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Overt and Relational Victimization and Adolescent Friendships:

Selection, De-selection, and Social Influence

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Social Influence

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Keywords: Victimization, friendship, adolescence, social network analysis

Abstract

This study examined friendship selection and social influence in overt and relational victimization during middle school (N = 504; 12-14 years) using longitudinal social network analysis. Relational victimization was related to undesirability as a friend (i.e., receiving fewer friendship nominations from peers) and to selecting friends who experienced equal levels of relational victimization. Overt victimization was related to being less active in nominating peers as friends and showed maintenance of friendship ties in one friendship network, but termination or de-selection of friendships in another. Social influence was observed for both forms of victimization. The findings provide evidence for both friendship selection and social influence in victimization, suggest that victimized youth may have friendship difficulties, and underline the need to consider overt and relational victimization separately to understand the development of victimization.

Overt and Relational Victimization and Adolescent Friendships: Selection, De-selection, and Social Influence

Victimization by peers constitutes one of the most prominent problems in adolescence: it increases internalizing difficulties (Reijntjes, Kamphuis, Prinzie, & Telch, 2010) and compromises the development of healthy peer relationships (Crick et al., 2001; Sainio, Veenstra, Huitsing, & Salmivalli, 2011; Salmivalli & Peets, 2009). Although increasingly studied, little is known about victimization in terms of friendship selection and social influence. Moreover, there is a distinction between overt victimization involving direct physical or verbal attacks, and relational victimization involving social manipulation (e.g., rumor spreading) that deprives youth from opportunities to gain closeness, acceptance, and friendship (Crick, Casas, & Nelson, 2002). Research on these specific forms of victimization is especially important in adolescence where victimization is increasingly relational in nature (Heilbron & Prinstein, 2008). To advance understanding of the social developmental processes in victimization, we examined overt and relational victimization in association with friendship selection, de-selection, and social influence processes during adolescence.

Victimization: Friendship Selection, De-selection, and Social Influence

Friendships are critical for adolescents as they provide support, affection, and behavioral confirmation (Newcomb & Bagwell, 1995). The need for affective relationships is universal (Lindenberg, 1996; Pendell, 2002) and becomes increasingly important during adolescence (Marsh, Allen, Ho, Porter, & McFarland, 2006). Friendships tend to involve homophily or similarity between friends (Kandel, 1978; McPherson, Smith-Lovin, & Cook, 2001), which may be driven by social selection, influence, or both (Steglich, Snijders, & Pearson, 2010; Veenstra & Dijkstra, 2011). That is, youth similar in psychological or behavioral characteristics are likely to select each other as friends (selection-similarity) and

may also grow more similar to each other over time (social influence). To reliably examine either process, both need to be simultaneously assessed to control for their potential inter-dependencies in longitudinal data (Snijders, van de Bunt, & Steglich, 2010).

Victimized youth face several challenges when it comes to friendships. They are often rejected by peers (Hodges, Malone, & Perry, 1997), have fewer friends than bullies and other children (Eslea et al., 2004), and are less likely to be nominated as friends (Mouttapa, Valente, Gallaher, Rohrbach, & Unger, 2004). Victimization is also related to poor social skills (Fox & Boulton, 2006), which may compromise the ability to establish and maintain friendships. Also youth with victimized friends are often rejected by peers (Ray, Cohen, Secrist, & Duncan, 1997), suggesting that the marginalized status of victimized youth may reflect upon their friends who may also become rejected or victimized over time.

The above suggests that victimized youth are unattractive as friends and may settle for the second best in friendships. This process, known as default selection (Deptula & Cohen, 2004; Sijtsema, Lindenberg, & Veenstra, 2010), implies that one may want, but is not able to befriend prosocial or popular peers. Instead, victimized youth may settle for friendships with equally victimized peers (selection-similarity) to gain affection, or potentially to co-ruminate over shared negative experiences. Research on friendships of rejected (Deptula & Cohen, 2004) and aggressive youth (Sijtsema et al., 2010) supports the default selection hypothesis.

