

Does having vulnerable friends help vulnerable youth? The co-evolution of friendships, victimization, and depressive symptoms in Chinese adolescents' social networks

Xingna Qin^{1,2}  | Lydia Laninga-Wijnen^{2,3}  | Christian Steglich^{2,4}  | Yunyun Zhang¹  |
Ping Ren¹  | René Veenstra² 

¹Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, Beijing, China

²Department of Sociology, University of Groningen, Groningen, The Netherlands

³Department of Behavioral Sciences and Philosophy, University of Turku, Turku, Finland

⁴Institute for Analytical Sociology, Linköping University, Linköping, Sweden

Correspondence

Xingna Qin, Department Sociology, University of Groningen, Grote Kruisstraat 2/1, 9712 TS Groningen, The Netherlands.

Email: xingna.qin@rug.nl

Ping Ren, Collaborative Innovation Center of Assessment toward Basic Education Quality, Beijing Normal University, No. 19 Xijiekouwai Street, Beijing 100875, China. Email: renping@bnu.edu.cn

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Abstract

This study examined whether having vulnerable friends helps or hurts victimized and depressed (i.e., vulnerable) adolescents and whether this depends on classroom supportive norms. Students ($n=1461$, 46.7% girls, 93.4% Han nationality) were surveyed four times from seventh and eighth grade ($M_{\text{age}}=13$ years) in 2015 and 2016 in Central China. Longitudinal social network analyses indicated that having vulnerable friends can both hurt and help vulnerable adolescents. Depressed adolescents with depressed friends increased in victimization over time. Victimized adolescents with victimized friends increased in victimization but decreased in depressive symptoms. These processes were most likely in classrooms with high supportive norms. Having friends and a supportive classroom may hurt vulnerable adolescents' social position but help victims' emotional development.

In adolescence, when the desire for inclusion by peers is heightened, being the target of peer victimization can render significant emotional problems (Christina et al., 2021), with heightened depressive symptoms being a prominent outcome. Peer victimization and depressive symptoms are distinct types of vulnerabilities, with each its own etiology: peer victimization is a social vulnerability that may emerge as soon as children enter school

(Nylund et al., 2007); depressive symptoms reflect emotional vulnerabilities, which often do not occur until children enter adolescence (Kwong et al., 2019). In the period of early to middle adolescence, both social (victimization) and emotional (depressive symptoms) vulnerabilities tend to peak (Kwong et al., 2019; Nylund et al., 2007). The link between victimization and depressive symptoms is often considered a bi-directional

Abbreviations: CDI, child depression inventory; RSiena, R Simulation Investigation for Empirical Network Analysis; SAOM, stochastic actor-oriented models; W1, wave1; W2, wave2; W3, wave3.

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vicious cycle: depressive symptoms may put youth at risk of becoming victimized, and victimization may increase youths' depressive symptoms over time (e.g., Christina et al., 2021). Given adolescents' increasing desire to be included in the peer group, positive peer relationships such as *friendships* may break the vicious cycle of victimization and depressive symptoms. Prior studies have found, for example, that having friends (vs. no friends at all) can protect victimized adolescents from depressive symptoms (Hodges & Perry, 1999; Schacter & Juvonen, 2018) and can protect depressed adolescents from victimization (Kochel et al., 2017).

The question is, however, whether the friendships of these socially or emotionally vulnerable adolescents are always beneficial, particularly when these friends experience vulnerabilities too. When speaking about “vulnerable” adolescents and friends in general, we refer to processes that may occur for *both* depressed and victimized adolescents and their friends. On the one hand, having vulnerable friends may benefit vulnerable adolescents: because these friends know exactly what these adolescents are going through, they should be more capable of understanding and responding to their situation than other people. Also, having vulnerable friends may console adolescents in that they know they are not the only ones experiencing problems (i.e., a shared plight), which may alleviate vulnerable youths' distress (Schacter & Juvonen, 2019). On the other hand, according to social-emotional contagion theory (Brendgen et al., 2013), having vulnerable friends may put vulnerable adolescents at additional risk for depressive symptoms or victimization because vulnerable friends may be insufficiently able to provide adequate (social) support (Bagwell & Schmidt, 2013). Previous research is inconclusive on whether having vulnerable friends helps or hurts vulnerable youth, as the findings vary considerably.

Three important gaps in the literature limit understanding of the role of vulnerable friends. First, previous work mostly relied on adolescents' reports of their friends' vulnerability and only examined the social or emotional vulnerability of single best or mutual friends (e.g., Kochel et al., 2017; Schacter & Juvonen, 2020). Though this is valuable, to reliably estimate the influence of vulnerable friends, it is essential to analyze the complete friendship network of adolescents and rely on friends' own reports of their vulnerability. Second, to estimate influence processes properly, it is important to control the extent to which adolescents seek out similarly vulnerable friends in the first place (selection effects). Longitudinal social network analyses allow researchers to disentangle the friendship selection and influence processes underlying the proliferation of victimization and depressive symptoms in complete friendship networks. A few social network studies have examined the role of vulnerable friends. Nevertheless, a caveat is that these studies focused exclusively on friendship influence in one domain (e.g., do depressed adolescents with

depressed friends increase in depression?) rather than on friendship influence across domains (e.g., are depressed adolescents with depressed friends at increased risk of victimization?). Third, the extent to which adolescents are influenced by their vulnerable friends may depend on the broader classroom context, but this context has largely been ignored. A classroom factor that may play a role in friendship processes related to victimization and depressive symptoms is the extent to which displaying helpful or supportive behaviors is normative (Schacter & Juvonen, 2018). Consequently, this study aimed to extend upon prior work by applying a social network perspective to examine the role of vulnerable (i.e., depressive or victimized) friends in vulnerable adolescents' development of depressive symptoms *and* victimization and to examine whether this role is moderated by supportive norms.

DOES HAVING VULNERABLE FRIENDS HELP VULNERABLE YOUTH?

Friends play a prominent role in promoting healthy adjustment by providing intimacy and support, bolstering self-esteem, protecting against loneliness, and offering a sense of well-being (Bagwell & Schmidt, 2013). Stress-buffer theories of social support suggest that victimized or depressed youth may profit from friendships, because friends can promote adaptive appraisal and coping in stressful times (Cohen & Wills, 1985). Further, following social protection theory (Hodges & Perry, 1999), friends protect depressed youth from social isolation, and hence from becoming an easy target for victimization. Despite their vulnerabilities, most depressed and victimized adolescents have at least one friend (e.g., Kochel et al., 2017). These friends often experience vulnerabilities as well (e.g., Kiuru et al., 2012), and it can be questioned whether having socially or emotionally vulnerable friends is beneficial for vulnerable adolescents. Two opposing hypotheses can be formulated.

On the one hand, having vulnerable friends may benefit vulnerable adolescents, because having a “shared plight” may alleviate their distress (Brendgen et al., 2013); this is referred to as the *shared plight hypothesis*. Friendships with vulnerable peers may offer psychological protection by promoting adaptive social comparisons and diminishing self-blame tendencies (e.g., “it's not just me”; Schacter & Juvonen, 2019). Indeed, vulnerable individuals experiencing victimization or depression usually seek to regulate their emotional reactions by comparing themselves with others (particularly their close friends) with similar experiences (Taylor et al., 1990). When others experience comparable emotional or social problems, this “shared plight” can help them mitigate negative emotional reactions such as depression through downward social comparison processes (Taylor et al., 1990).

It can be theorized that having a shared plight makes it less likely that vulnerable adolescents will be victimized. For instance, victimized friends may have a stronger proclivity to defend victimized adolescents (Huising et al., 2019), because they each understand what the other is going through. This may diminish victimization over time.

