

The Co-evolution of Bullying Perpetration, Homophobic Teasing, and a School Friendship Network

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Abstract Bullying and homophobic teasing behaviors affect the lives of many school aged children, often co-occur, and tend to peak in middle school. While bullying and homophobic teasing behaviors are known to be peer group phenomena, studies typically examine the associations at the individual or school levels. An examination of these behaviors at the peer group level can aid in our understanding of the formation and maintenance of peer groups that engage in these forms of aggressive behavior (selection), and the extent to which friends and the peer group impact individual rates of these aggressive behaviors (influence). In this longitudinal study, we assess the co-evolution of friendship networks, bullying perpetration, and homophobic teasing among middle school students ($n = 190$) using a Stochastic Actor-Based Model (SABM) for longitudinal networks. Data were collected from 6–8th-grade students (Baseline age 12–15; 53% Female; 47% Male) across three waves of data. The sample was diverse with 58% African American, 31% White, and 11% Hispanic. Since bullying and homophobic teasing behaviors are related yet distinct forms of peer aggression, to capture the unique and combined effects of these behaviors we ran

models separately and then together in a competing model. Results indicated that on average individuals with higher rates of bullying perpetration and homophobic teasing were associated with becoming increasingly popular as a friend. However, the effects were not linear, and individuals with the highest rates of bullying perpetration and homophobic teasing were less likely to receive friendship nominations. There was no evidence that bullying perpetration or homophobic teasing were associated with the number of friendship nominations made. Further, there was a preference for individuals to form or maintain friendships with peers who engaged in similar rates of homophobic name-calling; however, this effect was not found for bullying perpetration. Additionally, changes in individual rates of bullying perpetration were not found to be predicted by the bullying perpetration of their friends; however, changes in adolescent homophobic teasing were predicted by the homophobic teasing behaviors of their friends. In a competing model that combined bullying perpetration and homophobic teasing, we found no evidence that these behaviors were associated with popularity. These findings are likely due to the high association between bullying perpetration and homophobic teasing combined with the small sample size. However, friendship selection was based on homophobic name-calling, such that, there was a preference to befriend individuals with similar rates of homophobic teasing. We also examined several risk factors (dominance, traditional masculinity, impulsivity, femininity, positive attitudes of bullying, and neighborhood violence), although, impulsivity was the only covariate that was associated with higher levels of bullying perpetration and homophobic teasing. More specifically, youth with higher rates of impulsivity engaged in higher rates of bullying perpetration and homophobic teasing over time. The findings suggest bullying perpetration and homophobic

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teasing have important influences on friendship formation, and close friendships influence youth's engagement in homophobic teasing. Implications for prevention and intervention efforts are discussed in terms of targeting peer groups and popular peers to help reduce rates of these aggressive behaviors.

Keywords Bullying perpetration · Homophobic teasing · Peer groups · Social networks

Introduction

Bullying and homophobic teasing among school age children in North America remain major public health concerns (Espelage et al. 2012; Kosciw and Diaz 2006). Prevalence rates indicate that 20–30% of school age children report involvement in a bullying episode in the last year (Evans et al. 2014; Robers et al. 2013). Engagement in these forms of aggressive behaviors during adolescence is a precursor to other types of antisocial behaviors and mental health problems later in life (Farrington and Ttofi 2011; Foshee et al. 2016). Informed by developmental and ecological theories, researchers have examined mechanisms that contribute to the progression and continuity of bullying and aggressive behaviors during adolescence. Several cross-sectional and longitudinal studies have examined individual (e.g., conduct problems, sexual harassment) and contextual (e.g., family, peer, school) factors associated with bullying and homophobic teasing behaviors that have informed bullying and gender-based prevention and intervention efforts (Collier et al. 2013; Espelage et al. 2017; Merrin et al. 2016). Although bullying and homophobic teasing are known to be peer group phenomena (Rodkin et al. 2015), most studies examine individual or school level correlates (Espelage et al. 2015; Shetgiri et al. 2013), with a small more recent subset of studies focused on peer group factors (i.e., Birkett and Espelage 2015; Tucker et al. 2016).

Peer groups create the norms and contexts necessary for aggressive behaviors to occur (Salmivalli 2010). Past efforts that consider the influence of peers on the development of bullying and homophobic teasing behaviors have examined them primarily at the dyadic level (Veenstra et al. 2007). However, researchers have begun to examine friendship networks (Birkett and Espelage 2015; Poteat et al. 2015), and have found that bullying behaviors among peer groups can influence individual rates of bullying. Unfortunately, most studies focus on bullying behaviors, and, apart from a few studies, have not considered its co-evolution with other types of interpersonal aggression such as homophobic teasing. Bullying perpetration and homophobic teasing are

interrelated, often co-occur, and thus could benefit from the simultaneous study. A better understanding of the co-evolution of bullying and homophobic teasing friendship networks during adolescence may uncover important information about the formation, maintenance, and behaviors of peer groups that engage in both bullying and homophobic teasing behaviors. We know nearly nothing about the interdependent or differential role of friendships and friendship network phenomena in the emergence of bullying perpetration and homophobic teasing together among adolescence. Thus, the current study examined the co-evolution of bullying perpetration, homophobic teasing, and friendship networks among adolescent students.

The Development of Bullying Perpetration in Middle School

Bullying is defined as intentional acts that cause repeated harm to a person by someone who holds more physical or social power (CDC 2011; Olweus 1994). The imbalance of power and repeated nature are important aspects of bullying that distinguishes it from other forms of aggressive and teasing behaviors. Bullying behaviors include physical harm, repeated name-calling, and relational forms of aggression like excluding someone from a group or spreading rumors (Crick and Grotpeter 1995; Rivers and Smith 1994). Several studies have examined the development of bullying perpetration across adolescence (Espelage et al. 2015; Fisher et al. 2012), and the long-term adverse mental health outcomes of targets of bullying, which include depression, anxiety, and suicidality (Hong and Espelage 2012; Kljakovic and Hunt 2016; Takizawa et al. 2014). Bullying occurs in a variety of settings (e.g., home, school, and community) and across mediums (e.g., face-to-face and online). However, the school environment is known to play an important role in the development, maintenance, and prevention of bullying behaviors (Espelage et al. 2014). As a result, bullying is most often studied within a school context (Smith 2014).

Middle school is a developmental period when bullying behaviors are highest (Pellegrini and Bartini 2000). Several studies have demonstrated that bullying and aggressive behaviors increase during developmental transitions (Espelage et al. 2001; Espelage et al. 2015). The transition from elementary to middle school is a period when adolescents begin to spend more time away from parents and more time with peers. The increased time spent with peers in school may create a context for bullying behaviors to occur. Developmental transitions are marked with significant change and uncertainty with which youth are expected to navigate and establish themselves in a new social hierarchy. To gain higher social status and dominance over peers some bullies develop aggressive strategies to

gain popularity and social status within a classroom and school environment (Rodkin et al. 2006). For example, popular-aggressive youth have high levels of cognitive functioning, engage in bullying behaviors, and are rated as popular by their peers (Rodkin et al. 2006). These youth, though aggressive, hold high social status due to the combination of their social and aggressive orientation. Dissimilarly, compared to popular aggressive youth, individuals with social information processing deficits that use primarily aggressive strategies to solve conflicts are in turn more likely to be victimized by their peers (Crick and Dodge 1994, Olthof et al. 2011). Due to the co-dependency of bullying and other forms of aggressive behavior, popular-aggressive youth may influence engagement in various types of aggressive behavior within their peer groups, like homophobic teasing.

The Development of Homophobic Teasing in Middle School

Recently, there has been a push to focus on specific types of bullying and harassing behaviors (AERA 2013). Homophobic teasing is one form of peer aggression that has garnered much attention in recent years due to the increased reports of depression, anxiety, and suicidality among lesbian, gay, bisexual, transgender (LGBT), and gender non-conforming youth (Robinson and Espelage 2013; Ybarra et al. 2015). Bullying perpetration and homophobic teasing are overlapping, yet distinct, forms of peer aggression (Espelage et al. 2012; Espelage et al. 2017). While they are both forms of aggression, homophobic teasing is a form of gender-based harassment that occurs among friends and strangers (Espelage et al. 2012), whereas bullying is repeated form of aggression from an individual who holds more physical or social power. Bullying and homophobic teasing behaviors often co-occur during adolescence. As such, bullying and homophobic teasing should be considered together to further understand their similarities and differences. In middle school, homophobic teasing is common among students (Berlan et al. 2010; Evans and Chapman 2014). According to the 2013 National School Climate Survey, which included both middle and high school students, 74% of LGBT youth reported being verbally harassed in the past year (Kosciw et al. 2014). The high levels of victimization among LGBT youth are particularly troublesome considering the rates of suicide reported among this population (Haas et al. 2010; Mustanski and Liu 2013). Given these heightened rates of suicide, studies have examined correlates of homophobic victimization among LGBT youth and adverse long-term mental health outcomes among both middle and high school students (Birkett et al. 2015; Ybarra et al. 2015). Similarly, the co-occurrence of bullying and homophobic victimization has been found to

be associated with adverse mental health outcomes, including depression and posttraumatic stress disorder among both younger and older individuals (Almeida et al. 2009; Mustanski et al. 2016). There is a need to understand how bullying perpetration and homophobic teasing behaviors play out together among middle school students.

