a study of the relation between pubertal development, peer sexual harassment, and

body consciousness in early adolescents (Lindberg, Grabe, & Hyde, 2007). Sexual harassment experience was significantly correlated with self-surveillance ($r = .39$) and body shame ($r = .33$). Scores on the Sexual Harassment Survey have also correlated with scores on the Bullying Scale ($r = .56$), Victimization in Relationships Scale ($r = .42$), Abusive Behavior Inventory ($r = .43$) and Childhood Trauma Questionnaire ($r = .51$), further supporting the concurrent validity (Espelage & Holt, 2001).

Masculinity. The *traditional masculinity* scale of the Adolescent Masculinity Ideology in Relationships Scale (AMIRS; Chu, Porche, & Tolman, 2005) assesses the level of traditional masculinity attitudes held by an individual. It can be used to assess either males or females on their traditional masculinity attitudes. The AMIRS is unique in that it was created specifically for use with adolescents, while most measures of masculinity attitudes are created for use with an adult population (Chu, Porche, & Tolman, 2005). Additionally, it was created to specifically assess adolescent masculinity within relationships, which makes it an ideal measure to examine peer contextual effects. Examples of items are: *It's important for a boy to act like nothing is wrong, even when something is bothering him.* The AMIRS has been shown to be moderately correlated with the Male Role Attitudes Scale (Snell, 1989) ($r = .48$), suggesting convergent validity (Chu et al. 2005). Additionally, it has been shown to be negatively correlated with the Attitudes towards Women Scale for Adolescents, which is a measure of unconventional attitudes toward women's roles and rights (Galambos et al., 1985) ($r = -.42$), providing evidence of discriminant validity. A recent examination of the scale by Newlin (2009) included both exploratory and confirmatory factor analyses with a larger n . It was found that seven items load on the first factor and represented the traditional masculinity scale and the remaining five items

represented the nontraditional masculinity scale (Newlin, 2009). An alpha coefficient of .76 was found in this study on the traditional masculinity scale.

Dismissiveness. An adapted version of the National Institute of Justice Survey of Attitudes and Behaviors Related to Sexual Harassment (Taylor & Stein, 2007) was used to measure dismissive attitudes toward sexual harassment. Taylor and Stein (2007) selected a large number of items from Ward's (2002) evaluation of an adolescent gender violence prevention program to be included in a survey administered to 1,678 middle school students across three waves of data collection. Six underlying dimensions emerged from exploratory and confirmatory factor analyses and internal consistency estimates were calculated for each subscale at all three time points. Cronbach's alpha ranged from .49 through .64 for Inappropriate Attributions of Girls' Fault in Sexual Harassment (4 items), .55 through .69 for Belief that Gender Violence/Harassment is Not a Problem (6 items), .34 through .46 for Attitudes that Reduce Sexual Harassment (4 items), .75 through .85 for Intention to Confront Gender Violence/Harassment (6 items), .73 through .79 for Attitudes Toward Preventing Sexual Harassment (3 items), and .65 through .79 for Disposition About Own and Others' Personal Space (5 items).

The 4-item Inappropriate Attributions of Girls' Fault in Sexual Harassment and 6-item Belief that Gender Violence/Harassment is Not a Problem subscales were used in the current study to measure dismissive attitudes toward sexual harassment. Respondents are asked to indicate how much they agree or disagree with each statement on a scale from 1 (*Strongly disagree*) to 4 (*Strongly agree*). Example items include, "Girls are asking to be harassed when they wear short skirts and tight clothes" and "Sexual harassment isn't a serious problem in school." Item responses will be averaged to compute a score for dismissive attitudes toward

sexual harassment. High scores reflect a higher level of dismissive attitudes. The psychometric properties of this 10-item adaptation of the NIJ Survey of Attitudes and Behaviors Related to Sexual Harassment will be evaluated in the current study. Students' scores on both subscales decreased significantly after they participated in an intervention designed to teach students about sexual harassment laws and definitions (Taylor & Stein, 2007), which offers preliminary support for the validity of the measure.