However, friendships with overtly as well as relationally victimized peers involve conflicts (Bagwell & Schmidt, 2011) and victimized friends provide fewer benefits than non-victimized friends (Fox & Boulton, 2006). Therefore, although youth may initially select friends similar in victimization, these relationships may be broken off relatively easily across time. Such de-selection processes in social development are still little understood at this time (Veenstra & Dijkstra, 2011), but may apply to friendships of victimized youth as they provide

fewer benefits than friendships among non-victimized youth and involve co-rumination of shared negative experiences pronounced in rejected youth with emotional difficulties (Rose, Carlson, & Waller, 2007). Moreover, affiliating with victimized friends may increase the risk of being rejected and victimized over time (Ray et al., 1997). Based on this literature, we tested two hypotheses with regard to friendship selection in this study: *selection similarity hypothesis* stating that similarity in victimization predicts similarity friendship selection, *de-selection hypothesis* stating that similarity in victimization also predicts friendship de-selection or termination of friendships over time.

Similarity between friends may also result from social influence. This process is facilitated by shared attention and positive responses to particular experiences (Dishion, Piehler, & Myers, 2008). For victimized youth, this may involve co-rumination that may mutually intensify emotional difficulties (Rose, et al., 2007), thus leading to higher tendencies to report more victimization. Moreover, social reputational processes may increase the likelihood of friends of victimized youth to become increasingly victimized themselves over time (Ray et al., 1997). Thus, social influence in victimization may be facilitated by psychological or social processes in the peer group.

However, it is important to note that social influence may facilitate either increasing or decreasing levels of victimization. That is, friendships may also shield against victimization (Wang, Iannotti, & Nansel, 2009), emotional difficulties (Hodges, Boivin, Vitaro & Bukowski, 1999), and negative self-perception (Adams, Santo, & Bukowski, 2011). In the context of victimization, it is thus important to examine whether victimized youth who have non-victimized friends decrease in victimization over time. Regardless of the direction of influence, our *social influence hypothesis* proposed that longitudinal change in victimization would depend on friends' level of victimization.

Considering the Form of Victimization

Because overt and relational victimization may operate differently in friendships, it is important to study friendship selection and influence separately for each form. Unlike overt victimization, relational victimization often occurs within friendships, involving threats of affection loss or damaged relationships (Crick & Nelson, 2002). Thus, relationally victimized youth may fear establishing friendships with peers dissimilar in relational victimization for uncertainty of the outcome and befriend peers similar in relational victimization instead. Relationally victimized peers may share this fear and experiences and may thus provide a safe haven for affection. Moreover, relational victimization is often targeted at damaging one's social relationships (Heilbron & Prinstein, 2008). If successful, this may lead to more friendship de-selection over time. This de-selection effect may be more visible in friendships of youth similar in relational than overt victimization for the fear of becoming the next victim. Thus, we hypothesized that similarity in friendship selection, as well as de-selection in friendships, may be more pronounced in relational than overt victimization.

Overt victimization may evidence stronger social influence instead. In contrast to more covert relational victimization, overt victimization is directly visible to the broader peer group and visibly damaging to the victim or his/her affiliates (Heilbron & Prinstein, 2008). Thus, perceptions of overt victimization may be shared and reinforced in friendships more than those in relational victimization. Also, because bullies strive for social status (Sijtsema, Veenstra, Lindenberg, & Salmivalli, 2009), they may increasingly victimize friends of already victimized youth overtly rather than relationally because these acts are directly witnessed by other peers, thus affording admiration and social status.

The Present Study

Using longitudinal social network analysis (RSiena; "Simulation Investigation for Empirical Network Analysis"; Steglich et al., 2010), we examined friendship selection and influence in overt and relational victimization by analyzing friendship networks in two middle schools. Recent advances in longitudinal social network analysis enable us to examine similarity in friendship selection in terms of the formation, that is, the creation discussed above as well maintenance (or termination/ de-selection) of these relationships over time (Ripley, Snijders, & Preciado, 2012), while simultaneously examining social influence processes. In all analyses, we adjusted for structural network parameters (the development of friendship ties) and previous friendship acquaintances (friendship length). Because friendships may already exist prior to an arbitrary first measurement, controlling for the length of friendships at T1 safeguards against inflated influence effects due to pre-existing relationships (Ojanen, Sijtsema, Hawley, & Little, 2010). Also, because friendships are largely driven by gender similarity (Hartup, 1992), we included gender in the analyses.