Co-occurrence of Bullying Perpetration and Homophobic Teasing Among Peer Groups

Bullying perpetration and homophobic teasing are largely a group based phenomenon in which several people tend to be involved and are affected by the behaviors (Salmivalli 2010). These effects are evident because in most incidents of bullying and homophobic teasing peers are often present (bystanders), react in some way, and may contribute to or help resolve the problem (Hawkins et al. 2001). As such, several participant roles have been identified in bullying episodes. Aside from bullies and victims, other roles include *reinforcers* of bullies who may laugh or encourage the aggressive behaviors of the bully, *outsiders* who avoid or withdraw from aggressive episodes, and *defenders* who are bystanders that attempt to help the victims (Salmivalli et al. 1996). Bystander action can influence the behaviors of both the perpetrators and the victims. Further, bullies often are popular and hold high social status among peers, as such, peers may distance themselves from victims and align themselves with bullies by behaving aggressively to “fit in” and reduce the likelihood of being targeted by bullies (Garandeau and Cillessen 2006). As a result, youth navigating the social hierarchies within schools, classrooms, and peer groups may align themselves with aggressive youth as an adaptive mechanism due to the higher social status and popularity some bullies hold. Social networking analysis and more specifically Stochastic Actor-Based Models (SABM) are methodological tools that can examine bullying, homophobic teasing, and the formation of friendship groups over time. For example, SABMs can assess the selection and influence effects of bullying and homophobic teasing among peers and peer group. More specifically, these models can examine the extent to which there is an *alter* effect or whether youth who engage in higher rates of bullying perpetration and homophobic teasing will receive more friendship nomination and thus more popular, and the *ego* effect or whether bullies send fewer friendship nominations to peers.

Only a small number of studies have considered peer group influences on engagement in bullying and homophobic teasing behaviors together. Aggressive peer groups have been found to increase rates of homophobic epithets (Poteat 2007). For example, Poteat and colleagues (2015) found that after controlling for individual levels of prejudice and aggression, youth that affiliated with peer groups that

engaged in higher rates of homophobic teasing and aggressive behaviors in turn engaged in more homophobic teasing. Further, in peer groups where sexual orientation was important, sexual prejudice was a significant predictor of homophobic perpetration. Birkett and Espelage (2015) examined the friendship networks among middle school students and found that peer groups played an important role in the development of homophobic teasing, such that, for male peer groups, higher levels of bullying was significantly associated with higher levels of homophobic teasing. Additionally, youth who were victims of homophobic teasing responded by increasing their engagement in homophobic teasing. Considering the long-term outcomes of homophobic teasing, Tucker and colleagues (2016) examined psychological and substance use correlates of homophobic victimization. The findings indicated that homophobic victimization by non-friends was related to higher rates of depression and anxiety and alcohol use across 1 year; however, homophobic teasing by friends was not associated with distress or alcohol use.

Risk Factors for Bullying Perpetration and Homophobic Teasing

Several individual and social-ecological correlates of bullying and homophobic teasing have been identified in the literature. Individual correlates are person-level factors that are risk factors for bullying perpetration and homophobic teasing behaviors. For example, several studies have found males to perpetrate these aggressive behaviors at higher rates compared to their female counterparts (Espelage et al. 2014; Nansel et al. 2001). For relational forms of aggression, sex differences are mixed with some studies reporting no sex differences (for review see Card et al. 2008). Further, the age of individuals has also been found to be associated with bullying perpetration and homophobic teasing. Research has found that these aggressive behaviors increase during middle school and decrease during high school years (Espelage and Horne 2008; Nansel et al. 2001). Socio-economic status or proxies like having parents with lower levels of education have also been found to be associated with higher rates of bullying and homophobic teasing behaviors (Curtner-Smith et al. 2006). Additionally, particularly among female students, having lower levels of femininity have also been found to be associated with higher rates of aggressive behaviors (Duncan 2006), although, this has been studied less with male student's similar associations may exist. Other individual characteristics like having higher positive attitudes towards bullying (Halpern et al. 2015), traditional masculinity (Espelage et al. 2017; Gini and Pozzoli 2006), and impulsivity (Golmaryami et al. 2016), have been found to be strong predictors of aggressive behaviors. Finally, schools are nested in

neighborhoods, as such, neighborhood violence has also been found to be associated with higher rates of aggressive behaviors (Low and Espelage 2014; Wienke Totura et al. 2009). Youth who reside in violent neighborhoods may be victimized by neighborhood youth (Mann et al. 2015), which may, in turn, affect individual engagement in aggressive behaviors like bullying perpetration and homophobic teasing. Examining risk factors are important to consider due to the group based nature of bullying perpetration and homophobic teasing. For example, bullying and homophobic teasing behaviors may influence individual rates of bullying and homophobic teasing which in turn may affect peers' engagement in these behaviors. As such, a better understanding of how these risk factors are associated with individual rates of bullying and homophobic teasing in the context of social networks can further our understanding of these behaviors in the formation and maintenance of peer groups that engage in bullying and homophobic teasing behaviors.

Summary of Bullying, Homophobic Teasing, and Longitudinal Peer Networks

Taken together, although limited, longitudinal peer network studies have uncovered significant findings related to the formation of bullying and homophobic teasing friendship networks and their impact on adolescents. The results suggest that bullying and homophobic teasing may be primarily a peer group phenomena. Homophobic teasing may be an important mechanism that leads to more severe forms of aggression later in life (Espelage et al. 2015). As such, reducing homophobic teasing in adolescent peer groups may mitigate individual rates of aggression later in life. Further, research is now needed to unpack the associations among homophobic teasing, peer group influence, and the continuity or discontinuity of aggression across adolescence. It is evident that bullying perpetration and homophobic teasing behaviors are best examined from a dynamic, social-ecological perspective, within which individuals shape their relationships and peer contexts, and their behaviors are, in turn, influenced by their relationships and peer contexts (among other factors; Espelage 2014; Hong and Espelage 2012). Bullying perpetration and homophobic teasing are important to consider together because, as highlighted above, friendship networks, bullying perpetration, and homophobic teasing seem likely to evolve in mutually dependent and reinforcing ways and few studies have considered changes in peer influence on bullying perpetration and homophobic teasing over time among middle school students. Most studies examine these relations among older adolescents (e.g., high school students), as such, the current study uses younger individuals (e.g., middle school students).

Current Study

The aim of the present study was to examine the co-evolution of friendship networks, bullying perpetration, and homophobic teasing during middle school. More specifically, this study examined the social selection and influence processes related to bullying and homophobic teasing behaviors, using a Stochastic Actor-Based Model (SABM) for longitudinal networks (Snijders et al. 2010). From a social selection perspective, we were interested in the role of adolescent bullying perpetration and homophobic teasing in the formation and maintenance of friendships. From a social influence perspective, we were interested in how friends impact adolescent bullying perpetration and homophobic teasing. Because bullying perpetration and homophobic teasing are distinct yet correlated behaviors, we first modeled them separately and then together to facilitate comparison of selection and influence processes for each behavior.

There is a body of literature that suggests that some children use aggression to gain popularity within peer groups by balancing aggressive and prosocial acts (Hawley 2003). Popular aggressive youth use prosocial acts (i.e., cooperation) to remain in control of resources and to maintain their popularity (Hawley et al. 2008; Rodkin et al. 2006). The current study seeks to examine the extent to which bullying and homophobic teasing behaviors are associated with popularity among peer groups. As such we hypothesize that engagement in bullying perpetration and homophobic teasing is associated with popularity (Hypotheses 1). That is, individuals with higher rates of bullying perpetration and homophobic teasing will receive more friendship nominations (alter effect) and send fewer friendship nominations (ego effect). Further, bullying and homophobic teasing are also known to be peer group phenomena, individuals that engage in these aggressive behaviors may have friends that also engage in these behaviors at similar rates (Rodkin et al. 2015). As such, we hypothesize that youth with similar levels of bullying and homophobic teasing behaviors will tend to be friends with each other (Hypotheses 2). Further, we hypothesize that friend's engagement in bullying and homophobic teasing behaviors will predict change in the individual's level of engagement in the same behaviors (Hypotheses 3). Additionally, several risk factors have been found to be associated with bullying and homophobic teasing behaviors. Our final hypothesis examines the extent to which risk factors that include dominance, traditional masculinity, impulsivity, femininity, positive attitudes of bullying, and neighborhood violence are associated with higher individual rates of bullying and homophobic teasing behaviors over time (Hypotheses 4).

Methods

Participants and Procedures

Data originated from one middle school in a Midwestern county in the United States that participated in the University of Illinois Bullying and Sexual Violence Study (Espelage and Stein 2007). Three cohorts of students (6–8th grade) were recruited from a public middle school to participate in the study and were followed across three waves separated by 6 months. Specifically, data were collected each semester beginning in the fall. The analytic sample for the current analyses included participants that completed at least two out of three waves of assessments, for whom longitudinal information on their friendship networks and behavior were captured ($n = 190$). For example, 8th graders contributed to two waves of data before graduating. Human subjects approval was obtained from the University of Illinois at Urbana-Champaign Institutional Review Board before data collection. Further approval was obtained from the RAND Human Subjects Protection Committee before analyses began. A waiver of active consent was approved; parent information letters were sent home to parents, and students provided assent by writing their names before starting the survey. The survey was voluntary, and students could stop at any time and skip any question. Trained research assistants administered the surveys and students completed them in class during school hours. At baseline, students ranged from 6 to 8th grade, with a mean age of approximately 12 years. The sample was diverse and included 58% African American, 31% White, and 11% Hispanic. The analytic sample was 53% female and 47% male.

Measures

Demographic variables were measured at baseline (wave 1). Covariates were measured at waves 1 and 2, and bullying perpetration, homophobic teasing, and friendships were measured at each of the three waves.

Friendships

Students listed up to 8 of their friends (first & last name) at their school, without any restrictions on gender or grade-level of these friends. This relational data, collected at each study wave, was converted into a directed adjacency matrix representing the friendship network among youth in the middle school at each of the three assessment time points.