Friendship nominations. The Ennett and Bauman (1994) approach was utilized to collect friendship nominations. Students were asked to list up to eight students at their school with whom they spend the most time and consider their friends, excluding siblings. Students were told not to include siblings or people outside of their school. These names were converted to the code number of the respective participant and matched with the corresponding survey data. Friendship nominations will be subjected to social network analysis to identify peer groups. Further information detailing the process of peer group formation is given under preliminary data analyses.

CHAPTER 3

RESULTS

Preliminary Data Analyses

Prior to building the HLM models, preliminary analyses were conducted to determine demographic differences across study measures. Specifically, differences across sexual violence perpetration, traditional masculinity attitudes, and dismissiveness attitudes were examined. Furthermore, preliminary analyses were conducted to determine the nature and extent of missing data. To address the issue of missing data for the current sample, a multiple imputation procedure was executed using the PROC MI function in SAS 9.2 (SAS, 2008; Graham, Cumsille, & Elek-Fisk, 2003). Overall, the mean percentage of missing data across all measured variables was less than 5%. Although Luengo, García, and Herrera (2010) suggest that missing data between 1 and 5% are generally manageable, a multiple imputation procedure was employed to preserve the integrity of each group of respondents and create one parsimonious dataset.

Gender Differences on Wave 1 Measures

The results revealed a statistically significant difference in mean scores on levels of sexual violence perpetration and traditional masculinity attitudes by gender. Specifically, females reported lower scores on sexual violence perpetration compared to males (Females: $M = 2.03$; $SD = .14$; Males: $M = 2.10$; $SD = .16$), as well as reported significantly lower levels of traditional masculinity attitudes as compared to males (Females: $M = 1.79$; $SD = .40$; Males: $M = 2.09$; $SD = .47$). However, youth did not differ on levels of dismissive attitudes toward sexual harassment by gender (Females: $M = 1.96$; $SD = .42$; Males: $M = 2.05$; $SD = .44$; see Table 1).

Grade Level Differences on Wave 1 Measures

The analysis yielded statistically significant differences in the mean scores of sexual violence perpetration between grades. Specifically, post hoc comparisons with Bonferroni's statistic revealed that seventh graders report significantly higher sexual violence perpetration than sixth graders and eighth graders (Grade 6: $M = 2.02$; $SD = .15$; Grade 7: $M = 2.12$; $SD = .18$; Grade 8: $M = 2.05$; $SD = .13$). There was also a significant difference on mean rates between grade levels on dismissive attitudes toward sexual harassment, with post hoc comparisons suggesting seventh and eighth graders having higher levels of dismissive attitudes than sixth graders (Grade 6: $M = 1.85$; $SD = .46$; Grade 7: $M = 2.14$; $SD = .43$; Grade 8: $M = 2.02$; $SD = .43$). No statistically significant differences in mean scores of traditional masculinity attitudes were found across grade levels (Grade 6: $M = 1.80$; $SD = .49$; Grade 7: $M = 2.01$; $SD = .45$; Grade 8: $M = 1.98$; $SD = .42$; see Table 1).

Correlations among Variables at Wave 1 and Wave 2

A correlation matrix with the study variables at both Wave 1 and Wave 2 was constructed in order to examine relations between measures (see Table 2). A Bonferroni correction was used to establish the alpha level at .004 (.05/12) in order to shield against alpha inflation. As seen in the table, many of the correlations between the study variables showed significance ($p < .004$). It was shown that sexual harassment perpetration was significantly correlated with traditional masculinity attitudes and dismissiveness at Wave 1, but it was interesting that there were not significant correlations between these factors at Wave 2. Also of note, traditional masculinity attitudes were moderately correlated with dismissiveness at both waves ($r = .44$ at Wave 1, $r = .58$ at Wave 2). As Table 2 shows, the correlations between the traditional masculinity attitudes and dismissive attitudes toward sexual harassment measures across Wave 1 and Wave 2 show

significant stability. The stability coefficient was $r = .76$ for traditional masculinity attitudes and $r = .59$ for dismissive attitudes toward sexual harassment ($p < .004$).