On the other hand, having vulnerable friends may put vulnerable adolescents at additional risk for developing depressive symptoms and becoming victimized, representing a *vulnerability-enhancing hypothesis*. Vulnerable friends may be unable to provide high-quality support in times of (interpersonal) distress (Bagwell & Schmidt, 2013). It is likely that having vulnerable friends may start to co-ruminate, which refers to mutually discussing problems or negative thoughts or jointly dwelling on negative effects, which is known to increase internalizing symptoms over time (Rose et al., 2007). Furthermore, even though vulnerable friends may have a stronger proclivity to defend, they may lack the social skills to do this in tactical and powerful ways (Shin, 2022). These defending efforts may be ridiculed by bullies and could even provoke more bullying over time. Thus, having vulnerable friends may put vulnerable adolescents at additional risk of depressive symptoms and victimization.

To date, some studies have examined the role of vulnerable friends in developing victimization and depression in vulnerable adolescents. Concerning victimization, the findings of most of these studies indicate that having vulnerable (i.e., depressed and victimized) friends *increases* vulnerable adolescents' risk for victimization. For instance, depressed students who have depressive friends have been found to increase in self-blame, which in turn predicts elevated levels of victimization across the middle school (Schacter & Juvonen, 2017). Social network studies also indicate that victims tend to select victims as friends and, in turn, are influenced by their friends' levels of victimization among children and early adolescents (Lodder et al., 2016; Shin, 2022), although some studies only detected selection effects and no influence effects (e.g., Berger et al., 2019). However, these studies did not examine whether the effects of friends' victimization depended on the adolescents' victimization. Thus, the vulnerability-enhancing hypothesis seems to be the most likely: having vulnerable friends may put vulnerable adolescents at increased risk of victimization.

With regard to the role of vulnerable friends in the development of depression in vulnerable youth, the findings of previous work are inconclusive. Some findings suggest that vulnerable friends are protective of vulnerable adolescents' depressive symptoms. For instance, a cross-sectional study on fourth-grade students found that victimized children with victimized friends reported fewer depressive symptoms than victimized students with non-victimized friends (Brendgen et al., 2013). This finding was replicated in longitudinal work, which indicated that victimized adolescents had

lower depressive symptoms when their friends—on average—were more strongly victimized across the middle school (e.g., Schacter & Juvonen, 2019). Moreover, adolescents' depressive symptoms decreased when their helpers had higher levels of depressive symptoms (Van Rijsewijk, 2018). Other work documented an opposing pattern, which could indicate a vulnerability-enhancing role of vulnerable friends. For instance, one study demonstrated that victimized girls' (in Grade 8) internalizing symptoms were exacerbated when they received emotional support from their (single best) victimized friend, whereas the emotional support of a non-victimized friend buffered against these associations (Schacter & Juvonen, 2020). Further, adolescents and their friends (in dyads) in the middle school increased depression through co-rumination after 9 months when their friends were high in excessive reassurance seeking (Schwartz-Mette & Smith, 2018). In addition, social network studies found that adolescents with depressive symptoms were likely to affiliate with similarly depressive peers and over time, to increase depressive symptoms if their friends were high in depression (e.g., Kiuru et al., 2012; Zalk et al., 2010). Thus, the findings of prior research on the role of vulnerable friends in vulnerable adolescents' depressive symptoms are inconsistent.

The first way our study extends upon prior research is through applying a social network perspective to examine the role of vulnerable friends in vulnerable adolescents' development *across* domains. Social network analyses allowed us to retrieve more accurate and reliable estimations of friendship influence than would analyses that use more traditional designs because these analyses (1) consider adolescents' complete within-classroom friendship networks and how these networks evolve over time; (2) enable the researcher to control for selection processes as an alternative explanation of why adolescents are similar to their friends in vulnerabilities; (3) control for general tendencies of interdependent data, such as the tendency to reciprocate friendships or to befriend the friends of friends. Social network studies to date have examined the role of friends' vulnerability in adolescents' depression and victimization by focusing solely on one domain (e.g., Kiuru et al., 2012; Lodder et al., 2016; Shin, 2022). In other words, these studies examined *same-domain* influence processes, by examining whether friends' vulnerability in one domain (e.g., depression) predicted adolescents' vulnerability in that same domain (e.g., depression). However, these social network studies disregarded that *cross-domain* influence processes may occur as well (Giletta et al., 2013): friends' vulnerability in one domain (e.g., depression) may influence adolescents' vulnerability in another domain (e.g., victimization). Few social network studies so far have focused on *cross-domain* influence, for instance, by examining the *cross-domain* influence between achievement and risk behavior (Gremmen et al., 2019), aggression and prosocial behavior (Laniga-Wijnen et al., 2020), depression and



non-suicidal self-injury behaviors (Giletta et al., 2013), and depression and substance use (Ennett et al., 2018). It is vital to assess these *cross-domain* processes given the strong interplay of depression and victimization in adolescence, and the often-present vicious cycle of depression and victimization (e.g., Christina et al., 2021).

Consequently, the first step in this study was to extend upon prior work in understanding the role of vulnerable friends in developing adolescents' own vulnerability. Prior research is somewhat inconclusive about whether having vulnerable friends either helps or hurts vulnerable adolescents' development. Our study is the first to longitudinally examine both same- and *cross-domain* friendship selection and influence processes related to victimization and depressive symptoms from a social network perspective. Therefore, two opposing hypotheses were tested, stating that when victimized adolescents befriend victimized peers or depressed adolescents befriend depressed peers, these vulnerable (i.e., victimized and depressed) adolescents may either (1) increase (*vulnerability-enhancing*) or (2) decrease (*shared-plight*) in victimization and depressive symptoms over time.

The second step in this study was to examine whether classroom norms for supportive behavior may moderate these friendship processes; we illustrate this below.

THE MODERATING ROLE OF CLASSROOM SUPPORTIVE PEER NORMS IN FRIENDSHIP PROCESSES

Socioecological frameworks postulate that adolescents are embedded in multiple contexts that mutually interact in contributing to their adjustment (Bronfenbrenner & Morris, 2007). Both close friendships and the broader classroom serve as important developmental contexts and, hence, may interact in determining the adjustment of vulnerable youth. Adolescents spend a large part of the day at school with their classmates. Classrooms vary greatly from each other: some classrooms constitute a positive and safe learning environment, whereas others may be characterized by negative peer relationships and proliferating aggression, which hampers adolescents' social-emotional adjustment (Gest & Rodkin, 2011). A way to capture the broader classroom environment is by assessing classroom peer norms for supportive or helpful behaviors. Peer norms represent behaviors and attitudes that are expected or considered appropriate in a certain context. Adolescents are likely to conform to these norms to be included in the peer group and prevent peer rejection (Henry et al., 2000).

On the one hand, it can be reasoned that prosocial, supportive norms would prevent an adverse effect of vulnerable friends on vulnerable adolescents. From a social learning perspective, when prosocial and supportive behaviors are normative, students may consider this an

appropriate way to behave toward others. This nurtures positive expectations about peer relationships and provides opportunities to practice those skills with peers (Birch & Ladd, 1998). Vulnerable adolescents and their vulnerable friends may perceive these positive behaviors around them. They may start imitating them, which may enrich their behavioral repertoire and increase their capacity to provide adequate social support, and thus reduce victimization or depressive symptoms. In line with this reasoning, prior work has demonstrated that prosocial norms within classrooms diminished friendship influence processes promoting negative, externalizing behaviors (Laninga-Wijnen et al., 2021). Similarly, supportive norms may mitigate the proliferation of internalizing or peer problems (i.e., victimization or depressive symptoms) through friendship selection and influence processes (Neal & Veenstra, 2021). Another reason why prosocial peer norms may mitigate the potentially adverse role of vulnerable friends is the “compensatory effect.” A positive, supportive environment may compensate for the limited social support that vulnerable adolescents may receive from their vulnerable friends. In line with this reasoning, victims in sixth grade felt significantly less anxious, lonely, and unsafe a year later in schools characterized by stronger peer prosocial norms (Schacter & Juvonen, 2018). Therefore, it can be hypothesized that supportive classroom norms would either buffer against the proliferation of depressive symptoms and victimization in friendship networks (vulnerability-enhancing processes) or enhance the beneficial role of vulnerable friends in mitigating adolescents' vulnerability (shared-plight processes).