Bullying perpetration

The nine-item Illinois Bully Scale assessed the frequency of teasing, name-calling, social exclusion, and rumor spreading (Espelage and Holt 2001). Example items included how often in the past 30 days they teased other students, upset other students for the fun of it, excluded others from their group of friends, helped harass other students, and so on. Response options included 0 = *never*, 1 = *1 or 2 times*, 2 = *3 or 4 times*, 3 = *5 or 6 times*, or 4 = *7 or more times*. Higher scores indicate greater bullying perpetration. The construct validity of this scale has been supported via exploratory and confirmatory factor analysis (Espelage et al. 2003). Scale scores are strongly correlated with peer nominations of bullying (e.g., bullies identified by others) and have acceptable internal consistency (Range $\alpha = .87-.88$).

Homophobic teasing

This five-item agent (perpetrator) scale assesses homophobic teasing perpetration during the previous 30 days. Students read the following sentence: "Some kids call each other names like *homo*, *gay*, *lesbo*, *fag*, or *dyke*. How many times in the last 30 days did YOU say these words to..." and then indicated whether they said these words to a friend, someone you did not like, someone you did not know well, someone you thought was gay, and someone you did not think was gay. Response options include 0 = *never*, 1 = *1 or 2 times*, 2 = *3 or 4 times*, 3 = *5 or 6 times*, or 4 = *7 or more times*. Construct validity of this scale was supported by factor analyses and convergence and divergence validity (Poteat and Espelage 2005, 2007). The scale demonstrated acceptable internal consistency (Range $\alpha = .84-.85$).

Demographics

We included four demographic variables in our model as predictors of friendship choices and bullying and homophobic teasing. Sex was included such that males were the reference group. Race/ethnicity and grade in school were also included in our model. Parent highest level of educational attainment was included as a proxy for socioeconomic status, where 1 = *Less than high school*, 2 = *High school diploma or GED*, 3 = *Some college*, 4 = *Graduated from college*, 5 = *Some graduate school*, 6 = *Graduate or professional (accountant, doctor, lawyer) degree*. As in many school-based studies, we chose grade level as the variable for time due to its strong link to developmental factors within the school context (O'Connell and McCoach 2008).

Impulsivity

The 4-item Impulsivity subscale from the *Teen Conflict Survey* (Bosworth et al. 1999) assesses the self-reported impulsivity of the respondents. Items included how often they would say the following statements about themselves: "I have a hard time sitting still," "I start things but have a hard time finishing them," "I do things without thinking," and "I need to use a lot of self-control to keep out of trouble." Response options include "0 = Never," "1 = Seldom," "2 = Sometimes," "3 = Often," and "4 = Always." A Chronbach's alpha of .62 was recorded in the original study (Bosworth et al. 1999; see also Espelage et al. 2001 for additional information on psychometric properties). In the current study, the scale demonstrated acceptable internal consistency ($\alpha = .76-.78$).

Dominance

The dominance scale is a seven-item scale created to measure the extent of one's ability to influence others. Example items include, "I enjoy being the center of attention," "I can force others to do what I want," and "My friends are influenced by what I say or do." Five response options ranged from "Does not describe me well" to "Describes me very well." The scale demonstrated acceptable internal consistency ($\alpha = .73-.76$).

Traditional masculinity

The traditional masculinity scale, a part of the Adolescent Masculinity Ideology in Relationships Scale (AMIRS; Chu et al. 2005) was used to assess traditional masculine attitudes among youth. The AMIRS was created specifically for adolescent populations to assess masculinity in relationships (e.g., peer) (Chu et al. 2005). Example items include, "It's important for a boy to act like nothing is wrong, even when something is bothering him." Four response options ranged from "disagree a lot" to "agree a lot." The scale demonstrated acceptable internal consistency ($\alpha = .75-.82$).

Femininity

The Inauthentic Self in Relationships subscale of the Adolescent Femininity Ideology Scale (AFIS; Tolman and Porche 2000) was used to assess traditional feminine ideology. The measure contains seven items, for example, "I express my feelings only if I can think of a nice way of doing it" and "I worry that I make others feel bad if I am successful." Response options ranged from 1 (*Strongly disagree*) to 4 (*Strongly agree*). Higher scores indicate

lower levels of authenticity in relationships. The scale demonstrated acceptable internal consistency ($\alpha = .76-.77$).

Attitudes toward bullying

A four-item scale developed by Espelage and Asidao (2001) was used to assess the students' *attitudes toward bullying*. Example items included, "A little teasing does not hurt anyone." Response options ranged from 1 (*Strongly disagree*) to 4 (*Strongly agree*). Higher scores corresponded to a more positive view of bullying. The scale demonstrated acceptable internal consistency ($\alpha = .67-.70$).

Neighborhood violence

Five items from the 12-item Children's Exposure to Community Violence scale was used to assess neighborhood violence (Richters and Martinez 1990). This adapted scale created using an exploratory factor analysis has been used in previous studies and has been found to have strong reliability. Example items included, "How often do you hear or see the following in your neighborhood, school, or at your home?" I have heard guns being shot, I have seen somebody arrested, I have seen drug deals, I have seen somebody being beaten up, and I have seen gangs. Response options ranged from 1 (*Never*) to 4 (*Often*). The scale demonstrated acceptable internal consistency ($\alpha = .90-.95$). These items were rescaled by multiplying by 5 and rounding to whole numbers to aid in model estimation and convergence.

Analytic Approach

We used a SABM (Snijders et al. 2007; Snijders et al. 2010), implemented in the RSiena program (Ripley et al. 2016), to examine interdependencies between bullying perpetration, homophobic teasing, and the friendship network of these middle school students. A stepwise approach to model specification was used (as outlined in Snijders et al. 2010), where groups of related effects were score tested against a null model, and then added to the model if the score test was significant. Effects of network structure on friendship dynamics were examined first, followed by effects of covariates on network dynamics, effects of covariates on behavior dynamics, and finally network selection and influence effects for the dependent behaviors (e.g., bullying perpetration, homophobic teasing). Once a final model was specified and converged, parameter estimates were evaluated for time heterogeneity across both time periods (from Wave 1 to Wave 2, and Wave 2 to Wave 3) (Lospinoso et al. 2011). Interactions between model parameters and a dummy variable for the second time period were included if there was significant time heterogeneity.

Models were fit for each dependent behavior separately, and then a final model was estimated that included both bullying perpetration and homophobic teasing as dependent variables. This final model accounts for the correlation between these two related variables and therefore allowed us to test if selection and network influence effects for these behaviors were independent of one another or if there were differential selection and influence effects for each behavior.

To test the effects of bullying perpetration and homophobic teasing on students' friendship selection, we tested if individual indices of bullying perpetration and homophobic teasing predicted (1) students' tendency to nominate friends, and (2) the tendency for students to be nominated as a friend by other students (e.g., if their behavior predicts their popularity as a friend). A third effect tested whether students were more likely to nominate friends whose rates of bullying perpetration or homophobic teasing were similar to their own (e.g., what is referred to as *homophilic* selection). All models controlled for known covariate predictors of student friendships; gender, race, school grade, and parental education. These are important effects to account for to adequately isolate the effects of bullying/homophobic teasing on friendship selection; because these covariates may be correlated with bullying and homophobic teasing their role in friendship choices may also spuriously lead to correlations in these aggressive behaviors among friends.

To examine friendship network predictors of bullying perpetration and homophobic teasing dynamics, we tested (a) if nominated friends' average bullying perpetration predicted change in youth's bullying perpetration and (b) if friends' average homophobic teasing predicted change in youth's homophobic teasing. We also controlled for the effects of key risk factors (impulsivity, dominance, traditional masculinity, femininity, positive attitude to bullying, and neighborhood violence) and demographics (gender, race, school grade, parental education) in predicting youth's bullying perpetration and homophobic teasing behaviors, as well as linear and quadratic growth terms that model the overall tendencies for change of the dependent behavior variables. Specifically, linear growth accounts for increases and decreases in the behavior, while quadratic growth accounts for the likelihood of low and high scores to change more rapidly than moderate scores. In SABMs, the sub-models predicting friendship network and behavior dynamics are estimated simultaneously. That is, the effects of friendship influence on behavior change control for initial social selection effects (e.g., when testing effects of peer influence on bullying perpetration the model controls for any tendencies for friendships to form among youth with similar bullying behaviors), and vice versa.

Results

Descriptive Statistics

Table 1 presents descriptive statistics for all variables. There were slightly more females (53%) than males (47%), and most of the sample consisted of Black (58%) and White (31%) participants. The average parent education level was *some college*. Overall, participants reported similar averages for bullying perpetration and homophobic teasing over time (Wave 1: 1.2 and 1.3; Wave 2: 1.2 and 1.5; Wave 3 1.4 and 1.8, respectively). The average student perpetrated bullying and homophobic teasing behaviors 1 or 2 times in the past 30 days at time 1, and the average frequency of these behaviors increased slightly over time. Similarly, the covariates (impulsivity, dominance, traditional masculinity, femininity, attitudes towards bullying, and neighborhood violence) were stable across wave 1 to wave 2 (see Table 1).