Identification of Peer Groups at Wave 1

Social network analysis was conducted using Wave 1 friendship nomination data, as this study investigates the socialization of sexual violence perpetration over time, after controlling for the individual's Wave 1 sexual violence perpetration. Peer groups were created by first separating the students by grade and then constructing numerous matrixes of strongly tied peers (aka peers that reported reciprocated friendship) within each grade level. The reasoning for examining participants who only had reciprocated adolescent friendships was two-fold. First, the literature has shown that strongly tied peers display longer-lasting friendships and typically have higher levels of contact and a larger degree of "close friendship" (Bukowski & Newcomb, 1984; Newcomb & Bagwell, 1995). Furthermore, as this is a longitudinal design that employs the peer groups identified in Wave 1, the stability of peer groups over time will increase with the use of reciprocated friendship nominations. Second, the preliminary analyses with both the reciprocated and unreciprocated peer ties yielded results that suggested higher fit statistics would be acquired by considering only reciprocated friendships.

Additionally, peer groups were also created between grade levels because the preliminary analyses of the peer ties split by grade versus not split by grade once again suggested higher fit statistics when students were split by grade. Furthermore, due to the longitudinal nature of this study, any friendship ties with 8th graders would automatically be dropped in the second wave of data collection. Finally, there were very few students who did not have reciprocated friendships between grade levels. These students were labeled "type 1 isolates" and were excluded from the

analyses in this study as peer effects are being measured and since the isolates did not significantly differ across any demographic measures.

Next, reciprocated friendship matrices were entered into the UCINET 6 and Netdraw programs (Borgatti, Everett, & Freeman, 1999). The Girvan-Newman algorithm was then used to identify groups of participants who reported having more friendships with each other than with participants in other groups (Girvan & Newman, 2002). This algorithm seems the better method for peer group construction for the purposes of this study as it identifies highly connected friendship ties within a subgroup and less connected between groups, resulting in no overlapping subgroups with connections to each other, making it appropriate to be utilized in hierarchical linear modeling (Gest, Moody, & Rulison, 2007). In particular, the steps taken for group creation with this algorithm include: (1) calculating the betweenness of all “edges” in the network; (2) the edge with the highest betweenness is removed; (3) the betweenness of all edges affected by the removal is recalculated; (4) Steps 2 and 3 are repeated until no edges remain. This method provided a fit statistic (Q), representing modularity, for each possible number of peer groups. Larger values of Q indicate greater strength in group structure, allowing for more certainty that the chosen number of subgroups is best fit for the data analyzed (Borgatti et al., 1999). Most networks with good subgroup structure report Q s ranging from 0.3 to 0.7 (Du, Feldman, Li, & Jin, 2007). Due to the nature of this study, only reciprocated peer groups were used in the analysis. Twenty-nine peer groups were identified across all participants for this study. See Tables 3 and 4 for the descriptive statistics.

Hierarchical Linear Modeling

A two-level hierarchical linear model was constructed for the analyses in this study. Developing such a model involves three steps. First, the null, or fully unconditional, model is

estimated. As a result, between-group and within-group factors that account for variance in the outcome variable are identified. Further, an intraclass correlation coefficient is computed to examine the amount of variance between groups (Snijders & Bosker, 2012). Second, the next step involves building the multilevel models, where level 2 variables (i.e., the peer group-level variables) are hypothesized to explain level 1 parameter variation (i.e., the individual-level) on the outcome variable (i.e., sexual violence perpetration). In this study, level 2 variables were computed by calculating the Wave 1 mean scale scores for each peer group. Furthermore, level 2 variables were also grand mean centered as suggested by Raudenbush & Bryk (2002) to aid with interpreting the results. In order to evaluate slope heterogeneity, a random-intercept model was estimated at level 1. If the slopes were determined to be heterogeneous, the results would indicate that relation between the level 1 variables and the outcome variables differ between peer groups. The next section shows the results of the hierarchical linear modeling analysis that was applied to the population for this study. Primarily, models reflect the examination of predictors of sexual violence perpetration and the peer contextual model that could potentially impact this behavior. Next, the examination of peer group socialization of sexual violence perpetration was provided.