To summarize our hypotheses, we expected that victimization would predict selection-similarity as well as de-selection, and that friends would influence the level of victimization. However, selection-similarity was expected to be stronger in relational and social influence in overt victimization. We also examined gender moderation in friendship selection and influence, which may differ for victimized boys and girls (Crick, 2010). Although findings of sex-differences in relational victimization are mixed (see Heilbron & Prinstein, 2008), girls are generally more distressed by negative interpersonal events than boys (Leadbeater, Blatt, & Quinlan, 1995). Moreover, given the relative importance of social interaction in friendships for girls in particular (Hartup, 1992), especially relational victimization may evidence

stronger selection and/ or influence effects for girls. For boys, in turn, these processes may be more pronounced in overt victimization.

Method

Participants

Longitudinal survey data were collected in two middle schools in Southeast Finland. At first assessment, 384 seventh and eighth grade students (12 - 14 years; 53% boys) consented and received parental consent to participate. Ethnic composition of the sample was 96% Finnish, 2% Russian origin, and 2% other. Participants represented various Socio- Economic Status (SES) classes with no particular emphasis on lower or higher SES. Data were collected at three occasions (T1 = March of the 7th and 8th grades, T2 = October of the 8th and 9th grades, and T3 = March of the 8th and 9th grades) at school during school hours. Consent return rates were: T1 = 85%, T2 = 72%, and T3 = 70%. Because new participants were allowed to enter while some dropped out of the project over time, participation rates (listwise deletion for the victimization variables) varied across the measurements (T1: N = 384, T2: N = 393, and T3: N = 310).

Approximately 17% of the data for the original 384 participants was missing at T2, and 30% at T3. Attrition analysis indicated no mean-level differences in either form of victimization between participants who remained and those that dropped out from the data by T3. Missing data was imputed using the Expectation Maximization algorithm in SAS Proc MI (SAS Institute). Because the friendship networks included all participants who were present at one or more observations, the final sample in the longitudinal network analysis was 504. Participants could thus leave and join the networks over time, and we accounted for this by including these actors at all observations, coding them as missing when they had left or not yet joined the network. Moreover, we also included students who did not participate in any

wave (6.15%) because they could also be nominated as best friends by schoolmates making them part of a friendship network. Using complete networks (i.e., full information of all network members) allowed us to examine the selection and influence processes among students more accurately (Steglich et al., 2010).

Measures

Friendship networks. At each observation, participants were asked to nominate up to 18 friends from the same grade level at school. Because the data were collected at two schools and included two grade levels in each, the data included four friendship networks. Friendship network consisting of directed friendship nominations were constructed for each school grade (1 = a given nomination, 0 = absent nomination). Values resulting from longitudinal attrition were coded as missing, which enabled us to control for actors leaving and joining the networks over time (Snijders et al., 2010).

Friendship length. Participants were asked to report the duration of each friendship at T1. Based on this information, a continuous variable was formed with values ranging from 0 (= no friendship present) to 3 (= friendship existed six months or longer). This variable was used in the analysis as a network covariate reflecting information about the network ties.

Overt and relational victimization. Participants rated the extent to which they felt victimized by peers. Adapted from the literature (Crick & Grotpeter, 1995), overt victimization items included: "[my peers] call me names", "[my peers] pick on me", "[my peers] hit or kick me" (T1: α = .81; T2: α = .85; T3: α = .80). Relational victimization items included: "[my peers] say mean things about me", "[my peers] make fun of me" (T1: α = .81; T2: α = .85; T3: α = .85). Answers were rated on a 7-pt scale: 1 = *(never)* – 7 = *(always)*. Confirmatory factor analysis indicated that a two-factor solution fit the data sufficiently across time: T1 = χ^2 (384) = 1.880, CFI = 1.00, RMSEA = .00 (.000 - .050), T2 = χ^2 (384) =

7.43, CFI = .99, RMSEA = .05(.000 - .100), T3 = χ^2 (384) = 24.82, CFI = .96, RMSEA = .11 (.075 - .162). This solution also fit the data better than a single factor solution: T1 = $\Delta\chi^2$ (1, N = 384) = 21.805, $p < .001$; T2 = $\Delta\chi^2$ (1, N = 384) = 14.482, $p < .001$; T3 = $\Delta\chi^2$ (1, N = 384) = 43.380, $p < .001$. Thus, overt and relational victimization represented distinct but positively correlated constructs across time (T1: $r = .83$, $p < .001$; T2: $r = .90$, $p < .001$; T3: $r = .83$, $p < .001$).