Descriptive statistics for friendship networks are presented in Table 2. The average number of friends nominated across each of the three waves ranged from 4.3–4.7. On average, between each study wave, students maintained approximately two stable friendships, formed between 2 and 3 new friendships, and dissolved about 3 existing

Table 1 Individual descriptive statistics (mean or %) for the analytic sample

Variables	Wave 1	Wave 2	Wave 3	Range
Control variables				
Sex				
Female	53%			
Male	47%			
Race/ethnicity				
Black	58%			
White	31%			
Hispanic	11%			
Parent education	3.1			1–6
Covariates				
Impulsivity	2.9	2.7		1–4
Dominance	3.0	3.1		1–5
Traditional masculinity	0.9	0.9		1–4
Femininity	2.3	2.2		1–4
Attitudes towards bullying	2.0	1.6		1–4
Neighborhood violence	3.2	2.8		1–4
Dependent variable				
Bullying perpetration	1.2	1.2	1.4	1–4
Homophobic teasing	1.3	1.5	1.8	1–4

Note: Control variables (sex, race/ethnicity, and parent education) were measured using baseline values. Covariates were treated as “changing” variables in the model, and values from Wave 1 and Wave 2 were used to predict change in the dependent network and behavior from Wave 1 to Wave 3

friendships. The Jaccard index quantifies the amount of network change relative to network stability between consecutive waves, and values of 0.2 to 0.3 are acceptable to meet the SABM assumption that the network change process is gradual. The Jaccard coefficients observed at period 1 (0.28) and period 2 (0.23) indicate that there were sufficient change and stability in the friendship networks for the SABM.

SABMs for the Co-evolution of the Friendship Networks and Bullying Behaviors

Effects predicting friendship network dynamics

Table 3 includes the parameter estimates, standard errors, and *p*-values for one component of the SABM: the effects predicting changes in the friendship network across the three waves. Results are reported for models fit for each bullying and homophobic teasing behavior separately (bullying perpetration in column 1, homophobic teasing in column 2), and then a model that included effects for both behaviors to test for competing effects (combined model, column 3).

Effects of bullying and homophobic teasing on friendship network dynamics

To examine our first hypothesis that individuals with higher rates of bullying perpetration and homophobic teasing will receive more friendship nominations (alter effect) and send less friendship nomination (ego effect) we examined the evolution of friend network dynamics. In a model that tested for the co-evolution of friendship networks and bullying perpetration only (bullying model, Column 1), bullying perpetration over time positively predicted the number of friendship nominations youth received (positive bullying alter effect). That is, youth with higher bullying perpetration scores across the three waves tended to receive significantly more friendship nominations than their peers with lower scores, and thus were more attractive as friends. This corresponded to an odds ratio of 1.23 ($p = .025$). However, this effect was not linear, and youth with the very highest scores for bullying perpetration were significantly less likely to receive friendship nominations (negative bullying squared alter effect). This corresponded to an odds ratio of 0.87 ($p = .015$). There was no evidence that bullying perpetration predicted the number of friendship nominations made by an adolescent (bullying ego, $p = .705$). Contrary to our second hypothesis that youth who perpetrate bullying and homophobic teasing will tend to be friends with each other, there was no evidence that youth nominated friends whose bullying perpetration scores were similar to their own (bullying similarity, $p = .703$).

Table 2 Friendship network descriptive statistics

Characteristics	Wave 1	Wave 2	Wave 3
Percent (%) missing nominations	16.3	2.6	13.7
M friends nominated	4.7	4.6	4.3
Range of friend nominations made	0–8	0–8	0–8
	Period 1 (W1-W2)	Period 2 (W2-W3)	
M stable friendship ties (per participant)	2.0	1.7	
M new friendship ties (per participant)	2.6	2.5	
M friendship ties dissolved (per participant)	2.6	3.1	
Jaccard coefficient	0.28	0.23	
N actors joined	30	2	
N actors left	4	23	

Table 3 SABM results for bullying perpetration and homophobic teasing: effects predicting friendship network dynamics

Parameters for friendship network dynamics	Bullying			Homophobic teasing			Combined model		
	Est.	SE	<i>p</i>	Est.	SE	<i>p</i>	Est.	SE	<i>p</i>
Rate period 1	18.805	1.826	0.000	14.874	2.283	0.000	15.553	3.252	0.000
Rate period 2	17.841	1.692	0.000	15.594	1.921	0.000	16.122	3.699	0.000
Structural effects									
Outdegree (density)	−2.214	0.152	0.000	−2.224	0.252	0.000	−2.131	0.193	0.000
Reciprocity	1.970	0.113	0.000	2.284	0.303	0.000	2.210	0.347	0.000
Transitive triplets	0.520	0.030	0.000	0.516	0.053	0.000	0.505	0.035	0.000
3-cycles	−0.376	0.049	0.000	−0.362	0.070	0.000	−0.348	0.074	0.000
Indegree - activity (sqrt)	−0.524	0.104	0.000	−0.490	0.118	0.000	−0.469	0.119	0.000
Outdegree - activity (sqrt)	0.086	0.037	0.019	0.169	0.113	0.136	0.161	0.106	0.129
Covariate effects									
Male alter	0.032	0.059	0.584	0.034	0.101	0.738	0.041	0.087	0.642
Male ego	−0.190	0.059	0.001	−0.156	0.072	0.031	−0.168	0.079	0.033
Same male	0.334	0.050	0.000	0.385	0.073	0.000	0.378	0.096	0.000
Same race	0.192	0.051	0.000	0.194	0.067	0.004	0.201	0.071	0.004
Same grade	0.428	0.058	0.000	0.491	0.146	0.001	0.484	0.081	0.000
Effects of bully perpetration									
Bullying alter	0.208	0.093	0.025	n/a			0.130	0.134	0.329
Bullying squared alter	−0.144	0.059	0.015	n/a			−0.108	0.084	0.199
Bullying ego	−0.014	0.038	0.705	n/a			−0.069	0.060	0.254
Bullying similarity	0.144	0.377	0.703	n/a			−0.298	0.446	0.504
Effects of homophobic teasing									
Homophobic teasing alter	n/a			0.684	0.334	0.041	0.573	0.432	0.185
Homophobic teasing squared alter	n/a			−0.417	0.226	0.065	−0.360	0.260	0.166
Homophobic teasing ego	n/a			0.057	0.041	0.166	0.081	0.070	0.251
Homophobic teasing similarity	n/a			1.368	0.572	0.017	1.354	0.688	0.049

Friendship network dynamics were also predicted by homophobic teasing perpetration. In a model that tested for effects of homophobic name-calling on friendship choices but that did not control for effects of bullying perpetration

(homophobic teasing model, column 2), in line with our first hypothesis, there was a significant positive “homophobic teasing alter” effect. This indicated that youth with higher (above average) scores on this behavior attracted a

significantly greater number of friendship nominations over time (relative to their peers with lower scores on this behavior), again indicating that greater frequency of homophobic teasing perpetration was associated with becoming increasingly popular as a friend. This corresponded to an odds ratio of 1.98 ($p = .041$). There was also a marginally significant effect ($p = .065$) indicating that this preference for friends that engaged in more frequent homophobic teasing was not linear over the three waves (similar to the effects for bullying perpetration reported above), and that youth with very high scores on this variable were less attractive as friends (negative homophobic teasing squared alter effect). This corresponded to an odds ratio of 0.66. There was no evidence that homophobic teasing predicted the number of friendship nominations made by an adolescent. In line with our second hypothesis, youth also showed a significant preference to form or maintain friendships with peers who engaged in similar levels of homophobic name-calling as themselves (positive homophobic teasing similarity effect) This corresponded to an odds ratio of 3.93 ($p = .017$).

In a model that combined selection effects for bullying perpetration and homophobic name-calling (combined model, column 3), we found some evidence that friendship selection is largely based on homophobic name-calling. In this model, the alter effects for bullying and homophobic name-calling, which initially indicated that these behaviors were independently associated with popularity, are no longer statistically significant. Because these two alter effects were consistently independently significant in the stepwise model specification process but were found to be highly correlated, it is likely that the non-significance of these effects in the combined model is due to the high collinearity. In this combined model, there was a preference to befriend peers whose homophobic name-calling behaviors were similar to the adolescent (homophobic teasing similarity), partially supporting our second hypothesis. This corresponded to an odds ratio of 3.87 ($p = .049$).

In summary, we found partial support for our first and second hypotheses. We found that on average individuals with higher rates of bullying perpetration and homophobic teasing were associated with becoming increasingly popular as a friend; however, the effects were not linear, and individuals with the highest rates of bullying perpetration and homophobic teasing were less likely to receive friendship nominations respectively. We did not find evidence that bullying perpetration or homophobic teasing were associated with the number of friendship nominations sent. Further, partially supporting our second hypothesis, there was a preference for individuals to form or maintain friendships with peers who engaged in similar rates of homophobic name-calling. However, this effect was not found for bullying perpetration. In a model that combined

bullying perpetration and homophobic teasing, contrary to our first hypothesis, we did not find that these behaviors were associated with popularity. However, friendship selection was based on homophobic name-calling, such that, there was a preference to befriend individuals with similar rates of homophobic teasing.

Effects of covariates and network structure on friendship network dynamics

The effects of bullying and homophobic teasing behaviors on friendship choices described above were significant controlling for a range of friendship selection effects based on actor covariates and structural processes. Friendship choices over time were significantly predicted by similarities in gender, race, and school grade, and males were significantly less likely to nominate friends, relative to females (negative male ego effect). Parent education level was not found to predict friendship choices.