Examination of the Contextual Effect of Groups

An unconditional model of SVp at Wave 1 was created (see Equation 1).

$$\text{Level 1: } SVp_{ij} = \gamma_{00} + u_{0j} + r_{ij} = \beta_{0j} + r_{ij}^1 \quad (1)$$

The resulting *chi*-square analysis permitted a rejection of the null hypothesis, which had suggested sexual violence perpetration scores across all peer groups were equal, -2 restricted log

¹ Individual-level variables: SVp – sexual violence perpetration

Peer group-level variables: PG_Masc – Average peer group-level of masculinity; PG_Dismis – Average peer group-level of dismissiveness; PG_Gender – Gender of peer group

likelihood = 174.53, $p < .05$. The development of a multilevel model is warranted because intercepts vary significantly across peer groups (Wald $Z = 2.187$, $p < .05$). Furthermore, an *ICC* revealed that 15.72% of the variance of sexual violence perpetration existed between peer groups, which suggested that HLM is, in fact, an appropriate approach to better understand the peer group differences on sexual violence perpetration.

Next, models were constructed to examine the contextual effects of the peer group. Specifically, grand mean centered peer-level traditional masculinity attitudes and dismissive attitudes toward sexual violence were entered on the level 2. Peer group-level dismissive attitudes toward sexual violence yielded the best fit as a level 2 factor, accounting for 56.49% of the variance of sexual violence perpetration between peer groups with a portion of variance left to be modeled (see Equation 2). In other words, there is a statistically significant positive relation between peer group mean dismissive attitudes toward sexual violence and sexual violence perpetration ($\beta = .20$, $SE = .06$, $t = 3.29$, $p < .01$).

$$\begin{aligned} \text{Level 1: } SV_{p_{ij}} &= \beta_{0j} + r_{ij} \\ \text{Level 2: } \beta_{0j} &= \gamma_{00} + \gamma_{01}(\text{PG_Dismis}) + u_{0j} \end{aligned} \quad (2)$$

Multiple contextual models were then assessed by adding individual-level scale scores of traditional masculinity attitudes and dismissive attitudes toward sexual violence. The fit of grand-mean centered peer group-level of traditional masculinity and dismissive attitudes toward sexual violence were also examined. Finally, gender and grade measures were also entered at the individual level due to variability across study measures. Additionally, they were also entered as peer group averages at the level 2. Models were built gradually, entering two variables at a time and retaining a variable if the final estimation its effects indicated significance (p -value of $p < .05$), as well as a lessening of model deviation. Ultimately, the contextual model with fixed

slopes that that best fit had an individual level variable of traditional masculinity ideology and a peer group variable of tolerant attitudes toward sexual violence (see Equation 3).

$$\begin{aligned} \text{Level 1: } SVp_{ij} &= \beta_{0j} + \beta_{1j}(\mathbf{Masc}_{ij}) + r_{ij} \\ \text{Level 2: } \beta_{0j} &= \gamma_{00} + \gamma_{01}(\mathbf{PG_Dismiss}) + u_{0j} \\ \beta_{1j} &= \gamma_{01} \end{aligned} \quad (3)$$

This model accounted for 55.58% of the variance between groups and 12.83% of the variance within groups compared to the null model. The model parameters suggest that individuals who themselves hold traditional masculinity attitudes and belong to a peer group that holds highly dismissive attitudes toward sexual violence will be more likely to perpetrate sexual violence (see Table 5 for full parameter estimates).

Peer group socialization

The next model will integrate longitudinal data from the second time point of data collection in Fall 2008 (Wave 2) to assess for peer group socialization, as suggested by McPherson et al. (2001). Due to the longitudinal design, Wave 1 8th grade participants were not incorporated in these analyses, as they had graduated by the second timepoint of data collection. However, the 8th grade cohort was examined and they did not differ on any measures of demographics beyond age.