Because the EM algorithm can produce negative values (to simplify mathematical calculation; see Schafer & Graham, 2002), the original victimization scores were rounded up and added a fixed value (original score distributions retained) prior to the RSiena analyses because this software can handle only whole positive values as dependent variables.

Analysis Strategy

Analyses were conducted using the RSiena software (Snijders et al., 2010). Before the main analyses, we performed an initial test to ensure that the networks adhered to the general structure of friendship networks (e.g., positive reciprocity and transitivity; Veenstra & Steglich, 2012). In the selection analyses, gender and overt and relational victimization were used as predictors and the friendship networks as dependent variables. Parameters of interest included the activity of making friendship nominations (*ego* effect), desirability as a friend (receiving nominations; *alter* effect), and similarity in friendship selection in terms of creation and endowment (maintenance) of friendship ties (Ripley et al., 2012). Accounting for ego and alter effects provides more reliable estimates of the extent to which youth formed new friendships with peers who were similar in victimization (Snijders et al., 2010). A positive creation effect implies that creation of friendships is more likely when participants are similar in victimization and positive endowment that friendships are likely to be maintained among

youth similar in victimization. Conversely, negative endowment effect reflects de-selection or termination of friendships.

In the influence analysis, friendship ties are used as predictors and victimization as the outcome. This provides information on the basic trends of change and social transmission of victimization. We considered social influence to occur when youth adjusted their own level of victimization to that of their friends, reflected by a positive parameter. For reliable estimates of social influence processes, we adjusted for the linear and quadratic shape parameter and the main effect of gender on victimization. The procedure was as follows. First, selection and influence parameters were estimated simultaneously in each network using identically specified models. Second, these estimates were subjected to a meta-level analysis across the networks to increase the robustness of the findings (Snijders & Baerveldt, 2003). This analysis also provided information on whether parameters varied significantly across the individual networks. We report meta-level estimates in this study and refer to individual networks when needed.

Results

Descriptive Statistics

Descriptive information on the networks and variables are presented in Table 1. On average, participants nominated 5 to 8 friends. Friendship networks had low densities (3.7% - 7.2%), or proportions of friendship nominations given, and high reciprocity and transitivity. Over 50% of the friendship nominations were reciprocated. Transitivity indexes the ratio of the number of actual and potential transitive triplets (around 40%), reflecting the tendency to nominate friends of friends also as friends. Gender similarity accounted for more than three quarters of the friendship nominations. No gender differences were observed in the level of overt or relational victimization in the networks, or across time.

To evaluate whether assessment of the co-evolution of victimization and friendship ties is feasible, Moran's *I* (network autocorrelation coefficient) was calculated to assess the degree to which friends display similarity in victimization (Veenstra & Steglich, 2012). These values were mostly positive, indicating similarity between friends); negative values or dissimilarity were observed in one network. Moreover, a sufficient fraction of stable friendship nominations (Jaccard index) is needed for longitudinal analysis (Veenstra & Steglich, 2012). This index was suitable (around 30%) in the present data.

"Table-1-about-here"

Structural Network Parameters, Gender, and Length of Friendship

Structural network parameters, reported in Table 2, indicated that friendship nominations were unlikely to occur at random (negative outdegree) and were more likely when reciprocated, or part of a transitive triplet (positive reciprocity and transitive triplets). The latter suggests that participants were likely to nominate friends of their friends also as friends. The negative three-cycles parameter indicated that friendship triplets were characterized by a hierarchical structure, that is, some participants received more friendship nominations than others within the same triplet. Moreover, youth were more likely to nominate same-sex than cross-sex peers as friends (positive same sex effect) and to nominate peers with whom they were already friends at T1 (positive friendship length effect). Taken together, the network effects imply that participants had a tendency to keep the friendship networks closed.

"Table-2-about-here"

Overt and Relational Victimization: Friendship Selection and Influence

Meta-level selection and influence parameters for overt and relational victimization are reported in Table 2. Chi-square tests indicate whether effects differed per school grade. Higher chi-square values indicate more pronounced differences between school grades. When there were significant differences, we discuss these in the text. Effects were estimated for overt and relational victimization separately and simultaneously. However, since the results did not differ substantially, we only present the models where we analyzed both types of victimization simultaneously.