Friendships were also predicted by expected endogenous structural processes. Structural processes included (1) positive reciprocity which indicated the extent to which individual reciprocated a friendship nomination, (2) transitive triplets which indicates the extent to which an individual nominated a friend of a friend, (3) 3 cycle effect which indicated the extent to which hierarchies formed with peer groups, (4) indegree which indicated the extent to which popular youth sent nomination and (5) outdegree which indicated the extent to which individuals with high numbers of nomination continue to send high number of nominations. Youth were likely to befriend peers who had nominated them as a friend (positive reciprocity), and to befriend friends of their current friends (positive transitive triplets). For the bully perpetration model this corresponded to an odds ratio of 7.17 and 1.68, for the homophobic teasing model this corresponded to an odds ratio of 9.82 and 1.68, and in the combined model this corresponded to an odds ratio of 8.17 and 1.67. There was also an aversion to create cyclical friendship triads, indicating that youth formed localized hierarchies within their friendship clusters (negative 3-cycles effect). That is, within peer groups, hierarchies were formed with certain individuals having more popularity than others. This corresponded to an odds ratio of 0.67 for the bully perpetration model, 0.70 for the homophobic teasing model, and 0.71 for the combined model. The remaining significant structural effects indicate that there was a negative correlation between actors' indegree and outdegree, meaning that popular youth were more selective about forming friendships indicated by fewer friendship nominations sent. This corresponded to an odds ratio of 0.59 for the bully perpetration model, 0.61 for the homophobic teasing model, and 0.63 for the combined model. Individuals who sent a high number of friendship

nominations (e.g., high outdegrees) were likely to continue making a high number of friendship nominations across time, leading to dispersion in the degree distribution. This corresponded to an odds ratio of 1.09 for the bully perpetration model, 1.18 for the homophobic teasing model, and 1.17 for the combined model.

In summary, individuals were more likely to form friendships with peers with similar gender, race, and school grade. Compared to females, males were less likely to nominate friends. Additionally, individuals were more likely to nominate peers who nominated them as friends and to also nominate friends of their friends. Popular youth were more selective and nominated fewer of their peers as friends, while individuals that sent several nominations continued to send high numbers of friendship nominations over time.

Effects predicting changes to bullying perpetration and homophobic teasing

Table 4 includes the parameter estimates, standard errors, and *p*-values for the second component of the SABM: the effects predicting changes in bullying perpetration and homophobic teasing. Again, results are reported for models fit to bullying perpetration (column 1) and homophobic teasing (column 2) separately, and then the final model that combined these two behaviors (column 3).

Effects predicting bullying perpetration and homophobic teasing dynamics

To examine our third hypothesis, we tested whether bullying perpetration and homophobic teasing behaviors positively predicted changes in an individual’s level of engagement in the same behaviors. In the bullying perpetration model (Table 4, column 1), contrary to our hypothesis, changes in individual rates of bullying perpetration were not found to be predicted by the bullying perpetration of their friends (friends’ average bullying perpetration effect). However, in support of our third hypothesis, in the homophobic teasing and combined models changes in adolescent homophobic name-calling were predicted by the homophobic name-calling behaviors of their friends. Specifically, youth tended to adopt or maintain behaviors that were similar to the average behavior of their nominated friends. Although this effect was only marginally significant in the model of homophobic teasing (Table 4, column 2), it was statistically significant in the combined model (Table 4, column 3).

We then examined our fourth hypothesis, that risk factors including dominance, traditional masculinity, impulsivity, femininity, positive attitudes of bullying, and neighborhood violence were associated with higher individual rates of bullying and homophobic teasing behaviors respectively. Out of all the risk factors, only impulsivity was found to be a significant predictor for bullying perpetration and

Table 4 SABM results for bullying perpetration and homophobic teasing: effects predicting behavior dynamics

Parameters for friendship network dynamics	Bullying			Homophobic teasing			Combined model		
	Est.	SE	<i>p</i>	Est.	SE	<i>p</i>	Est.	SE	<i>p</i>
Bullying perpetration dynamics									
Rate period 1	3.453	0.735	0.000	n/a			3.435	1.037	0.001
Rate period 2	4.604	1.133	0.000	n/a			4.573	1.215	0.000
Linear shape	−0.292	0.057	0.000	n/a			−0.290	0.060	0.000
Quadratic shape	0.084	0.067	0.210	n/a			0.082	0.069	0.231
Friends’ average bullying perpetration	1.730	1.813	0.340	n/a			1.652	1.795	0.357
Adolescent covariates									
Parent education	−0.060	0.040	0.110						
Impulsivity	0.068	0.030	0.025	n/a			0.068	0.035	0.052
Homophobic teasing dynamics									
Rate period 1	n/a			10.647	6.202	0.086	10.746	3.006	0.000
Rate period 2	n/a			14.814	3.506	0.000	14.911	4.416	0.001
Linear shape	n/a			−0.296	0.056	0.000	−0.290	0.049	0.000
Quadratic shape	n/a			0.132	0.043	0.002	0.131	0.032	0.000
Friends’ average homophobic teasing	n/a			2.128	1.118	0.057	2.141	1.036	0.039
Adolescent covariates									
Parent education	n/a			−0.063	0.040	0.115	−0.064	0.044	0.147
Impulsivity	n/a			0.044	0.021	0.041	0.044	0.020	0.024

homophobic teasing. Specifically, adolescent impulsivity at waves 1 and 2 positively predicted adolescent bullying perpetration and homophobic teasing. That is, youth with higher rates of impulsivity tended to adopt or maintain high values of bullying perpetration and homophobic teasing. None of the other covariates tested during the model specification process were found to significantly predict bullying perpetration or homophobic teasing behaviors.

Finally, there was a general trend in the changes to bullying scores not accounted for by the other model parameters, whereby bullying scores tended to remain low (negative linear shape effect). These effects remained consistent in the combined model that also accounted for changes in homophobic teasing, though the effect of impulsivity on bullying perpetration became marginally significant. For homophobic teasing, the significant negative linear shape effect and positive quadratic shape effect across the first and combined models indicated that there was a general trend for homophobic teasing scores to remain at low values (below the mean), and for changes in these scores over the three study waves to move away from the initial average. This is indicative of a positive feedback or self-reinforcing change process. There was no evidence of significant time heterogeneity in any of the effects included in these models.

In summary, we found partial support for our third hypothesis. That is, changes in individual rates of bullying perpetration were not found to be predicted by the bullying perpetration of their friends; however, changes in adolescent homophobic teasing were predicted by the homophobic teasing behaviors of their friends. We found little support for our fourth hypothesis. Although we examined several risk factors, only impulsivity was associated with levels of bullying perpetration and homophobic teasing. That is, youth with higher rates of impulsivity engaged in higher rates of bullying perpetration and homophobic teasing over time. Additionally, we did not find many significant associations with risk factors. The lack of significant associations was likely due to the small sample size in the current study. Future studies using larger sample should further assess these risk factors. Finally, both bullying perpetration and homophobic teasing tended to remain at low levels over time. However, for homophobic teasing, changes in these scores over time tended to move away from the initial mean suggesting a self-reinforcing change process.

Discussion

The current study examined the friendship network dynamics of bullying perpetration and homophobic teasing jointly among a sample of middle school youth. Several studies have argued that the bullying phenomenon is not

merely driven by individual and dyadic factors, but is associated with peer social structures in complex ways (Birkett and Espelage 2015; Espelage et al. 2003; Rodkin et al. 2015; Salmivalli 2010). We expected that both social selection and influence effects would be processes that give rise to the dependence between bullying perpetration, homophobic teasing, and friendship networks. We fit our models separately and then together, providing information on the strength of each predictor individually and when they control for each other.

Youth who engaged in bullying or homophobic teasing with above average frequency, but not with extremely high frequency, were the most popular youth to befriend. Specifically, youth with more frequent engagement in bullying perpetration and homophobic teasing attracted the most friendship nominations and thus increased their social status as they became more popular as friends. However, there were also more nuanced social rules that appeared to guide the relationship between aggression and popularity, because individuals with the most extreme levels of bullying and homophobic teasing were less popular. These findings echo a literature that examines popular aggressive youth, who are individuals who engage in higher rates of aggressive behaviors like bullying, but are popular among their peers and have several friends (Logis et al. 2013; Rodkin et al. 2015; Rodkin and Roisman 2010). These individuals are perceived by their peers as having high social skills, though teachers and other adults may not hold this view (Rodkin and Roisman 2010). Higher levels of social competence are thought to distinguish popular-aggressive youth from youth who are only aggressive (Vaughn et al. 2003). Popular-aggressive youth use both prosocial and coercive strategies (e.g., bi-strategic) to gain social status and control resources (Hawley 2002). Aggressive youth who are not popular do not possess the same level of social and cognitive functioning as popular-aggressive youth. The patterns observed in the current study may be explained by this theory. The findings from our study support current literature on popular-aggressive youth and extend work in this area by examining this phenomenon among homophobic teasing, a similar yet distinct form of peer aggression. We found that popular-aggressive youth that engaged in homophobic teasing had more friends, which may indicate that popular aggressive youth used homophobic teasing as a strategy to gain and maintain social status among peers similar to bullying perpetration.

The friendship dynamics associated with bullying perpetration and homophobic teasing were different. In our sample, we found that similarities in homophobic teasing were a salient factor that predicted friendship network dynamics, with youth preferring to befriend and sustain friendships with peers whose engagement in homophobic teasing that was similar to their own. However, we did not

find that similarity in bullying perpetration predicted friendships, which raises questions about the role of bullying behaviors on friendship formation. Our findings suggest that individual engagement in homophobic teasing is meaningful for the identification and formation of friendships and as a result of structural tendencies for friendships to be reciprocated and cluster into cliques (evidenced by the transitive triplet effects). The similarity of this behavior will also cluster within friendship groups and may be meaningful for peer group identity. These friend groups may identify and present themselves as groups that engage in homophobic teasing. However, because similarity of bullying perpetration did not drive friendship formation, engagement in bullying behaviors varied within friend groups, although it remained associated with popularity across these groups. In the combined model, homophobic teasing was found to be an important predictor of friendship choices compared to bullying. These findings suggest that there is value in examining bullying and homophobic teasing together. However, differences should be interpreted with caution given the collinear association between bullying perpetration and homophobic teasing.