In order to examine if sexual violence perpetration at the peer group level at Wave 1 was predictive of sexual violence perpetration at the individual level at Wave 2, socialization models were constructed while controlling for sexual violence perpetration at the individual level at Wave 1. The first unconditional model aims to examine differences in peer group level sexual violence perpetration scores (see Equation 4).

$$\text{Level 1: } SVpT2_{ij} = \beta_{0j} + r_{ij}^2 \quad (4)$$

² Individual-level variables: SVpT1 – sexual violence perpetration at Wave 1; SVpT2 – sexual violence perpetration at Wave 2

$$\text{Level 2: } \beta_{0j} = \gamma_{00} + u_{0j}$$

Results showed significant differences between peer groups on sexual violence perpetration, with a -2 restricted log likelihood = 112.322 (Wald $Z = .3849, p < .05$). An *ICC* indicated that 5.64% of the variance of sexual violence perpetration existed between peer groups.

Next, a model was constructed with individual level grand mean centered sexual violence perpetration at Wave 1 entered as a predictor of Wave 2 sexual violence perpetration (see Equation 5).

$$\begin{aligned} \text{Level 1: } SVpT2_{ij} &= \beta_{0j} + \beta_{1j}(SVpT1_{ij}) + r_{ij} & (5) \\ \text{Level 2: } \beta_{0j} &= \gamma_{00} + u_{0j} \\ \beta_{1j} &= \gamma_{01} \end{aligned}$$

Individual sexual violence perpetration Wave 1 scores accounted for 5.7% of the within group variance of Wave 2 scores, and a significant portion of variance between groups was left to be explained (Wald $Z = .312456, p < .05$).

Subsequently, a model was constructed with specified random slopes to test peer group differences in relation to Wave 1 sexual violence perpetration predicting Wave 2 scores (see Equation 6).

$$\begin{aligned} \text{Level 1: } SVpT2_{ij} &= \beta_{0j} + \beta_{1j}(SVpT1_{ij}) + r_{ij} & (6) \\ \text{Level 2: } \beta_{0j} &= \gamma_{00} + u_{0j} \\ \beta_{1j} &= \gamma_{01} + u_{1j} \end{aligned}$$

Results suggested Wave 1 and Wave 2 sexual violence perpetration significantly differed by peer groups and the random slopes and intercept model was retained (Wald $Z = .4509, p < .05$).

A model was then constructed with grand mean centered peer group levels of sexual violence perpetration during Wave 1 entered at the peer level to determine peer socialization effects over time. Finally, peer group levels of grade and gender were entered as predictors of the

Peer group-level variables: PG_SVpT1 – Average peer group sexual violence perpetration at Wave

intercept and slope. Results yielded a socialization effect, where peer group level sexual violence perpetration at Wave 1 significantly impacted the intercept of the level 1 equation (see Equation 7).

$$\begin{aligned} \text{Level 1: } SVpT2_{ij} &= \beta_{0j} + \beta_{1j}(SVpT1_{ij}) + r_{ij} \\ \text{Level 2: } \beta_{0j} &= \gamma_{00} + \gamma_{01}(PG_SVpT1) + u_{0j} \\ \beta_{1j} &= \gamma_{01} + u_{0j} \end{aligned} \tag{7}$$

Thus, the final model included individual level sexual violence perpetration at Wave 1, which was moderated by peer group level sexual violence perpetration at Wave 1. Essentially, peer group level sexual violence perpetration at Wave 1 was a significant predictor of individual behavior a Wave 2, where peer groups that reported higher levels of sexual violence perpetration indicating higher levels of sexual violence perpetration at the individual level, after controlling for an individual's original level of sexual violence perpetration (see Table 6). The final model accounted for 70.53% of the variance between groups on mean sexual violence perpetration (Wald $Z = 4.995, p < .05$).