Ego effects of overt victimization indicated that participants who were higher on overt victimization were less likely to nominate friends ('lower' activity in the networks; negative ego effect). In contrast to our hypothesis, we found no support for friendship selection on the basis of overt victimization. However, there were significant differences between grade networks with regard to the maintenance of friendship ties (endowment similarity effect; X^2 = 8.47, df = 3, $p < .05$). Closer inspection of these networks (tables not reported here) indicated that in the older cohort at school 1 (in grades 8-9 at T1), youth were more likely to maintain friendship ties with those similar in overt victimization (endowment similarity effect; Est. = 4.39, SE = 1.86, $p < .05$). However, in the younger cohort in school 1, youth were more likely to terminate friendships when similar in overt victimization (Est. = -3.30, SE = 1.97, $p < .10$).

Also seen in Table 2, adolescents high on relational victimization were less likely to be nominated as friends (lower 'undesirability' as a friend; negative alter effect) and more likely to extend friendship nominations to others (higher 'activity' in the networks; positive ego effect) than those low on relational victimization. Moreover, a positive similarity creation effect indicated that youth high on relational victimization were likely to extend friendship nominations to peers who experienced equal levels of relational victimization. Given the non-

significant endowment effect, the findings indicate that similarity in relational victimization between friends was driven by establishment rather than maintenance of these relationships. No gender differences were observed for either form of victimization.

Social influence effects are also reported in Table 2. As indicated by the negative quadratic shape, the development of overt victimization followed a curvilinear trend: youth with higher initial overt victimization scores decreased and those with lower initial scores increased in overt victimization over time (a self-correcting effect, or regression to the mean). Moreover, a positive similarity effect provided evidence for social influence: adolescents grew increasingly similar to their friends in overt victimization over time. Development of relational victimization could not be modeled by a linear or quadratic shape. However, the positive similarity effect provided evidence for social influence in relational victimization.

Discussion

This study we examined friendship selection, de-selection, and social influence in the development of overt and relational victimization during middle school. In line with our *selection hypothesis*, we found that friendship formation was driven by similarity in relational victimization. However, mixed support was found with regard to overt victimization in this respect. In one friendship network in one grade, friendship formation was driven by similarity in overt victimization, but in another network in another grade friendships between overtly victimized adolescents were dissolved over time (*de-selection* of similar friends). Moreover, in line with the *social influence hypothesis*, friends grew similar to each other in both relational and overt victimization. These selection, de-selection, and socialization processes were similar for boys and girls. To the best of our knowledge, the findings provide the first evidence for friendship selection and influence in adolescent victimization and are discussed in light of implications for research on bullying and victimization in middle school.

Overt and Relational Victimization: Friendship Selection, De-selection, and Influence

Overt victimization was negatively and relational victimization positively related to extending friendship nominations to others. Although we did not expect overt and relational victimization to differ in the direction of effects, these findings suggest that overtly victimized adolescents are passive in making new friends while relationally victimized youth actively seek new friends. This implies that overtly victimized youth keep their situation unchanged (even when suffering from the lack or stability of friendships), whereas relationally victimized youth try to make it better. The latter is consistent with the observed negative effect of receiving friendship nominations from others in relational victimization: because relationally victimized youth are unattractive as friends, they may also need to be more active in establishing these relationships themselves. Collectively, these findings suggest that relational more than overt victimization is related to difficulties in establishing friendships and align with the idea that relational victimization is a risk factor for the establishment of these important relationships (see also Eslea et al., 2004).

Relational victimization also evidenced selection-similarity in friendships. That is, adolescents selected friends who were similar in relational victimization, across all individual networks in this study. This supports the default-selection hypothesis proposing that victimized adolescents befriend each other for lacking alternative friendship options (Deptula & Cohen, 2004; Sijtsema et al., 2010) as well as our hypothesis concerning stronger selection-similarity in friendships for relationally than overtly victimized youth. Specifically, it may be that relationally victimized youth resort to befriending equally victimized peers more than those dissimilar in this respect because they fear the consequences of potential relational victimization in relationships with peers who may not be victimized themselves.