Another possibility is that classroom supportive norms pose a risk for vulnerable youths' friendship dynamics. This can be explained as follows: in classrooms that are highly supportive and prosocial, vulnerable youth may not have the capacity or motivation to align with the supportive behaviors that are normative and expected (Kaufman et al., 2022). Consequently, these youths may become “social misfits” and are rejected by most classmates (Wright et al., 1986), making them to end up together as friends and increasing each other's maladjustment over time. This reasoning aligns with recent studies that illuminated a *healthy context paradox* (Huising et al., 2019), which refers to the phenomenon that some victims tend to be worse off in more positive classrooms (i.e., classrooms where an anti-bullying intervention is being implemented, or where victimization rates are lower). A recent cross-sectional study has shown that victimized youth had less positive classroom climate perceptions and lower feelings of belonging in classrooms where defending was normative (Laninga-Wijnen et al., 2021). Youth who are victimized or depressed despite all the positive, prosocial behaviors around them possibly feel even worse about themselves and are more likely to co-ruminate with their vulnerable friends (Rose et al., 2007). Moreover,

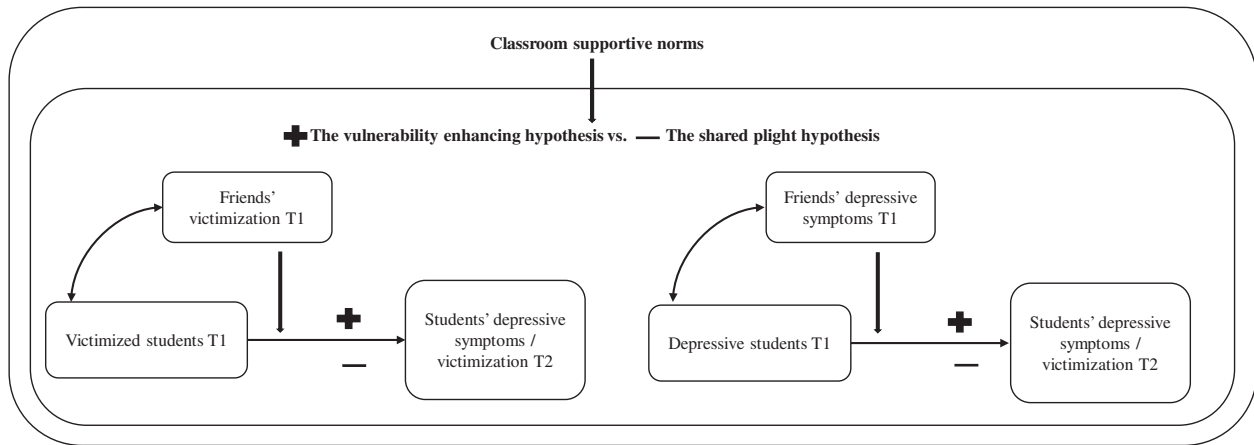


FIGURE 1 Hypothesis of the role of vulnerable friends and classroom supportive norms on one's vulnerabilities.

vulnerable youth who hang out with vulnerable friends are at higher risk of being marginalized and victimized over time, because they deviate from what is considered normative in highly supportive classrooms. Thus, an alternate hypothesis is that supportive classrooms pose a risk either by strengthening the proliferation of depressive symptoms and victimization (vulnerability-enhancing processes) or by reducing the beneficial role of vulnerable friends in mitigating adolescents' vulnerability (shared-plight processes).

CHINESE CULTURAL CONTEXT

Given that most studies on the role of friendship dynamics in victimization and depressive symptoms were conducted in Western cultures (e.g., Lodder et al., 2016; Schacter & Juvonen, 2020), it remains unclear whether these effects can be generalized to other cultures. Peer and classroom factors are closely linked to victimization or depression among Chinese adolescents (e.g., Pan et al., 2021). However, only one social network study has examined friendship influence on victimization in an Eastern Asian country (i.e., South Korea; Shin, 2022). Therefore, examining the research questions from the perspective of social network analysis in a Chinese sample is a significant contribution to the literature.

Chinese culture is rooted in Confucianism and collectivism, which advocate maintaining social harmony in interpersonal relationships, interdependence, complying with authority, and conforming to group norms (Chen et al., 2019). Given these cultural values and orientations, it is likely that interpersonal relationships (such as friendships), as well as the classroom environment, are highly relevant for Chinese students, and, therefore, for vulnerable students' adjustment. First, collectivism is highly valued for the benefits of interpersonal harmony: people in collectivist societies are willing to sacrifice individual interests for the needs of

the larger group (Chen et al., 2019). Thus, conforming to group norms is important in Chinese classrooms, and students who diverge from these norms may be exposed to sanctions by classmates (Smith & Robinson, 2019). Furthermore, Chinese adolescents may be more likely to compare themselves with others because of the emphasis on interdependence (Chen et al., 2019). Given that social comparison usually occurs in closer (i.e., friendship) relationships (Taylor et al., 1990), having a shared plight with friends might be particularly beneficial for Chinese adolescents because it assures youth that they are not the only ones experiencing problems. Therefore, vulnerable adolescents may thus benefit from their vulnerable friends due to downward comparison (Taylor et al., 1990).

THE CURRENT STUDY

The aim of this study was to examine whether friendships with vulnerable (i.e., victimized or depressed) peers either enhanced or mitigated adolescents' vulnerability over time and whether this may vary as a function of classroom supportive norms among Chinese adolescents (See Figure 1). Two opposing hypotheses were tested on the role of vulnerable friends in the development of adolescents' own vulnerability. The *vulnerability-enhancing hypothesis* states that having vulnerable friends may *exacerbate* adolescents' own vulnerability development over time: If victimized adolescents befriend victimized peers, they may increase in victimization and depressive symptoms over time, and if depressive adolescents befriend depressed peers, they may increase in victimization and depressive symptoms over time. The *shared-plight hypothesis* states that befriending vulnerable peers may be *beneficial* for vulnerable adolescents, by diminishing victimization and depressive symptoms over time. Both hypotheses assume that the vulnerability of friends may interact with the vulnerability of adolescents in explaining the development of victimization and



depression in these adolescents, but the hypothesized effects are in opposite directions.

Opposing hypotheses were also formulated on the role of classroom norms in these friendship processes. On the one hand, it was hypothesized that classroom supportive norms would provide a buffer against the proliferation of depressive symptoms and victimization, or would strengthen the beneficial role of vulnerable friends, because positive classroom norms benefit peer relationships by providing opportunities to practice social skills (Birch & Ladd, 1998). On the other hand, we hypothesized that classroom supportive norms would exaggerate the proliferation of depressive symptoms and victimization, or reduce the beneficial role of vulnerable friends, due to the “social misfits” effects (Wright et al., 1986) and the healthy context paradox (Huitsing et al., 2019).

To reliably assess these *influence* processes of vulnerable friends on vulnerable adolescents, longitudinal social network analysis was used to control for friendship *selection* processes (e.g., victimized youth select depressive friends or vice versa). Vulnerable peers are likely to cluster as friends due to *default selection* (Veenstra & Huitsing, 2021): victimized and depressive youths have difficulties forming relationships with non-vulnerable peers given that they are usually at the periphery of their peer group and are generally deemed less attractive to interact with (Laniga-Wijnen & Veenstra, 2023), even though vulnerable adolescents may want to associate with non-vulnerable peers. In addition, indegree (the number of received friendship nominations), outdegree (the number of given friendship nominations), gender, and adolescents' own vulnerabilities were controlled when estimating influence processes.

This study focused on a Chinese sample during the first 2 years following the transition to middle school. The transition to middle school is an important period, given that it is characterized by major changes in the peer context and friendship networks (Cantin et al., 2019). After the transition, students have to integrate into a new school environment and form new friendships and new social groups. In this context, dominance hierarchies must be renegotiated, which may lead to increases in victimization (Pellegrini & Long, 2002). For example, a recent nationwide Chinese study found that about 15% of students were involved in school bullying (with 10.9% being bullied, 1.4% bullying others, and 2.7% reporting both) (Luo et al., 2022). Furthermore, the transition to middle school is when adolescents become more vulnerable to psychological distress (Schacter & Juvonen, 2017). About a quarter of Chinese children and adolescents are depressed: they score in the clinical range of CDI (Wang et al., 2016). Therefore, it is necessary to understand the role of friendship in the dynamic interplay between adolescents' and friends' emotional and social vulnerabilities.