CHAPTER 4

DISCUSSION

Results of this investigation are consistent with existent research that has shown the influential nature of social networks on adolescent behavior (Evans, Oates, & Schwab, 1992; Kandel, 1978). Specifically, studies have demonstrated peer group influence on the development, continuance, and growth of various problem behaviors (Birkett & Espelage, in press; Cairns, Cairns, Neckerman, Gest, & Gariépy, 1988; Ennett, Bauman, 1994; Espelage et al., 2003; Espelage, Green, & Wasserman, 2007). However, the findings in the current study add to this literature by examining the peer group role in exerting influence on sexual violence perpetration in early adolescents. The analyses maintained that peer groups not only differ on levels of sexual violence perpetration, but also impact individual levels of sexually aggressive behavior over time, even after controlling for the individual's prior propensity for sexual violence perpetration.

In addition to establishing peer group influence, this study also provided analyses to determine what contextual features of the students and peer groups play a role in sexual violence perpetration. The findings suggested that the impact of traditional masculinity attitudes and dismissive attitudes on sexual violence perpetration is multifaceted. Specifically, peer group dismissive attitudes toward sexual violence were significantly predictive of an individual's sexual violence perpetration when that individual also endorsed high levels of traditional masculinity attitudes. However, peer group tolerance toward sexual violence perpetration did not show a significant socializing effect on individual's increasing or decreasing their level of sexual violence perpetration over time after controlling for the individual's original amount of sexually aggressive behavior (Birkett & Espelage, in press). Irrespective of this, findings indicate that

dismissive attitudes toward sexual violence have a significant impact in maintenance of behaviors within peer groups. Essentially, students who hold traditional masculinity ideology and have friends that are tolerant of sexually aggressive behaviors will be among the most likely to perpetrate sexual violence.

Furthermore, the analyses yielded statistically significant differences in mean scores on levels of sexual violence perpetration and traditional masculinity attitudes by gender, as was hypothesized. Specifically, males reported significantly higher scores on sexual violence perpetration than females. It should also be noted that males reported significantly higher levels of traditional masculinity as compared to females, but students' scores did not vary significantly on levels of dismissiveness. Results are consistent with past literature (AAUW, 2001; Fineran & Bennett, 1998). In order to further investigate gender-based sexual violence, it may be useful to assess the gender differences existent in the targeted students (aka, those experiencing sexual violence victimization). By looking further into the victimized population, the dynamic between perpetration and victimization could be examined more comprehensively and could foster inform prevention and intervention efforts.

Results also confirmed statistically significant differences in the mean scores of sexual violence perpetration between grades. However, it was shown that only seventh graders reported significantly higher sexual violence perpetration than sixth graders and eighth graders. The analyses further revealed a significant difference on mean rates between grade levels on dismissive attitudes toward sexual harassment, meaning seventh and eighth graders reported higher levels of dismissive attitudes than sixth graders did. Finally, no statistically significant differences in mean scores of traditional masculinity attitudes were found across grade levels. The increase in dismissive attitudes towards sexual harassment in the higher grade levels could

have potentially contributed to the lack of mean level differences in sexual harassment scores across grade levels. In other words, the increase in tolerance for sexually aggressive behaviors in the higher grades could play a role in trivializing the perpetration of such behaviors. As a result, the increase in dismissive attitudes toward sexual harassment could explain in the lack of significant differences in reporting of sexual violence perpetration across grade levels.

These results hold important implications for intervention purposes. In particular, the findings indicate the significance of teaching youth at an early age that sexually aggressive behaviors are intolerable ways to exert authority and power or to display masculinity. Moreover, it is necessary to educate adolescents on identifying behaviors of sexual violence and encourage them to ask for help when necessary. It is concerning that such young adolescents are dismissive and tolerant of behaviors that can have seriously detrimental impacts on academics and mental health. In fact, one study found that being dismissive of sexually aggressive behaviors is associated with a greater risk of becoming a perpetrator of sexual violence over time (Espelage & De La Rue, 2013). Furthermore, trivialization of sexual violence seems to be an important predictor of teen dating violence (Espelage & Low, 2012). It is clear that the dismissive attitudes toward sexual violence perpetration contribute to the cyclical and ongoing nature of violence and need to be addressed in prevention efforts prior to high school.