Another aim of this study was to understand the extent to which peer groups influenced engagement in bullying and homophobic teasing behaviors. Bullying perpetration and homophobic teasing were salient in this peer social context, given they predicted friendship choices and were associated with popularity. Therefore, we might expect that youth pay attention to these behaviors among their peers and friends, and are influenced by their friends' aggressive behaviors through social learning and normative influence. To examine peer group influences, we examined the extent to which friends' bullying perpetration and homophobic teasing behaviors predicted individual changes in bullying and homophobic teasing behaviors. We did not find evidence that youth were influenced by the rates of bullying perpetration of their friends, however, we found evidence that youth were influenced by their friends' homophobic teasing behaviors and over time adopted similar behaviors of their friends. These findings again demonstrate that homophobic teasing is strongly associated with one's friendship network which is in line with current research (Poteat 2007; Birkett and Espelage 2015). Considering the current context in which bullying and homophobic teasing are associated with being liked by other peers, it is not surprising that youth in the current sample would look to their peers for cues about whether to engage in bullying and homophobic teasing behaviors. Though we did not find evidence that friends influenced individual rates of bullying perpetration, there is some research that has found significant associations between aggressive peer groups on increases in the likelihood of individual aggression (Faris and Ennett 2012). Given the salience of bullying behaviors in a school

context, it may be that bullying perpetration is more likely to be influenced by larger peer group processes and social norms and not as influenced by close friendships. Provided bullying behaviors include differences in social power structure may explain why bullying behaviors are related to a larger peer context. However, this needs to be examined in future studies as power structure was not included in the current measurement of bullying perpetration. This may explain why we did not find significant socialization effects for bullying perpetration among friends. Similarly, some studies have found socialization effects for instrumental and relational forms of aggressive peers but not overt forms of aggression like bullying (Sijtsema et al. 2010). Research that explores differences between these types of bullying (overt and covert) may shed more light on this issue. Further research is needed to better understand the socialization effects of bullying perpetration among middle school students. Incorporating community membership and community level norms into network models is an approach that could capture school and social group norms around bullying behaviors and may help explain the socialization effects of bullying.

We examined various individual and ecological correlates of network dynamics, bullying perpetration, and homophobic teasing. As expected, gender, race, and school grade level played an important role in friendship selection. Regarding covariate predictors of bullying perpetration and homophobic teasing, only adolescent impulsivity was found to significantly explain these behavior dynamics (bullying and homophobic teasing) over the study. The reason why other previously observed predictors such as dominance, traditional masculinity, femininity, positive attitudes of bullying, and neighborhood violence of these bullying behaviors were not significant in the current study should be explored in subsequent research. For example, using additional, and possibly larger samples to replicate the finding that impulsivity may be an overarching mechanism in explaining the dynamics of aggressive behaviors during middle school. However, our findings suggest that impulsivity may be an important predictor for both bullying perpetration and homophobic teasing.

Implications for Prevention and Intervention

The results of the current study have important implications for prevention and intervention efforts. Several intervention and prevention efforts have been implemented within a school context with the promise of reducing rates of aggression and peer victimization (Espelage et al. 2013; Leadbeater and Sukhawathanakul 2011; Olweus 1993). These efforts have had varying results, although generally, they show decreases in bullying perpetration by 20–23% and victimization by 17–20% (for review see Ttofi and

Farrington 2011). However, most efforts to reduce bullying and homophobic teasing behaviors have been conducted at the individual level, and to some extent the school level (e.g., Olweus Bullying Prevention Program (OBPP) and the WITS program (Walk Away, Ignore, Talk it Out, and Seek Help); Leadbeater and Sukhawathanakul 2011; Olweus 1993). Prevention programs like OBPP and WITS focus on teaching youth to abstain from engaging in bullying behaviors and strategies on how to navigate bullying and aggressive episodes when they arise. The focus on teaching individual skills to prevent, manage, and cope with aggressive acts are indeed an important and useful approach. However, our findings suggest that the role of peers and the peer context in the development of bullying perpetration and homophobic teasing are an important context to consider and a potential avenue for intervention.

Peer group or network intervention strategies may be a useful approach for mitigating and preventing peer group dynamics that support bullying and homophobic teasing behaviors. Our results indicate that homophobic teasing may be largely influenced by friends and friendship networks. For example, in the current study, we found evidence that friendships were made based on similar homophobic teasing behaviors, and that friends also reinforced and influenced similarities in these behaviors over time. Schools have a unique entry point to intervene in peer group behaviors as adolescents spend a large portion of their time at school. Intervention efforts that attempt to disrupt the link between individual engagement in bullying and homophobic teasing behaviors and subsequent higher social status by making these aggressive behaviors less popular or appealing to other students may find success. Schools, teachers, and other staff member have an important obligation to establish a culture that does not support, encourage, or reward bullying and homophobic teasing behaviors. Further, the tendency for youth to select friends with similar homophobic teasing behaviors and subsequently become further influenced and reinforced within these peer groups could also be disrupted. Prevention and intervention efforts that target friendships and friendship groups that frequently engage in aggressive behaviors by attempting to change the peer group identity and norms around bullying and homophobic teasing would be a more targeted approach. For example, *Green Dot*, a bystander prevention program has shown success in reducing various forms of aggressive behaviors (Cook-Craig et al. 2014). The program targets a small number (15%) of student leaders that are trained and then tasked with teaching other students. The goal is to help provide student leaders with skills to move from bystanders to intervene to prevent bullying, violence, and other aggressive behaviors. A similar approach of targeting popular youth could be taken within peer groups. For example, popular peers could be targeted

to receive training and skill development to help reduce and even intervene in situations of bullying and homophobic teasing. Popular youth could then teach and share skills and strategies to their friends and peer groups in an effort to disrupt these forms of aggressive behaviors. While we realize that peer groups and sub-communities are more challenging to reach, prevention and intervention efforts seeking to reduce peer to peer bullying and homophobic teasing behaviors may find success by targeting and reducing peer group influence and socialization effects.

Limitations

Despite the notable findings and the unique analytic strategy, this study had several limitations that should be noted. The sample came from one school in a Midwestern town, as such, the generalizability of the findings are geographically limited. Future research would ideally examine multiple school friendship networks to compare results across a sample of schools from diverse school settings, ideally with different school norms and rates of aggressive behavior, and not rely on a single school. Future studies should also include bystander measures to understand peer group dynamics related to the extent to which an individual is a bystander or intervenes in a bullying or homophobic teasing episode. This approach could provide additional outlets for prevention and intervention efforts. Additionally, all data were collected from students during middle school, as such, the findings do not inform friendship network effects on bullying perpetration and homophobic teasing across developmental transition (i.e., elementary to middle school). Furthermore, due to some participants skipping the friendship question or indicating names of people that did not attend the school, there were some missing friendship network data.

Conclusion

The current study contributes to our understanding of adolescent development by examining the co-evolution of bullying perpetration, homophobic teasing, and friendship networks among middle school students (6–8th). Studies have found strong continuity between engagement in aggressive behaviors as a youth and engagement in aggressive behaviors as an adulthood (Tofi et al. 2011). Middle school is a time when bullying and homophobic teasing behaviors increase (Espelage and Horne 2008) and a better understanding of popular aggressive youth and friendship networks can provide important insights for prevention and intervention efforts during this sensitive developmental period. Further, middle school is a critical developmental period with which youth must navigate new

school and classroom hierarchies and test out new social roles. As a result, some youth have been found to develop aggressive strategies to increase their social status, control resources, and gain popularity over peers (Pellegrini 2002). The current study used a unique approach to examine the selection and socialization effects of bullying and homophobic teasing and the co-evolution of friendship networks. We found that youth who engaged in higher rates of bullying and homophobic teasing behaviors were more popular than their less aggressive counterparts. Further, for homophobic teasing, youth were more likely to form and maintain friendships with peers with similar rates of this behavior, and changes in individual rates of homophobic teasing were predicted by the homophobic teasing behaviors of their friends. These findings demonstrate the effect of peer groups on the development of bullying and homophobic teasing behaviors. Individuals that engage in these aggressive behaviors tend to group together and influence each other's rates of engagement over time. Finally, we examined multiple social-ecological correlates to investigate the contextual effects that may influence aggressive behaviors. Impulsivity was found to be a strong predictor of both bullying perpetration and homophobic teasing. This is an important finding considering the developmental time period of the sample. Youth who are more impulsive were more likely to report higher rates of aggressive behaviors.

In summary, schoolwide prevention and intervention efforts would benefit from addressing peer group dynamics when addressing bullying perpetration and homophobic teasing. Our findings suggest that bullying perpetration and homophobic teasing have important influences on friendship formation and engagement in aggressive behaviors. Middle school programs that target the peer group and specifically the popular peers may find success in reducing these forms of aggressive behavior. Popular peers may hold the social capital needed to help change peer group behaviors from one that perpetuates bullying and homophobic teasing behaviors to one that intervenes in aggressive episodes.

Authors' Contributions G.M. helped conceive the study and participated in the design, drafting, and editing of the manuscript; K.H. helped conceive the study, assisted with data analysis and drafting of the manuscript; D.E. assisted with drafting and editing the manuscript; B.E. assisted with data analysis; J.T. assisted with drafting and editing the manuscript; M.H. assisted with drafting the manuscript; H.G. helped conceive the study and edited the manuscript. All authors read and approved the final manuscript.