Chinese students spend a large part of the day with their classmates in highly structured classrooms. Students have a fixed seat and a fixed position in the

classroom, and they remain in the same classroom for at least a school year. In addition, students are expected to sit quietly, pay attention, and obey teachers' instructions. Friendships within the classroom are consequently highly important to them. In sum, the classroom is an important social unit in China in which adolescents follow classes and socialize together.

METHOD

Participants and procedure

The participants were first-year (Grade 7) students from 47 classrooms in seven public middle schools (four in rural and three in urban areas) in Central China. Data were collected across four distinct time points with intervals of half a year. The data in the first wave (W1) were collected at the end of the first semester in Grade 7 (the first year of middle school in China) in January 2015. The last wave (W4) was at the end of the second semester in Grade 8 in June 2016. Some students changed classrooms completely when they moved into Grade 8. Because the current study focused on students' friendship networks within classrooms across four waves, only classrooms that were stable in their student composition across these waves were selected ($N=26$). Each classroom had 43 to 64 students ($M=51$). About 1461 students (46.7% girls) in these classrooms participated at least once across the four waves, with a mean age of 13.00 ($SD=0.6$) at W1. About 93.4% of students were Han, 2.6% were from Hui, 0.8% were from Mongolia, and information on the others was missing for this variable. Participation rates were 96% at W1, 95% at W2, 92% at W3, and 88% at W4. The declining participation rate was due to dropping out, moving to other schools, or being absent on the data collection day. There was less than 1% missing data on victimization and depression in each wave. Appendix S2 provides the demographic information and Appendix S3 the individual and classroom information.

Students filled in the questionnaires during regular lessons in their classrooms under the supervision of trained undergraduate or postgraduate students. The classroom teacher was also present, and responsible for answering questions and making sure that students filled in the questionnaire peacefully without distracting each other. All schools provided permission to conduct the study, and all students and parents (or legal caregivers) provided informed consent at each wave.

Measures

Friendship was assessed using peer nominations within classrooms. Participants were presented with a list of classmates and asked to respond to the question, “Who are your best friends in your classroom?” Students were

allowed to nominate a maximum of five classmates. All self-nominations were excluded from the analyses. Based on these unilateral nominations, an adjacency matrix was constructed for each classroom for each wave, with 0 and 1 representing the absence and presence of a tie between two actors.

Depressive symptoms were measured using the Chinese version of the Child Depression Inventory (CDI; Kovacs, 1992). The CDI is a self-rated 27-item scale for children aged 5–17, which assesses depressive feelings or behaviors in the previous 2 weeks: for example, feeling sad and not enjoying things in life. Response categories on items ranged from 0 to 2. The 27 items were averaged, with higher scores indicating a higher level of depressive symptoms. The CDI has proven to be reliable and valid among Chinese adolescents (Rao et al., 2019). In this study, Cronbach's alpha ranged from $\alpha = .87$ at W1 to $\alpha = .89$ at W4. Students' average depressive symptom scores were categorized into quartiles based on the entire sample across four waves (scores per group were <0.30 ; $0.30-0.48$; $0.48-0.74$; >0.74), because RSiena cannot handle continuous measures (Ripley et al., 2022). In general, individuals in the first category reported almost no depressive symptoms at all, and those who were in the fourth category reported more than the CDI clinical cut-off value (mean score is 0.7, Kovacs, 1992) on average.

Victimization was measured using a Chinese revised version of the Olweus Victimization Questionnaire (Zhang et al., 1999), including seven items (e.g., “In this month, did you get hurt, pushed, or kicked by others in your school?”). The items were scored with 0 for not at all, 1 for once, 2 for twice, 3 for three to four times, and 4 for more than five times. Cronbach's alpha ranged from $\alpha = .80$ at W1 to $\alpha = .86$ at W4. The average scores over the seven items were calculated for each assessment and subsequently transformed into four almost equally populated categories (scores per group were <0.01 ; $0.01-0.43$; $0.43-0.86$; >0.86) across the four waves. In general, individuals in the first category reported almost no victimization, and those in the fourth category scored highly on the seven victimization items. Appendix S4 provides the descriptive results and categories of victimization and depressive symptoms.

Perceived peer support norms were assessed using the peer support scale of the perceived school climate questionnaire (Jia et al., 2009). This scale consisted of 13 items (e.g., Students in this classroom help one another) with a four-point Likert scale, ranging from (1) “never” to (4) “always.” Higher scores indicated higher levels of perceived peer support in the classroom. Good psychometric properties have been reported in China (Jia et al., 2009). Cronbach's alpha was $\alpha = .86$ at W1. The *perceived classroom peer support norm* was obtained by aggregating individual average scores for each classroom, which ranged from 2.78 to 3.72. We divided the classrooms into three categories: we recoded the top 33% as high-supportive classrooms ($n = 8$), the lowest 33% as

low-supportive classrooms ($n = 9$), and the rest as moderately supportive classrooms ($n = 8$).

Analytical strategy

Longitudinal Bayesian social network analysis

Analyses were conducted using multilevel random-coefficients SAOM (stochastic actor-oriented models) analysis, implemented in *RSienaTest* package (version 1.2–12) in *R* (version 3.5.1). This estimates coefficients across all networks but allows for variation in estimated effects at the network level through random effects (Ripley et al., 2022). In the models in this study, parameters corresponding to hypotheses (relating to victimization and depressive symptoms) were assumed to be constant across classrooms in order to gain power, whereas control variables (such as friendship structure) were allowed to vary randomly between classrooms.

The multilevel random-coefficient SAOM analyses rely on a Bayesian estimation technique. Bayesian inference assigns prior probability distribution to parameters, which, in light of the data, is updated to posterior probability distributions. Markov Chain Monte Carlo algorithms are used for the computations (Ripley et al., 2022). Posterior means and standard deviations for the fixed parameters η and the random parameters μ are estimated. Moreover, p -values of the parameter estimates are generated, which indicate the posterior probability that the parameter is greater than zero. In other words, this reflects the percentile where zero is located at the posterior distribution. The chances of the parameter being smaller than 0 can be retrieved by $[1-p]$: p -values of $\geq .975$ and $\leq .025$ indicate a high posterior chance that the alternate hypothesis is true ($\geq 95\%$ in both scenarios).

In the SAOM analysis, missing information in the data is internally imputed. For example, missing information can be handled by the “last observation carry forward” method (Ripley et al., 2022), which minimizes the impact of missing data on parameter estimation. One classroom was deleted in the final model due to the large overall maximum convergence ratio ($t = 1.91$; Ripley et al., 2022). All final models converge according to standard assessments of convergence for multilevel random-coefficients SAOM. We conducted the model based on the overall maximum convergence ratio rather than the goodness of fit (Ripley et al., 2022). The trace plots are available upon request from the first author.

To test the hypotheses and to keep the model parsimonious, the first two models were estimated (Appendix S5): The first includes friendship, victimization, and depressive symptoms without moderators in all classrooms (Table S5), and the second one includes model without moderators in classrooms with high, moderate, and low supportive norms (Table S6). Next, models include moderators from their own vulnerabilities in all classrooms to



evaluate the shared-plight and vulnerability-enhancing hypotheses. Last, the moderating effects of classroom supportive norms were estimated in classrooms with high, moderate, and low supportive norms. In case of significant moderation effects, ego-alter influence tables were generated and translated into figures to interpret these interaction effects (Shin, 2022).