Overt victimization was unrelated to selection-similarity in friendships. Findings for friendship maintenance and termination (de-selection) were mixed and should be interpreted with caution. In one school grade, overt victimization was related to maintenance of friendships, whereas in another network, it was related to de-selection or terminating friendships. Maintenance processes are positive indicators of stability in friendships for overtly victimized youth, assuming that these relationships provide emotional benefits rather than adjustment difficulties. De-selection processes, in turn, may reflect poor social skills (Fox & Boulton, 2006), rejection (Hodges et al., 1997), and friendship conflicts (Bagwell & Schmidt, 2011) among victimized youth, or may reflect fear of further victimization in relationships with equally overtly victimized youth. While discrepant findings across individual friendship networks may seem confusing, these may reflect social-contextual processes within peer groups. Specifically, previous studies have showed that specific contexts and group norms can have a crucial impact on the relationship between victimization and social adjustment (Sentse Scholte, Salmivalli, & Voeten, 2007; Huitsing, Veenstra, Sainio, & Salmivalli, in press). However, more conclusive evidence is needed to support the idea of maintenance and de-selection of friendships with regard to overt victimization.

Although we expected to observe friendship de-selection for both forms of victimization, this process was only observed only for overt victimization, in one friendship network. Given that relational victimization was neither related to maintaining nor dissolving friendships, it is unclear whether friendships of relationally victimized youth are stable or frequently dissolved. Psychological or contextual variables may facilitate opposite effects in this respect depending on, for instance, whether relational victimization is related to friendship quality (e.g., differences in friendship conflicts may produce differences in friendship stability; Bagwell & Schmidt, 2011).

As expected, the development of overt and relational victimization both depended on social influence. That is, adolescent friends grew increasingly similar in their experiences of overt as well as relational victimization during middle school. Friends of victimized youth who were originally below the mean on either form of victimization reported increasing victimization over time, but those who were above the mean on victimization reported decreasing levels of victimization over time in correspondence to their friends' level of victimization. To the best of our knowledge, this provides the first developmental evidence indicating that having victimized friends may increase the risk of future victimization and augments cross-sectional findings on matching levels of friends' victimization and one's own rejection by peers (Ray et al., 1997). On the up side, friendships among victimized youth also involved social influence in the positive direction (i.e., decreasing levels of victimization over time). Thus, our findings align with existing findings on both positive (Adams et al., 2011; Wang et al., 2009) and negative (Fox & Boulton, 2006; Hodges et al., 1999) effects of friendships for victimized youth. Previous studies suggest that these protective effects of friendships depend to a large extent on whether friendships are of high quality, that is, involve intimacy, trust, fun, and low levels of conflict (Hartup, 1992; Hodges et al., 1999).

A previous study on the current data focused on the extent to which adolescents were (relationally or overt) aggressive themselves (Sijtsema et al., 2010). Interestingly, there is an important difference between the perpetrators and the victims of aggression (although for some, these roles may co-occur). That is, with regard to the perpetrators of aggression the prior study found support for social influence with regard to relational, but not overt aggression. Together with the current finding that friends' influence overtly victimization, it is tempting to speculate that overt aggression is socially negatively perceived. On the one hand, the benefits of becoming more similar to overtly aggressive friends are low. On the other,

youth who engage with overtly victimized peers may become more overtly victimized themselves. At this time, little is known about the processes that may account for social influence in victimization. The direction of influence may depend on whether friendships are of high quality, or evidence co-rumination and thus aversive effects on well-being (Hartup, 1992; Rose et al., 2007). Moreover, the marginal status of victimized youth can spread over to friends who may be at higher risk for victimization for affiliating with other victimized youth.

Implications, Limitations, and Directions for Future Research

Conceptually, the present findings indicate that victimized youth have challenges in friendships and suggest that it is fruitful to examine overt and relational forms of victimization separately to understand friendships of victimized youth in more depth. The findings support tailored bullying interventions separated by the behavioral form of these behaviors (Leff, Waasdorp, & Crick, 2010), given that the adjustment difficulties victimized youth experience may depend on the way bullying occurs. The present findings indicate that especially relationally victimized youth experience difficulties in establishing friendships. Methodologically, the strengths of this study include the assessment of friendship networks based on school grades rather than a more limited class context, as well as assessment the of similarity in friendship selection in terms of creation as well as maintenance (endowment) of friendships over time (Veenstra & Dijkstra, 2011). Our findings advance research utilizing this novel approach to social network analysis, suggesting that it is worthwhile to assess these processes separately.