Data Sharing Declaration The datasets generated and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no competing interests.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

References

- Almeida, J., Johnson, R. M., Corliss, H. L., Molnar, B. E., & Azrael, D. (2009). Emotional distress among LGBT youth: The influence of perceived discrimination based on sexual orientation. *Journal of Youth and Adolescence*, *38*(7), 1001–1014.
- American Educational Research Association. (2013). *Prevention of bullying in schools, colleges, and universities: Research report and recommendations*. Washington, DC: AERA.
- Berlan, E. D., Corliss, H. L., Field, A. E., Goodman, E., & Austin, S. B. (2010). Sexual orientation and bullying among adolescents in the growing up today study. *Journal of Adolescent Health*, *46*(4), 366–371.
- Birkett, M., & Espelage, D. L. (2015). Homophobic name-calling, peer-groups, and masculinity: The socialization of homophobic behavior in adolescents. *Social Development*, *24*(1), 184–205.
- Birkett, M., Newcomb, M. E., & Mustanski, B. (2015). Does it get better? A longitudinal analysis of psychological distress and victimization in lesbian, gay, bisexual, transgender, and questioning youth. *Journal of Adolescent Health*, *56*(3), 280–285.
- Bosworth, K., Espelage, D. L., & Simon, T. R. (1999). Factors associated with bullying behavior in middle school students. *Journal of Early Adolescence*, *19*(3), 341–362.
- Card, N. A., Stucky, B. D., Sawalani, G. M., & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development*, *79*(5), 1185–1229.
- Centers for Disease Control and Prevention. (2011). Understanding bullying fact sheet. http://www.cdc.gov/violenceprevention/pdf/bullying_factsheet.pdf.
- Cook-Craig, P. G., Coker, A. L., Clear, E. R., Garcia, L. S., Bush, H. M., Brancato, C. J., & Fisher, B. S. (2014). Challenge and opportunity in evaluating a diffusion-based active bystander prevention program: Green dot in high schools. *Violence Against Women*, *20*(10), 1179–1202.
- Chu, J. Y., Porche, M. V., & Tolman, D. L. (2005). The adolescent masculinity ideology in relationships scale: Development and validation of a new measure for boys. *Men and Masculinities*, *8*, 93–115. <https://doi.org/10.1177/1097184X03257453>.
- Collier, K. L., Bos, H. M., & Sandfort, T. G. (2013). Homophobic name-calling among secondary school students and its implications for mental health. *Journal of Youth and Adolescence*, *42*(3), 363–375.
- Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin*, *115*(1), 74.

- Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development* 66(3), 710–722.
- Curtner-Smith, M. E., Culp, A. M., Culp, R., Scheib, C., Owen, K., Tilley, A., & Coleman, P. W. (2006). Mothers' parenting and young economically disadvantaged children's relational and overt bullying. *Journal of Child and Family Studies*, 15(2), 177–189.
- Duncan, N. (2006). Girls' violence and aggression against other girls: femininity and bullying in UK schools. *Combating Gender Violence in and Around Schools*, 51–60.
- Espelage, D. L. (2014). Ecological theory: Preventing youth bullying, aggression, & victimization. *Theory into Practice*, 53, 257–264.
- Espelage, D. L., & Asidao, C. S. (2001). Conversations with middle school students about bullying and victimization: Should we be concerned? *Journal of Emotional Abuse*, 2(2), 49–62.
- Espelage, D. L., Bosworth, K., & Simon, T. R. (2001). Short-term stability and prospective correlates of bullying in middle-school students: An examination of potential demographic, psychosocial, and environmental influences. *Violence and Victims*, 16(4), 411–426.
- Espelage, D. L., & Holt, M. K. (2001). Bullying and victimization during early adolescence: Peer influences and psychosocial correlates. *Journal of Emotional Abuse*, 2(2–3), 123–142.
- Espelage, D. L., Holt, M. K., & Henkel, R. R. (2003). Examination of peer-group contextual effects on aggression during early adolescence. *Child Development*, 74(1), 205–220.
- Espelage, D. L., & Horne, A. M. (2008). School violence and bullying prevention: From research-based explanations to empirically based solutions. In S. D. Brown & R. W. Lent (Eds.), *Handbook of counseling psychology* (pp. 588–598). Hoboken, NJ: John Wiley.
- Espelage, D. L., Basile, K. C., & Hamburger, M. E. (2012). Bullying perpetration and subsequent sexual violence perpetration among middle school students. *Journal of Adolescent Health*, 50(1), 60–65.
- Espelage, D. L., Hong, S. J., Merrin, G. J., Davis, J. P., Rose, C. A., & Little, T. D. (2017). A longitudinal examination of homophobic name-calling in middle school: Bullying, traditional masculinity, and sexual harassment as predictors. *Psychology of Violence*. Advance online publication. <https://doi.org/10.1037/vio0000083>.
- Espelage, D. L., Low, S., Polanin, J. R., & Brown, E. C. (2013). The impact of a middle school program to reduce aggression, victimization, and sexual violence. *Journal of Adolescent Health*, 53(2), 180–186.
- Espelage, D. L., Low, S., Rao, M. A., Hong, J. S., & Little, T. D. (2014). Family violence, bullying, fighting, and substance use among adolescents: A longitudinal mediational model. *Journal of Research on Adolescence*, 24(2), 337–349.
- Espelage, D. L., Polanin, J. R., & Low, S. K. (2014). Teacher and staff perceptions of school environment as predictors of student aggression, victimization, and willingness to intervene in bullying situations. *School Psychology Quarterly*, 29(3), 287.
- Espelage, D. L., Basile, K. C., De La Rue, L., & Hamburger, M. E. (2015). Longitudinal associations among bullying, homophobic teasing, and sexual violence perpetration among middle school students. *Journal of Interpersonal Violence*, 30(14), 2541–2561.
- Espelage, D. L., Hong, J. S., Rao, M., & Thornberg, R. (2015). Social-ecological factors associated with bullying perpetration among early adolescents across the elementary-middle school transition. *Violence & Victims*, 30, 470–488.
- Espelage, D. L., & Stein, N. D. (2007). *The University of Illinois and Wellesley College: Student Behavior Survey*. Champaign, IL: University of Illinois at Urbana-Champaign, Department of Educational Psychology.
- Evans, C. B., & Chapman, M. V. (2014). Bullied youth: The impact of bullying through lesbian, gay, and bisexual name calling. *American Journal of Orthopsychiatry*, 84(6), 644.
- Evans, C. B., Fraser, M. W., & Cotter, K. L. (2014). The effectiveness of school-based bullying prevention programs: A systematic review. *Aggression and Violent Behavior*, 19(5), 532–544.
- Farrington, D. P., & Ttofi, M. M. (2011). Bullying as a predictor of offending, violence and later life outcomes. *Criminal Behaviour and Mental Health*, 21(2), 90–98.
- Faris, R., & Ennett, S. (2012). Adolescent aggression: The role of peer group status motives, peer aggression, and group characteristics. *Social Networks*, 34, 371–378.
- Fisher, H. L., Moffitt, T. E., Houts, R. M., Belsky, D. W., Arseneault, L., & Caspi, A. (2012). Bullying victimisation and risk of self harm in early adolescence: longitudinal cohort study. *BMJ*, 344, e2683.
- Foshee, V. A., Benefield, T. S., Reyes, M., Luz, H., Eastman, M., Vivolo-Kantor, A. M., & Faris, R. (2016). Examining explanations for the link between bullying perpetration and physical dating violence perpetration: Do they vary by bullying victimization?. *Aggressive Behavior*, 42(1), 66–81.
- Garandeau, C. F., & Cillessen, A. H. (2006). Indirect aggression to invisible aggression: A conceptual view on bullying and peer group manipulation. *Aggression and Violent Behavior*, 11(6), 612–625.
- Gini, G., & Pozzoli, T. (2006). The role of masculinity in children's bullying. *Sex Roles*, 54(7–8), 585–588.
- Golmaryami, F. N., Frick, P. J., Hemphill, S. A., Kahn, R. E., Crapanzano, A. M., & Terranova, A. M. (2016). The social, behavioral, and emotional correlates of bullying and victimization in a school-based sample. *Journal of Abnormal Child Psychology*, 44(2), 381–391.
- Haas, A. P., Eliason, M., Mays, V. M., Mathy, R. M., Cochran, S. D., D'Augelli, A. R., & Brown, G. K. (2010). Suicide and suicide risk in lesbian, gay, bisexual, and transgender populations: Review and recommendations. *Journal of Homosexuality*, 58(1), 10–51.
- Hawkins, D., Pepler, D. J., & Craig, W. M. (2001). Naturalistic observations of peer interventions in bullying. *Social Development*, 10(4), 512–527.
- Hawley, P. H., Little, T. D., & Card, N. A. (2008). The myth of the alpha male: A new look at dominance-related beliefs and behaviors among adolescent males and females. *International Journal of Behavioral Development*, 32(1), 76–88.
- Hawley, P. H. (2002). Social dominance and prosocial and coercive strategies of resource control in preschoolers. *International Journal of Behavioral Development*, 26(2), 167–176.
- Hawley, P. H. (2003). Strategies of control, aggression, and morality in preschoolers: An evolutionary perspective. *Journal of Experimental Child Psychology*, 85(3), 213–235.
- Halpern, J., Jutte, D., Colby, J., & Boyce, W. T. (2015). Social dominance, school bullying, and child health: What are our ethical obligations to the very. *Pediatrics*, 135, S24 - S30.
- Hong, J. S., & Espelage, D. L. (2012). A review of research on bullying and peer victimization in school: An ecological system analysis. *Aggression and Violent Behavior*, 17(4), 311–322.
- Kljakovic, M., & Hunt, C. (2016). A meta-analysis of predictors of bullying and victimisation in adolescence. *Journal of Adolescence*, 49, 134–145.
- Kosciw, J. G., & Diaz, E. M. (2006). The 2005 National School Climate Survey: The experiences of lesbian, gay, bisexual, and transgender youth in our nation's schools. New York: Gay, Lesbian & Straight Education Network. Accessed 23 Oct 2017.
- Kosciw, J., Greytak, E., Palmer, N., & Boesen, M. (2014). *The 2013 National School Climate Survey: The experiences of lesbian, gay, bisexual, and transgender youth in our nation's schools*. New