Model specification for friendship selection processes

Same-domain friendship selection was assessed using *ego* × *alter* effects for both victimization and depressive symptoms, to detect whether adolescents formed new friendships with peers based on similarity in victimization and depressive symptoms. Cross-domain friendship selection processes were assessed as well. For instance, the *victimization ego* × *depressive symptoms alter* effect measured whether victimized adolescents formed new friendships with peers with high depressive symptoms. Other friendship selection effects were included, too, such as, effects for whether vulnerable adolescents were more likely to give (*ego effect*) and receive (*alter effect*) friendship nominations. Appendix S1 summarizes and explains the modeled RSiena effects and parameters.

Model specification for friendship influence processes

We used the *average alter* effect to estimate whether youth whose friends had higher victimization (depressive symptoms) also increased in victimization (depressive symptoms) themselves over time (same-domain influence). For cross-domain friendship influence effects, the parameter of *avXAlt* was estimated, indicating whether friends' behavior in one domain, such as victimization, influenced adolescents' behavior in another domain, such as depressive symptoms.

Model specification for moderated friendship influence processes

We examined several moderation effects to test the vulnerability-enhancing hypothesis and shared-plight hypothesis. For same-domain influence, we examined whether adolescents' initial vulnerability moderated the influence of friends' vulnerability on adolescent's future vulnerability. This was assessed by including an interaction between the *average alter* effect and the *quadratic shape* effect. Taking victimization as an example, this effect reflects the interaction between (1) adolescents' current level of victimization and (2) the average victimization of friends, in predicting adolescents' future victimization. For the cross-domain influence effects

on depressive symptoms (or victimization), we included an interaction between the *avXAlt* effect and the *effect from* victimization (or depressive symptoms), which reflects the interaction between (1) adolescents' current level of victimization and (2) the average victimization of friends, in predicting adolescents' depressive symptoms.

The moderating role of classroom supportive norms

Bayesian longitudinal social network analyses were used for classrooms with low, moderate, and high supportive norms, separately, to test whether supportive norms moderate friendship processes related to victimization and depressive symptoms. Parameters of interest were compared across classrooms based on credibility intervals. If a certain parameter in one type of classroom did not fall within the 95% credibility interval of the parameter in the other type of classroom, and vice versa, these classroom types were considered to differ from each other with regard to this parameter (Pfister & Janczyk, 2013). We examined the role of norms by taking a multi-group approach rather than by including norms as a continuous classroom level moderator, as the latter approach would yield highly complex effects in the already demanding models (e.g., four-way cross-level interactions). This is in line with previous work that examined comparably complex questions (e.g., Laninga-Wijnen et al., 2020).

RESULTS

Descriptive statistics

Table 1 presents a description of friendship networks, victimization, and depressive symptoms for all classrooms. On average, adolescents nominated approximately three to four classmates as their best friend. More than half of the friendships were reciprocated (range 0.50–0.53), and nearly one-third of the students were involved in relational structures of at least three individuals (range 0.31–0.35). The Jaccard Index ranged from 0.33 to 0.35, indicating sufficient stability for social network analyses (Veenstra et al., 2013). The classroom-level correlations in Table 2 show that supportive classroom norms were associated negatively with victimization ($r_{w1} = -0.84$; $r_{w2} = -0.63$) and class size (r 's from -0.43 to -0.54) and positively with depressive symptoms ($r_{w4} = 0.40$) and in-degree ($r_{w3} = 0.39$; $r_{w4} = 0.45$).

Does having vulnerable friends help or hurt vulnerable youth?

Table 3 shows the effects of vulnerable friends on adolescents' own vulnerabilities across all classrooms (i.e.,

TABLE 1 Descriptive statistics of friendship networks, victimization, and depressive symptoms.

	Wave1	Wave2	Wave3	Wave4
Participants	1418	1430	1448	1456
Classroom size	54.5	55.0	55.7	56.0
Density	0.08	0.07	0.07	0.06
Reciprocity	0.53	0.50	0.51	0.53
Transitivity	0.31	0.32	0.34	0.35
Average indegree	4.08	3.82	3.43	3.23
Proportion of girls	0.47	0.47	0.47	0.47
Average victimization	2.55	2.11	1.71	2.18
Average depressive symptoms	2.45	2.42	2.16	2.34
Moran's <i>I</i> for victimization	0.05	0.03	0.05	0.08
Moran's <i>I</i> for depressive symptoms	0.02	-0.03	0.01	0.01
	Wave1–Wave2	Wave2–Wave3	Wave3–Wave4	
Changes in friendship network				
Average number of ties maintained	110	99	96	
Average number of ties emerged	105	92	82	
Average number of ties dissolved	119	111	92	
Hamming distance	211	182	169	
Jaccard index	0.33	0.33	0.36	
Changes in victimization				
Average actors down	21	14.2	7.5	
Average actors up	9.4	13.7	18.7	
Average actors constant	21.7	22.8	22.5	
Average steps down	32	20	9.8	
Average steps up	11.8	18.3	25.7	
Changes in depressive symptoms				
Average actors down	11	13	11	
Average actors up	17.0	11.8	12.6	
Average actors constant	24.8	26	25	
Average steps down	13.9	16.5	14.3	
Average steps up	22.3	15.7	16.3	

irrespective of classroom norms). In the interest of parsimony, Table 3 presents only the parameter estimates related to victimization and depressive symptoms; the remaining estimates can be found in Appendix S6 (Table S7). The same-domain influence effects were non-significant, indicating that friends' victimization did not influence adolescents' own victimization [$\eta=0.01$, $SD=0.05$, $p=.58$], and nor did friends' depressive symptoms influence adolescents' own depressive symptoms [$\eta=0.003$, $SD=0.05$, $p=.51$]. As for the cross-domain influence effects, friends' depressive symptoms increased adolescents' victimization [$\eta=0.13$, $SD=0.05$, $p>.99$], whereas friends' victimization did not influence adolescents' depressive symptoms [$\eta=-0.05$, $SD=0.06$, $p=.19$].

To examine the vulnerability-enhancing and shared-plight hypothesis, the moderated same-and-cross domain influence effects were evaluated, as shown in Table 3. Regarding the development of *victimization*, the results

show that adolescents became more victimized over time when both the adolescents and their friends were highly victimized [friends' victimization \times own victimization: $\eta=0.08$, $SD=0.03$, $p=.99$], and when both the adolescents and their friends were high in depressive symptoms [friends' depressive symptoms \times own depressive symptoms: $\eta=0.08$, $SD=0.04$, $p=.98$]. These findings support the vulnerability-enhancing hypothesis. Figure 2a shows the interaction of friends' and adolescents' depressive symptoms on the development of victimization, indicating that highly depressed students with highly depressed friends are more likely to be influenced toward higher victimization (purple line).

In contrast, the results for the role of vulnerable friends in adolescents' *depressive symptoms* do not support the vulnerability-enhancing hypothesis. Having depressive friends did *not* pose an additional risk for depressive students to further increase in depression [friends' depressive

TABLE 2 Correlations among victimization, depressive symptoms, friendship indegree, and supportive classroom norms at the classroom level.

	Class size	Friendship indegree	Depressive symptoms	Victimization
	Wave1			
Indegree	-0.94			
Depressive symptoms	0.22	-0.16		
Victimization	0.45	-0.33	0.31	
Supportive classroom norms	-0.52*	0.41	-0.31	-0.84***
	Wave2			
Indegree	-0.14			
Depressive symptoms	0.29	-0.03		
Victimization	0.48*	-0.29	0.29	
Supportive classroom norms	-0.54**	0.22	0.11	-0.63***
	Wave3			
Indegree	-0.10			
Depressive symptoms	0.06	-0.08		
Victimization	0.31	-0.14	0.31	
Supportive classroom norms	-0.45*	0.39*	0.25	-0.36
	Wave4			
Indegree	-0.23			
Depressive symptoms	-0.32	0.05		
Victimization	0.25	-0.03	0.02	
Supportive classroom norms	-0.43*	0.45*	0.40*	-0.37

* $p < .05$; ** $p < .01$; *** $p < .001$.

symptoms \times own depressive symptoms: $\eta = 0.01$, $SD = 0.04$, $p = .58$). However, highly victimized adolescents who were friends with victimized peers were likely to decrease in depressive symptoms over time, which is in line with the shared-plight hypothesis [friends' victimization \times own victimization: $\eta = -0.12$, $SD = 0.05$, $p = .01$]. Figure 2b presents the interaction of friends' and adolescents' own victimization on the development of depressive symptoms. The purple line indicates that highly victimized students with highly victimized friends are more likely to be influenced toward lower depressive symptoms.