This study had some limitations. First, the present data did not include information on friendship quality, which can affect adjustment beyond the number of friends (Hartup, 1992). Assessment of friendship quality would be worthwhile as it could explain why adolescents maintain or terminate friendships with equally victimized peers. Second, our data was limited

to self-reported victimization. Although self-reports are meaningful particularly in the study of relational victimization that may be less visible to the broader peer group or teachers, views on the best assessment of victimization vary (see Sainio et al., 2011). For a more comprehensive view on social influence in victimization, the present analyses should be replicated using peer-reported overt and relational victimization scales. Third, it would be meaningful to examine friendships that victimized youth may have outside of the school context. While most friendships are sought at school, youth usually have friends elsewhere as well (Kiesner, Poulin, & Nicotra, 2003). These relationships may provide support and have differential implications for adjustment especially for youth who are victimized in school.

Despite the limitations, this study is the first to examine friendship selection and social influence in victimization. The findings suggest that victimized youth may have difficulties in friendships, victimization largely depends on social influence among adolescent friends, and that it is worthwhile to consider overt and relational victimization separately to understand the development of victimization in more depth. Future research would benefit from assessing social influence concurrently with friendship quality and social contextual factors that may help us to understand social influence in victimization in more detail.

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Table 1

Descriptive Information on Friendship Networks, Gender, and Victimization Variables

	School 1 Grade 7-8			School 1 Grade 8-9			School 2 Grade 7-8			School 2 Grade 8-9		
	T1	**T2**	**T3**	**T1**	**T2**	**T3**	**T1**	**T2**	**T3**	**T1**	**T2**	**T3**
Sample												
Cohort size	131	130	123	95	92	68	78	93	82	85	82	55
Respondents missing	15	16	23	18	21	45	41	26	37	41	44	71
fraction males	52.4%	53.1%	53.7%	48.4%	53.3%	48.5%	62.8%	55.9%	57.3%	48.2%	45.1%	36.4%
Friendship												
Average outdegree	5.33	6.22	6.65	6.21	6.09	6.93	7.41	7.45	8.44	6.92	7.57	7.04
SD outdegree	3.37	3.51	4.04	5.41	3.25	3.87	4.62	4.26	4.65	4.145	4.472	3.887
SD indegree	2.45	3.33	3.04	3.25	2.80	2.67	3.36	3.84	4.34	3.217	3.671	2.559
Density	3.7%	4.3%	4.6%	5.5%	5.4%	6.2%	6.3%	6.3%	7.2%	5.5%	6.1%	5,6%
Reciprocity	54.3%	58.2%	55.7%	51.1%	58.3%	65.8%	57.3%	60.1%	63.5%	57.5%	58.9%	54.9%
Transitivity	37.8%	42.5%	39.7%	36.9%	36.2%	43.7%	39.6%	37.8%	39.0%	32.5%	36.3%	33.8%
Same gender	89.5%	89.2%	86.6%	82.8%	82.0%	83.9%	88.0%	77.8%	77.2%	82.4%	78.3%	72.9%
Overt victimization												
Average males	4.12	4.18	3.99	4.47	4.07	4.05	4.34	4.10	4.15	4.29	4.06	4.04
Average females	4.24	4.11	3.94	3.86	3.55	3.65	3.77	3.60	3.70	4.05	3.95	4.10
SD males	1.20	1.16	0.98	1.28	0.83	1.04	1.43	1.01	1.25	1.54	1.27	1.28
SD females	1.37	1.11	1.20	1.10	0.78	0.91	1.31	0.76	1.19	1.13	0.98	1.05
Relational victimization												
Average males	4.47	4.38	4.60	4.69	4.22	4.10	4.65	4.56	4.34	4.61	4.55	3.96
Average females	4.53	4.53	4.39	4.53	4.20	4.04	4.19	3.88	3.93	4.79	4.79	4.64
SD males	1.43	1.19	1.44	1.60	0.98	1.36	1.79	1.46	1.50	1.56	1.36	1.44
SD females	1.53	1.46	1.45	1.38	1.44	1.36	1.42	1.01	1.35	1.62	1.42	1.14
Network autocorrelation												
Moran's *I* overt victimization	0.17	0.10	-0.06	0.08	0.06	0.08	0.04	-0.01	0.02	-0.10	-0.04	0.00

Moran's *I* relational victimization	0.06	0.10	-0.03	0.03	0.01	0.09	0.00	0.11	0.08	-0.04	-0.04	-0.04