- York, NY: Gay, Lesbian, & Straight Education Network. <https://eric.ed.gov/?id=ED535177>.
- Leadbeater, B., & Sukhathanakul, P. (2011). Multicomponent programs for reducing peer victimization in early elementary school: A longitudinal evaluation of the WITS primary program. *Journal of Community Psychology, 39*(5), 606–620.
- Logis, H. A., Rodkin, P. C., Gest, S. D., & Ahn, H. J. (2013). Popularity as an organizing factor of preadolescent friendship networks: Beyond prosocial and aggressive behavior. *Journal of Research on Adolescence, 23*(3), 413–423.
- Lospinoso, J. A., Schweinberger, M., Snijders, T. A., & Ripley, R. M. (2011). Assessing and accounting for time heterogeneity in stochastic actor oriented models. *Advances in Data Analysis and Classification, 5*(2), 147–176.
- Low, S., & Espelage, D. (2014). Conduits from community violence exposure to peer aggression and victimization: Contributions of parental monitoring, impulsivity, and deviancy. *Journal of Counseling Psychology, 61*(2), 221.
- Mann, M. J., Kristjansson, A. L., Sigfusdottir, I. D., & Smith, M. L. (2015). The role of Community, family, peer, and school factors in group bullying: Implications for school-based intervention. *Journal of School Health, 85*(7), 477–486.
- Merrin, G. J., Espelage, D. L., & Hong, J. S. (2016). Applying the social-ecological framework to understand the associations of bullying perpetration among high school students: A multilevel analysis. *Psychology of Violence*. Advance online publication. <http://dx.doi.org/10.1037/vio0000084>.
- Mustanski, B., & Liu, R. T. (2013). A longitudinal study of predictors of suicide attempts among lesbian, gay, bisexual, and transgender youth. *Archives of Sexual Behavior, 42*(3), 437–448.
- Mustanski, B., Andrews, R., & Puckett, J. A. (2016). The effects of cumulative victimization on mental health among lesbian, gay, bisexual, and transgender adolescents and young adults. *American Journal of Public Health, 106*(3), 527–533.
- Nansel, T. R., Overpeck, M., Pilla, R. S., Ruan, W. J., Simons-Morton, B., & Scheidt, P. (2001). Bullying behaviors among US youth: Prevalence and association with psychosocial adjustment. *JAMA, 285*(16), 2094–2100.
- O'Connell, A. A., & McCoach, D. B. (Eds.) (2008). *Multilevel modeling of educational data*. Charlotte, NC: IAP.
- Olweus, D. (1993). *Bullying at school*. Oxford, England: Blackwell.
- Olweus, D. (1994). Bullying at school. In *Aggressive Behavior* (pp. 97–130). Boston, MA: Springer.
- Olthof, T., Goossens, F. A., Vermande, M. M., Aleva, E. A., & van der Meulen, M. (2011). Bullying as strategic behavior: Relations with desired and acquired dominance in the peer group. *Journal of School Psychology, 49*(3), 339–359.
- Pellegrini, A. D. (2002). Bullying, victimization, and sexual harassment during the transition to middle school. *Educational Psychologist, 37*(3), 151–163.
- Pellegrini, A. D., & Bartini, M. (2000). A longitudinal study of bullying, victimization, and peer affiliation during the transition from primary school to middle school. *American Educational Research Journal, 37*(3), 699–725.
- Poteat, V. P. (2007). Peer group socialization of homophobic attitudes and behavior during adolescence. *Child Development, 78*(6), 1830–1842.
- Poteat, V. P., & Espelage, D. L. (2005). Exploring the relation between bullying and homophobic verbal content: The Homophobic Content Agent Target (HCAT) Scale. *Violence and Victims, 20* (5), 513–528.
- Poteat, V. P., & Espelage, D. L. (2007). Predicting psychosocial consequences of homophobic victimization in middle school students. *The Journal of Early Adolescence, 27*(2), 175–191.
- Poteat, V. P., Rivers, I., & Vecho, O. (2015). The role of peers in predicting students' homophobic behavior: Effects of peer aggression, prejudice, and sexual orientation identity importance. *School Psychology Review, 44*(4), 391–406.
- Richters, J. E., & Martinez, P. (1990). *Things I have seen and heard: A structured interview for assessing young children's violence exposure*. Rockville, MD: National Institute of Mental Health.
- Ripley, R., Snijders, T. A. B., Boda, Z., Voros, A., & Preciado, P. (2016). Manual for RSiena. http://www.stats.ox.ac.uk/~snijders/siena/RSiena_Manual.pdf.
- Rivers, I., & Smith, P. K. (1994). Types of bullying behaviour and their correlates. *Aggressive Behavior, 20*(5), 359–368.
- Robers, S., Kemp, J., & Truman, J. (2013). *Indicators of School Crime and Safety: 2012. NCES 2013-036/N CJ 241446*. National Center for Education Statistics, U.S. Department of Education, and Bureau of Justice Statistics, Office of Justice Programs, U.S. Department of Justice. Washington, DC.
- Robinson, J., & Espelage, D. L. (2013). Peer victimization and sexual risk differences between LGBTQ and heterosexual youth in grades 7–12. *American Journal of Public Health, 103*(10), 1810–1819.
- Rodkin, P. C., Espelage, D. L., & Hanish, L. D. (2015). A relational framework for understanding bullying: Developmental antecedents and outcomes. *American Psychologist, 70*(4), 311.
- Rodkin, P. C., Farmer, T. W., Pearl, R., & Acker, R. V. (2006). They're cool: Social status and peer group supports for aggressive boys and girls. *Social Development, 15*(2), 175–204.
- Rodkin, P. C., & Roisman, G. I. (2010). Antecedents and correlates of the Popular-Aggressive phenomenon in elementary school. *Child Development, 81*(3), 837–850.
- Salmivalli, C. (2010). Bullying and the peer group: A review. *Aggression and Violent Behavior, 15*(2), 112–120.
- Salmivalli, C., Lagerspetz, K., Björkqvist, K., Österman, K., & Kaukiainen, A. (1996). Bullying as a group process: Participant roles and their relations to social status within the group. *Aggressive Behavior, 22*(1), 1–15.
- Shetgiri, R., Lin, H., & Flores, G. (2013). Trends in risk and protective factors for child bullying perpetration in the United States. *Child Psychiatry & Human Development, 44*(1), 89–104.
- Sijtsema, J. J., Ojanen, T., Veenstra, R., Lindenberg, S., Hawley, P. H., & Little, T. D. (2010). Forms and functions of aggression in adolescent friendship selection and influence: A longitudinal social network analysis. *Social Development, 19*(3), 515–534.
- Smith, P. K. (2014). *Understanding school bullying: Its nature and prevention strategies*. Los Angeles CA: Sage.
- Snijders, T. A. B., Steglich, C. E. G., & Schweinberger, M. (2007). Modeling the co-evolution of networks and behavior. In K. Van Montfort, H. Oud & A. Satorra (Eds.), *Longitudinal models in the behavioral and related sciences* (pp. 41–71). Mahwah, NJ: Lawrence Erlbaum.
- Snijders, T. A. B., van de Bunt, G. G., & Steglich, C. E. G. (2010). Introduction to stochastic actor-based models for network dynamics. *Social Networks, 32*, 44–60.
- Takizawa, R., Maughan, B., & Arseneault, L. (2014). Adult health outcomes of childhood bullying victimization: evidence from a five-decade longitudinal British birth cohort. *American Journal of Psychiatry, 171*(7), 777–784.
- Tolman, D. L., & Porche, M. V. (2000). The Adolescent Femininity Ideology Scale. *Psychology of Women Quarterly, 24*, 365–376.
- Ttofi, M. M., & Farrington, D. P. (2011). Effectiveness of school-based programs to reduce bullying: A systematic and meta-analytic approach. *Journal of Experimental Criminology, 7*, 27–56.
- Ttofi, M. M., Farrington, D. P., Lösel, F., & Loeber, R. (2011). The predictive efficiency of school bullying versus later offending: A

systematic/meta-analytic review of longitudinal studies. *Criminal Behaviour and Mental Health*, 21(2), 80–89.

- Tucker, J. S., Ewing, B. A., Espelage, D. L., Green, H. D., De La Haye, K., & Pollard, M. S. (2016). Longitudinal associations of homophobic name-calling victimization with psychological distress and alcohol use during adolescence. *Journal of Adolescent Health*, 59(1), 110–115.
- Vaughn, B. E., Vollenweider, M., Bost, K. K., Azria-Evans, M. R., & Snider, J. B. (2003). Negative interactions and social competence for preschool children in two samples: Reconsidering the interpretation of aggressive behavior for young children. *Merrill-Palmer Quarterly*, 49, 245–278.
- Veenstra, R., Lindenberg, S., Zijlstra, B. J., De Winter, A. F., Verhulst, F. C., & Ormel, J. (2007). The dyadic nature of bullying and victimization: Testing a dual-perspective theory. *Child Development*, 78(6), 1843–1854.
- Wienke Totura, C. M., MacKinnon-Lewis, C., Gesten, E. L., Gadd, R., Divine, K. P., Dunham, S., & Kamboukos, D. (2009). Bullying and victimization among boys and girls in middle school: The influence of perceived family and school contexts. *The Journal of Early Adolescence*, 29(4), 571–609.
- Ybarra, M. L., Mitchell, K. J., Kosciw, J. G., & Korchmaros, J. D. (2015). Understanding linkages between bullying and suicidal ideation in a national sample of LGB and heterosexual youth in the United States. *Prevention Science*, 16(3), 451–446.

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