Table 3 also provides the findings for friendship selection based on victimization and depressive symptoms. For same-domain selection, adolescents selected friends based on similarity in victimization [$\eta = 0.04$, $SD = 0.01$, $p > .99$], but not based on similarity in depressive symptoms [$\eta = 0.01$, $SD = 0.01$, $p = .73$]. For cross-domain selection, neither victimized adolescents befriended depressed peers [$\eta = -0.02$, $SD = 0.01$, $p = .07$] nor depressed adolescents befriended victimized peers [$\eta = 0.001$, $SD = 0.01$, $p = .54$].

The role of classroom supportive norms in friendship processes

Table 4 presents the findings of the Bayesian analyses for each classroom type (i.e., low, moderate, and high

supportive classrooms), which only contains the parameter estimates related to victimization and depressive symptoms; the remaining estimates are in Appendix S6 (Table S8). In general, findings indicate that supportive norms were unrelated to same-domain friendship processes, whereas cross-domain friendship processes varied somewhat across classrooms with different levels of supportive norms. Specifically, in classrooms with high supportive norms, victims who had victimized friends decreased in depression [friends' victimization \times own victimization: $\eta = -0.34$, $SD = 0.10$, $p < .01$]; this was not true for classrooms with low and moderate supportive norms. The η of high supportive classrooms did not fall within the confidence interval of the η 's of low and moderate supportive classrooms and vice versa, showing that this process was significantly more likely in high supportive classrooms. This indicates that the process where a shared plight yields more beneficial outcomes for victims is enhanced in classrooms with high supportive norms.

Cross-domain friendship influence on victimization also varied across classrooms with low, moderate, and high supportive norms. In classrooms with high supportive norms, depressive youth who had depressive friends were more likely to become victimized over time [$\eta = 0.20$, $SD = 0.07$, $p > .99$], than in classrooms with low supportive classrooms. The Bayes estimator (η) of classrooms with high supportive norms did not fall within the confidence interval of the estimator of low supportive

TABLE 3 Longitudinal Bayesian social network analyses on friendship selection and influence related to victimization and depressive symptoms in all classrooms ($N=25$ classrooms).

Effect	Fixed				
	η	SD (η)	p	95% CI	
Selection effects					
Victimization alter	0.01	0.01	.77	-0.01	0.02
Victimization ego	0.09	0.01	>.99	0.07	0.11
Victimization ego \times victimization alter	0.04	0.01	>.99	0.02	0.06
Depressive symptoms alter	-0.05	0.01	<.01	-0.06	-0.03
Depressive symptoms ego	-0.12	0.01	<.01	-0.14	-0.1
Depressive symptoms ego \times depressive symptoms alter	0.01	0.01	.73	-0.01	0.02
Victimization ego \times depressive symptoms alter	-0.02	0.01	.07	-0.03	0.01
Depressive symptoms ego \times victimization alter	0.00	0.01	.54	-0.02	0.02
Behavior dynamics: victimization					
Friends' victimization	0.01	0.05	.58	-0.08	0.1
Friends' depressive symptoms	0.13	0.05	>.99	0.03	0.22
Friends' victimization \times own victimization	0.08	0.03	.99	0.01	0.14
Friends' depressive symptoms \times own depressive symptoms	0.08	0.04	.98	0.00	0.18
Behavior dynamics: depressive symptoms					
Friends' depressive symptoms	0.003	0.05	.51	-0.09	0.11
Friends' victimization	-0.05	0.06	.19	-0.17	0.06
Friends' depressive symptoms \times own depressive symptoms	0.01	0.04	.58	-0.07	0.08
Friends' victimization \times own victimization	-0.12	0.05	.01	-0.21	-0.02

Note: Models also include structure, gender, parameters for rates, shape, and control variables for victimization and depressive symptoms. Posterior means η and standard deviations SD (η) for fixed parameters. p -values represent the percentile of zero in the posterior distribution. p -values of $\geq .975$ and $\leq .025$ reflect a high posterior chance that the alternate hypothesis is true. The significant effects are in bold.

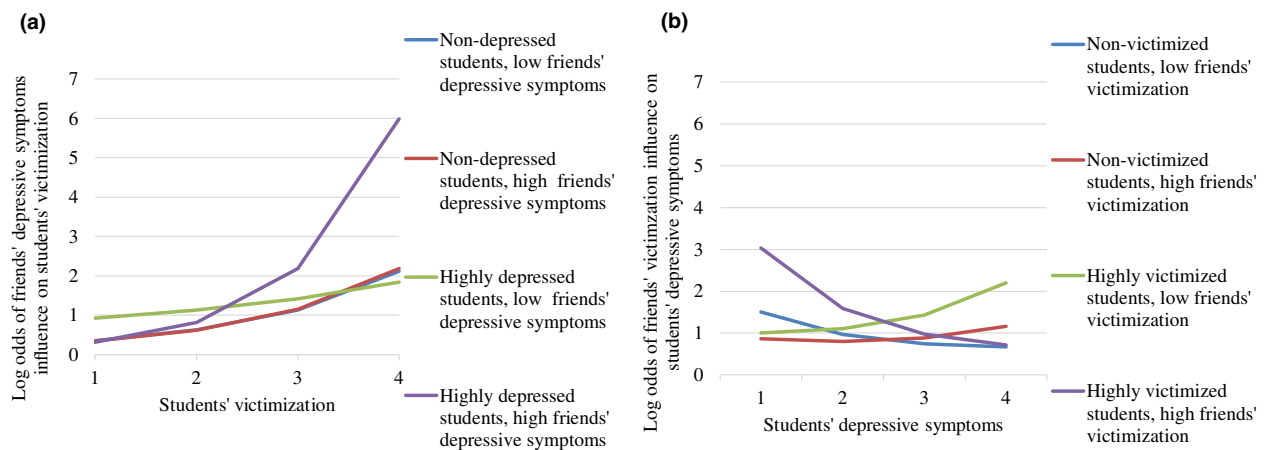


FIGURE 2 Log odds of friendship cross-domain influence on depressive symptoms (victimization) moderated by own vulnerabilities in all classrooms. Note. (a) depicts the log odds of the influence of friends' depressive symptoms on youth's victimization, moderated by students' own level of depressive symptoms, showing that highly depressed students with highly depressed friends are more likely to be influenced toward higher victimization (purple line). The blue and red lines in (a) are identical. (b) plots the log odds of the influence of friends' victimization on youth's depressive symptoms, moderated by students' own level of victimization, showing that highly victimized students with highly victimized friends are more likely to be influenced toward lower depressive symptoms (purple line), whereas highly victimized students with low-victimized friends are more likely to be influenced toward higher depressive symptoms (green line).

TABLE 4 Longitudinal Bayesian social network analyses on friendship selection and influence related to victimization and depressive symptoms in classrooms with high, moderate, and low supportive norms.