This study utilized social network analysis and multilevel modeling to obtain a richer assessment of both individual level and peer group level factors of sexual violence perpetration (Aboud, 2005). Using hierarchical linear modeling allowed for examination of the distinctive processes associated with adolescent development of sexually aggressive behaviors. Furthermore, the analyses were applied to a diverse sample, which provided the means for cross-level modeling of gender and grade level differences within the results. Another strength of this

study is its investigation of a crucial topic that is under-researched, which offers implications for a high-risk age group and population.

Yet, despite these strengths, this study had several limitations. First, this study limited the number of friendship nominations to eight individuals, which could be misrepresentative of the total peer network structure (McCarty, Killworth, & Rennell, 2007). Additionally, this study only conducted analyses on reciprocated peer group. Due to the incomplete disposition of the friendship nomination data, students who were identified as isolates could be unreflective of the true nature of the peer groups in the student network in the sample. Moreover, the total network of students was not fully analyzed even though the response rate was high (90-95%) since some students did not respond or finish the friendship nomination task. Thus, analyses were only conducted on those who did participate, limiting the ability to capture the full peer network. However, most studies that have been conducted on social networks in schools conduct analyses with up to 50% or more of their data missing (Bearman, Moody, & Stovel, 1997; Birkett & Espelage, in press). Finally, this study was conducted from the Spring to the Fall seasons within a year, which limits assessment of peer group influence on sexual violence perpetration over the full course of middle school.

Though this study provides support for the need to understand the friendship group context to determine how attitudes and behaviors can form and effect adolescent conduct, more research can be done to further establish successful intervention and prevention strategies. Specifically, this study looked at the effects of holding traditional masculinity and dismissive attitudes on sexual violence perpetration. Thus, this research supports intervention efforts that should target early adolescents and pay special focus on peers and challenging traditional masculinity attitudes. Moreover, findings encourage an emphasis be placed on the role of sexual

violence tolerance in the bystander effect. In particular, effective intervention efforts might teach youth early on about the effectiveness and importance of being an active bystander by subverting dismissive attitudes toward sexual violence (Banyard, Plante, & Moynihan, 2004). However, there is a need to study more factors and characteristics of victims and perpetrators to better identify the cause of sexual violence in adolescence. For example, one study found that peer groups that experienced prior homophobic victimization were more likely to become perpetrators of such behavior later (Birkett & Espelage, in press). It may be beneficial to examine if peer groups that report sexual violence perpetration have been victimized in the past. Furthermore, in order to enhance intervention and prevention goals, it would be useful to look at the characteristics of individuals who are unaffected or resilient to their peers' attitudes and behaviors.

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TABLES

Table 1

Demographic Differences Across Measures

	N	SVperp		Masc		Dismissive	
		M (SD)	t Sig	M (SD)	t Sig	M (SD)	t Sig
Gender							
Male	91	2.10 (.16)	- 3.48*	2.09 (.47)	- 4.62***	2.05 (.44)	-1.42
Female	100	2.03 (.14)	* 6.73*	1.79 (.40)		1.96 (.42)	
	N	M (SD)	F Sig	M (SD)	F Sig	M (SD)	F Sig
Grade							
6	61	2.02 (.15)	6.73*	1.80 (.49)		1.85 (.46)	
7	55	2.12 (.18)	* 7.02*	2.01 (.45)	3.64	2.14 (.43)	
8	75	2.05 (.13)		1.98 (.42)		2.02 (.43)	

Note: *P-value < 0.05; **P-value <0.01; ***P-value <0.001; SVperp – sexual violence perpetration; Masc – traditional masculinity; Dismissive – Dismissive attitudes towards sexual harassment.