Sample change (T)	**1-2**	**2-3**	**1-3**	**1-2**	**2-3**	**1-3**	**1-2**	**2-3**	**1-3**	**1-2**	**2-3**	**1-3**
Number leavers	0	0	0	0	0	0	0	0	0	0	0	0
Number joiners	6	0	6	5	0	5	1	2	3	1	0	1
Number stayers	140	146	140	108	113	108	116	117	116	125	126	125
Friendship change												
Distance	508	471	606	449	249	431	401	454	401	392	238	323
Jaccard index	43.3%	50.9%	38.4%	36.1%	51.9%	36.1%	43.5%	43.6%	37.3%	40.3%	47.8%	32.7%
Overt victimization change												
Distance	149	112	133	94	72	94	109	89	104	98	88	104
Fraction stable actors	35.7%	49.0%	40.6%	43.6%	47.3%	42.7%	36.0%	42.3%	40.5%	38.5%	38.5%	33.9%
Relational victimization change												
Distance	146	122	152	127	93	132	129	113	124	119	113	134
Fraction stable actors	39.9%	46.2%	39.2%	28.2%	38.2%	26.4%	31.5%	39.6%	30.6%	32.1%	31.2%	28.4%

Note. Density was calculated as *N* of ties divided by the total amount of ties; Reciprocity was calculated as $2M/(2M+A)$, where M = mutual ties and A = asymmetric ties; Transitivity was calculated as *N* of transitive triplets divided by *N* of 2-paths (or 2-stars). For all network measures, structurally absent actors were excluded.

Table 2

Meta-level Selection and Influence Parameters for Overt and Relational Victimization

	Estimate	(St. error)	Average SD	χ^2
Selection Effects				
Rate of change t1-t2	11.34	(1.40)		
Rate of change t2-t3	5.74	(0.53)		
Outdegree effect on rate of change	0.01	(0.03)	0.05	1.05*
Indegree effect on rate of change	0.08	(0.03)†	0.06	6.94†
Outdegree (density)	-2.61	(0.15)***	0.31	40.25***
Reciprocity	1.70	(0.15)***	0.30	7.80*
Transitive triplets	0.39	(0.06)**	0.12	40.66***
Three-cycles	-0.37	(0.09)*	0.18	20.77***
Friendship length	0.32	(0.05)**	0.10	10.83*
Sex alter (1 = boy)	0.05	(0.03)	0.05	1.13
Sex ego	0.08	(0.08)	0.16	7.35†
Same sex	0.31	(0.08)*	0.17	14.29**
Overt victimization alter	0.07	(0.06)	0.12	5.95
Overt victimization ego	-0.08	(0.00)***	0.01	0.02
Endowment: similarity overt victimization	1.14	(1.72)	3.45	8.47*
Creation: similarity overt victimization	-1.10	(1.12)	2.25	4.33
Similarity x sex ego	0.51	(0.27)	0.54	0.44
Relational victimization alter	-0.08	(0.02)*	0.04	1.67
Relational victimization ego	0.05	(0.00)***	0.00	0.02
Endowment: similarity relational victimization	0.10	(0.22)	0.44	0.30
Creation: similarity relational victimization	1.46	(0.43)*	0.85	0.84
Similarity x sex ego	-0.49	(0.76)	1.52	4.24
Influence: Overt victimization				

Rate of change t1-t2	3.78	(0.39)		
Rate of change t2-t3	2.72	(0.17)		
Linear shape	-0.08	(0.04)	0.07	2.71
Quadratic shape	-0.08	(0.02)*	0.04	0.46
Similarity in overt victimization	6.32	(0.89)**	1.79	0.91
Effect from sex	0.09	(0.07)	0.14	2.25
Similarity x sex	-2.27	(2.38)	4.75	5.29
Influence: Relational victimization				
Rate of change t1-t2	4.21	(0.29)		
Rate of change t2-t3	3.24	(0.40)		
Linear shape	-0.05	(0.02)	0.04	1.86
Quadratic shape	-0.04	(0.02)	0.04	1.09
Similarity in relational victimization	4.69	(0.74)**	1.47	0.92
Effect from sex	0.02	(0.07)	0.14	4.50
Similarity x sex	-1.68	(1.01)	2.02	2.06

† $p \leq .10$, * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$; two-tailed tests.
Note. Significance testing was not performed for the Rate of change -effects because the null-hypothesis would imply no changes (which was not the case). X^2 test of variance according to Snijders and Baerveldt (2003) method.