Effect	Highly supportive classes (N=8)				Moderately supportive classes (N=8)				Low-supportive classes (N=9)				
	η	SD(η)	p	95% CI	η	SD(η)	p	95% CI	η	SD(η)	p	95% CI	
Selection effects													
Victimization alter	0.01	0.02	.81	-0.02	0.05	-0.01	0.02	-0.05	0.02	0.00	.54	-0.02	0.04
Victimization ego	0.05	0.03	.95	0.00	0.09	0.10	0.03	0.06	0.15	0.12	>.99	0.09	0.16
Victimization ego × victimization alter	0.03	0.02	.94	-0.01	0.08	0.03	0.02	-0.02	0.08	0.03	.97	0.00	0.07
Depressive symptoms alter	-0.06	0.02	<.01	-0.09	-0.03	-0.02	0.02	-0.05	0.01	-0.04	<.01	-0.07	-0.02
Depressive symptoms ego	-0.12	0.02	<.01	-0.16	-0.08	-0.10	0.03	-0.16	-0.04	-0.14	<.01	-0.17	-0.10
Depressive symptoms ego × depressive symptoms alter	0.00	0.02	.40	-0.03	0.03	0.03	0.02	0.00	0.05	-0.01	.16	-0.05	0.01
Victimization ego × depressive symptoms alter	-0.01	0.02	.31	-0.05	0.03	-0.03	0.02	-0.08	0.00	-0.01	.25	-0.05	0.02
Depressive symptoms ego × victimization alter	0.01	0.02	.79	-0.02	0.05	-0.02	0.02	-0.05	0.01	0.00	.48	-0.03	0.03
Behavior dynamics: victimization													
Friends' victimization	0.00	0.09	.48	-0.19	0.17	-0.06	0.09	-0.25	0.10	0.10	.89	-0.05	0.25
Friends' depressive symptoms	0.19	0.10	>.99	0.02	0.40	0.09	0.09	-0.08	0.25	0.14	.90	-0.08	0.37
Friends' victimization × own victimization	0.04	0.07	.74	-0.10	0.16	0.13	0.05	0.03	0.24	0.09	.98	0.01	0.20
Friends' depressive symptoms × own depressive symptoms	0.20	0.07	>.99	0.08	0.34	0.11	0.07	-0.03	0.25	-0.04	.32	-0.21	0.09
Behavior dynamics: depressive symptoms													
Friends' depressive symptoms	-0.03	0.09	.37	-0.21	0.12	-0.07	0.09	-0.25	0.11	0.11	.88	-0.06	0.31
Friends' victimization	0.02	0.11	.59	-0.22	0.21	0.09	0.13	-0.13	0.36	-0.23	<.01	-0.41	-0.05
Friends' depressive symptoms × own depressive symptoms	0.05	0.05	.84	-0.05	0.16	-0.02	0.06	-0.15	0.10	-0.01	.43	-0.10	0.09
Friends' victimization × own victimization	-0.34	0.10	<.01	-0.56	-0.15	-0.02	0.11	-0.24	0.19	0.01	.52	-0.20	0.22

Note: Models also include structure, gender, parameters for rates, shape, and control variables. Estimations were considered to differ from each other when the estimation of one type of classroom did not fall within the credibility interval of the estimation of the other classroom and vice versa. p -values of ≥ 0.975 and ≤ 0.025 reflect a high posterior chance that the alternate hypothesis is true. The significant effects are in bold.

classrooms and vice versa. This indicates that the process where depressive students with depressive friends increase in victimization may be strongest in classrooms with high supportive norms.

Thus, supportive norms seemed to benefit victims who had victimized friends, whereas these norms enhanced the risk for depressed youth with depressed friends. Figure S1 in Appendix S7 shows the interaction of friends' and own vulnerabilities, and classroom supportive norms on the development of vulnerabilities.

DISCUSSION

This study was the first social network study to test whether vulnerable (i.e., victimized or depressed) friends help vulnerable adolescents in a Chinese context. We also examined whether these friendship processes depend on the classroom environment. Our findings are consistent with previous findings in Western settings and indicate that having vulnerable friends can both hurt and help vulnerable adolescents: depressed adolescents with depressed friends increased in victimization over time, whereas victimized adolescents with victimized friends also increased in victimization but decreased in depressive symptoms. These friendship processes seemed to differ somewhat across classrooms with low, moderate, and high supportive norms. When supportive norms were higher, depressed youth with depressed friends were more likely to increase in victimization, whereas victimized youth with victimized friends were more likely to decrease in depressive symptoms. To conclude, this study among Chinese adolescents shows that positive peer experiences (having best friends, being in a supportive classroom) seem to provide *emotional* protection for victimized youth, but these same peer experiences can put vulnerable youth at *social risk*.

Having vulnerable friends can both help and hurt vulnerable adolescents

The findings of this study indicate that having vulnerable friends can both help and hurt vulnerable adolescents across the first 2 years after the transition to middle school in China; this aligns with both the *vulnerability-enhancing hypothesis* and the *shared-plight hypothesis*. The findings regarding the development of victimization were consistent with the vulnerability-enhancing hypothesis: vulnerable (i.e., depressive or victimized) adolescents who had vulnerable friends were more likely to increase in victimization over time. These results are in line with the findings of previous social network research in late childhood and early adolescence, indicating that having victimized friends increases the likelihood of victimization over time (Veenstra & Huising, 2021), and prior work indicating that adolescents' depressive

symptoms and friends' average depressive symptoms jointly predict characterological self-blaming attributions, which in turn increase adolescents' victimization (Schacter & Juvonen, 2017).

The findings for the development of depressive symptoms were partly consistent with the shared plight hypothesis: victims who had victimized friends were more likely to decrease in depressive symptoms over time. These results correspond with the findings of some prior research indicating that having friends who have experienced peer victimization can promote a sense of shared plight that ultimately alleviates victims' distress in both elementary (Brendgen et al., 2013) and middle school (Schacter & Juvonen, 2019).

Although the findings of this study are consistent with those of some studies, they are inconsistent with those of other work that, for instance, detected that victims with victimized friends increased—rather than decreased—in depression over time (e.g., Schacter & Juvonen, 2020), or that depressed youth with depressed friends increased in depression over time (e.g., Zalk et al., 2010). The measurement of friendship might be a reason for these inconsistencies. We focused on friendship networks within classrooms using peer nominations, whereas other researchers focused on adolescents' single best friends (Schacter & Juvonen, 2020) and found that the vulnerability-enhancing hypothesis was true only for girls who were highly emotionally intimate with their friends. Future research may benefit by focusing on reciprocated friendships, using network data. Others focused on both in-school and out-of-school networks and found that the friendship influence effects were considerably stronger for out-of-school friendships than in-school friendships (Zalk et al., 2010).

The inconsistencies in prior research were our main reason for formulating opposing hypotheses about the role of vulnerable friends in the development of adolescents' vulnerability. The current study being the first to apply a social network design to analyze cross-domain influence processes, the current findings contribute significantly to the field by showing that the adverse versus beneficial effects of vulnerable friends vary across outcomes: among Chinese adolescents in the middle school, vulnerable friends may *hurt* vulnerable adolescents' *social position* (i.e., increase the risk for victimization), yet at the same time may *help* vulnerable adolescents' *emotional development* (i.e., protect against depressive symptoms). Vulnerable adolescents and their vulnerable friends are likely at the periphery of the peer group, which may have negative *social* consequences: other peers may view them as “odd.” This makes them easy targets of victimization because it is less risky to victimize someone who is not liked or central in the peer group. Moreover, vulnerable (e.g., depressive) friends lack the social skills to tactically intervene in bullying situations, which may provoke even more bullying over time (Shin, 2022).

Nevertheless, victims reap *emotional benefits* from clustering with other victims, who know better what they are going through than those who have not experienced social mistreatment. Being friends with other victims stimulates adaptive social comparisons (“I am not the only one being victimized”; Taylor et al., 1990), which likely diminishes victims' tendency to blame themselves for victimization and makes them feel better about themselves (Graham & Juvonen, 2002). In contrast, if victims have non-victimized friends, they may start to engage in upward comparison processes (Taylor et al., 1990), which likely elevates emotional distress (as shown in Figure 2). Furthermore, the anticipation of gaining emotional benefits may also explain why victims select each other as friends, despite the risk of victimization. Whereas prior work mostly assumed that victims clustered together because of default selection (they have no other friendship options), it is important to acknowledge that selection based on similarities in emotional or social vulnerabilities can also be based on preferential attraction. It is possible that the victims in this study preferred to befriend other victimized peers because it helped them to cope with their situation, which in turn diminished their depressive symptoms. Future work is encouraged to examine the potential motivations behind friendship selection in victimized youth.