Table 2

Individual Means, Standard Deviations, and Correlations Across Measures

Wave	<i>M</i> (<i>SD</i>)	1	2	3	4	5	6
Wave 1							
1. SVperp	2.06 (.16)	-	.27*	.41*			
2. Masc	1.93 (.46)		-	.44*			
3. Dismis	2.00 (.43)			-			
Wave 2							
4. SVperp	2.05 (.22)	.21	-.03	-.08	-	.02	-.01
5. Masc	1.86 (.53)	.28*	.76*	.43*		-	.58*
6. Dismis	1.98 (.37)	.32*	.47	.59*			-

Note: SVperp = Sexual Violence Perpetration; Masc = Traditional Masculinity; Dismis = Dismissive Attitudes of Sexual Harassment.

Bolded values on the lower diagonal indicate measure stability coefficients from Wave 1 to Wave 2.

* = Sig. at .004

Table 3

Peer Group Descriptive Statistics at Grade Level

Variable	Grade level			Total
	6 th	7 th	8 th	
# of Peer Groups	11	9	9	29
Gender				
Female	5	3	3	11
Male	3	4	4	11
Mixed Gender	3	2	2	7
Range in Size	2 – 12	2 – 11	4 – 13	2 – 13

Note: Peer groups identified as female if > 80% of members were female; male if > 80% identified as male; and mixed gender if the peer group did not fall into the two previous categories.

Table 4

Means and Standard Deviations of Variables at the Peer Group Level, and at Both Waves

Wave	Mean	(SD)
Wave 1		
Sexual Violence Perpetration	2.06	(0.08)
Masculinity	1.93	(0.21)
Dismissiveness	2.00	(0.22)
Wave 2		
Sexual Violence Perpetration	2.06	(0.09)
Masculinity	1.88	(0.34)
Dismissiveness	1.99	(0.23)

Table 5

Parameter Estimates and Model Fit for the Contextual Model

<i>Model 3</i>				
<i>Fixed Effects</i>	<i>Coef.</i>	<i>SE</i>	<i>T-Ratio</i>	<i>P</i>
<i>For Intercept (β_{0i})</i>				
<i>Intercept (γ_{00})</i>	1.715	0.121	14.164	0.000
<i>PG_Dismis (γ_{01})</i>	0.174	0.060	2.888	0.006
<i>For Masculinity (β_{1i})</i>				
<i>Masc attitudes (γ_{10})</i>	0.060	0.024	2.467	0.015
<i>Peer level Variance (u_{0i})</i>	0.002			
	<i>Variance Between</i>		<i>Variance Within</i>	
	55.58%		12.13%	
	<i>Deviance</i>		<i>Parameters</i>	
<i>Model Fit</i>	176.906		2	

Note: Dependent Variable is sexual violence perpetration.

Table 6

Parameter Estimates and Model Fit for the Socialization Model

<i>Model 7</i>				
<i>Fixed Effects</i>	<i>Coef.</i>	<i>SE</i>	<i>T-Ratio</i>	<i>P</i>
<i>For Intercept (β_{0j})</i>				
<i>Intercept (γ_{00})</i>	1.67	0.249	6.935	0.000
<i>PG_SVperpT1 (γ_{01})</i>	0.16	0.121	1.40	0.007
<i>For SV slope (β_{1j})</i>				
<i>SVPerpT1 (γ_{10})</i>	0.07	0.142	5.519	0.043
<i>Random Effects</i>	<i>Variance Between</i>		<i>Variance Within</i>	
	0.029		0.012	
<i>SVPerp Slope (u_{0j})</i>	0.012*			
	<i>Deviance</i>		<i>Parameters</i>	
<i>Model Fit</i>	83.818		3	

Note: Dependent Variable is sexual violence perpetration.

Table 7

Summary of Final Models of Sexual Violence Perpetration

Predictor Variables	SVPerp at Wave1 <i>Contextual Model</i>	SVPerp at Wave2 <i>Socialization Model</i>
<i>Individual – Level 1</i>		
Grade		
Gender		
SV Perpetration		✓*
Traditional Masculinity	✓*	
Dismissiveness	✓	
<i>Peer Group – Level 2</i>		
Grade		
Gender		
SV Perpetration		✓
Traditional Masculinity	✓	
Dismissiveness	✓*	

Note: All predictor variables are from Wave 1.

* = Level 1 predictor variable that was found to have a random slope.