Moreover, we were not able to test for potential mechanisms that may explain why peer influence on vulnerabilities took place. Though it is possible that having a shared plight may help adolescents not to blame themselves for their victimization, it is important to acknowledge that we did not specifically test *what it is* in these friendships among similarly victimized peers that predicts the decreases in depressive symptoms. Future work is encouraged to more thoroughly investigate the characteristics of similarly victimized youth and to focus on both risk and protective factors in these friendships.

The current findings show that the extent to which vulnerable friends either hurt or help vulnerable adolescents varies across social and emotional outcomes. The findings applied only to the highly victimized or depressed adolescents, because these vulnerable adolescents may particularly need a friend who understands what they are going through and who is also experiencing victimization.

The only finding that aligned with neither the vulnerability-enhancing hypothesis nor the shared-plight hypothesis, was the non-significant influence effect of friends' depression on adolescents' depression. A potential reason for this finding is that we analyzed influence using the average alter effect. Most prior work that detected friendship influence on depression estimated the average similarity effect rather than the average alter effect (see for a systematic review: Neal & Veenstra, 2021). Whereas the average alter effect indicates that youth increase in depression when their friends score higher in depression (i.e., contagion), the average similarity effect

indicates that adolescents become similar to their friends in their levels of depression (i.e., convergence, either upward or downward). One empirical study compared the effects of friendship contagion versus convergence of depression within the same sample of youth and detected evidence for convergence rather than peer contagion (Kiuru et al., 2012). For our study, it was methodologically advantageous to use the average alter effect (a correlational measure), given the correlational nature of the cross-domain influence effects. Theoretically, an average alter effect (reflecting unidirectional influence) is less likely to occur with regard to depressive symptoms than an average similarity effect (indicating mutual peer influence; Laninga-Wijnen & Veenstra, 2023). Thus, based on prior work, and on the finding of this study that victimized peers with victimized friends may even *decrease* in depression over time, it can be reasoned that the adverse role of peers in enhancing adolescents' depression is more limited than often assumed. Future work is encouraged to better understand the direction of peer influence on adolescent depression, as well as to uncover underlying mechanisms for these influence processes.

The role of classroom supportive norms on friendship influence

The role of vulnerable peers in vulnerable adolescents' development varied not only across outcomes but also across contexts. Specifically, classrooms with high supportive norms (as compared with classrooms with moderate and low supportive norms), depressed youth with depressed friends were more likely to be victimized (vulnerability-enhancing), whereas victimized youth with victimized friends were more likely to decrease depressive symptoms over time (shared-plight). Thus, there seem to be both beneficial and adverse effects of having vulnerable friends in classrooms with high supportive norms. These findings should be interpreted with caution, because the number classrooms in the upper and lower category of supportive norms was not very high (even though it is comparable with prior work, see for instance, Laninga-Wijnen et al., 2017).

The finding that depressive adolescents with depressive friends are more likely to be victimized in classrooms with high supportive norms could be explained based on previous work and social misfit theory (Wright et al., 1986). First, it is likely that in “healthier” classrooms, contextual factors may be less decisive in determining whether students get victimized, whereas individual-level factors may be more important. In highly supportive classrooms, victimization is less likely to occur—but if it happens, the most vulnerable or deviant youth are the most likely to be picked on. Students with depressive symptoms have been shown to often withdraw from social interactions (indeed, in the current study, a negative ego effect for depression

was detected) or to respond inappropriately to social situations (Ding et al., 2019). When depressive students cluster together as friends, they may enhance such withdrawn or socially awkward behaviors in each other. This may put them at risk of victimization (Ding et al., 2019), in particular in classrooms where showing such behavior may not align with the prosocial, supportive norms.

Second, following social misfit theory (Wright et al., 1986), students who behave in ways that diverge from the norm are regarded as “social misfits” and have a higher chance of being rejected by their peers. Some Western empirical work has shown that youth who deviate from the norm may even have a higher chance of becoming victimized over time (Kaufman et al., 2022). This may also be true in Asian countries: because interpersonal harmony is highly valued, collectively conforming to group norms is important in Chinese classrooms (Chen et al., 2019). Students who violate these norms may be exposed to social sanctions by classmates (Smith & Robinson, 2019). Thus, a reason why depressive students with depressive friends are more likely to be victimized in classrooms with supportive norms is that in these classrooms, they are more likely to be regarded as social misfits. Future work is encouraged to test potential underlying reasons for these effects more specifically.

Next, the process where having victimized friends diminished victims' depression over time was the strongest in classrooms with high supportive norms. It could be that having a shared social plight may particularly matter in classrooms where other students are doing well. Previous work has shown that students who are victimized in healthier classrooms develop more depressive symptoms and it has been reasoned that this may be due to increased upward social comparisons (Huitsing et al., 2019). The findings of our study could indicate that having a friend who is going through similar victimization experiences may buffer against such upward comparison processes, in particular in classrooms where other students are doing well. Another potential explanation could be that supportive classrooms offer victimized youth and their friends opportunities to practice social skills (Birch & Ladd, 1998), such as listening to each other's story and responding empathetically to each other. This may enable victims to benefit more from discussing their plight with their friends, which may in turn lower their depressive symptoms.

Strengths, limitations, and suggestions for future research

This study has several strengths. First, it was the first to apply a social network design including both same-domain *and* cross-domain processes to test whether vulnerable (i.e., victimized or depressive) friends may help or hurt vulnerable adolescents. To date, studies that examined cross-domain processes (e.g., Do victimized

friends enhance victims' depression?) used traditional regression techniques, which fail to account for interdependencies of social relationships and to control for general network tendencies such as reciprocity. Stochastic actor-oriented models (SAOMs), implemented in RSiena, are designed to handle these issues. Previous social network research only examined same-domain processes regarding whether having vulnerable friends either help or hurt vulnerable youth. Thus, this study has advanced the field by testing both same-domain *and* cross-domain processes in a social network design. This enabled us to demonstrate that the beneficial versus adverse roles of vulnerable friends varied across *social* (victimization) and *emotional* (depression) outcomes. Also, even though it was not the main goal of this study, it enabled us to get better insight into the *selection* processes of victims. Whereas previous work mostly assumed that victims tend to cluster because they have no other friendship options (i.e., default selection), this study indicates that the emotional benefits of befriending victims may be a reason for these selection processes.

Second, this study significantly adds to the literature by addressing the context gap: It was demonstrated that the broader peer context affects the extent to which peer dynamics regarding depression and victimization take place. Our findings indicate that supportive classroom norms can be beneficial, but may also pose a risk to vulnerable youth with vulnerable friends. Because of the Chinese emphasis on social harmony and interdependence, victimized and depressive adolescents in positive classroom contexts might be more likely to be rejected and marginalized, and to form negative social self-concepts (Pan et al., 2021). The current findings should be replicated across cultures in future studies. Third, testing the adverse versus beneficial effects of vulnerable friends on vulnerable adolescents in a large sample of Chinese students is another contribution of the current study that adds significantly to the literature, which is dominated by Western studies.

This study also has some limitations. First, adolescents' friendship nominations were limited to five friends, which may fail to capture the full range of friendships in the classroom. There is evidence that the average number of friendship nominations per student tends to be higher than five within classrooms (e.g., Berger et al., 2019). Future research can use unlimited nominations to obtain adolescents' friendship networks (Veenstra et al., 2013).

Second, we focused on best friendship processes within classrooms, which may not capture complete social networks in adolescence. Future research might examine the impact of friends from various contexts (e.g., grade-mates and out-of-school friends), as well as potential differences in friendship influence depending on the quality of the friendships. The protective effect of friendships against (victimization-related) depression may depend on friendship quality and friendship stability (Bernasco et al., 2022).

Third, although social network analysis offers the advantage of disentangling selection and influence effects, it is not able to handle continuous variables, and converting continuous variables into categorical variables may lead to a loss of some information. It would be highly valuable if the investigation of the research questions were replicated using different analytic procedures and samples: for example, instead of the entire network, future research might focus on only the victimized or depressed youth's friendship network.

Fourth, classroom supportive norms were based on a continuous measure, and our categorization may have left out important information by grouping them into high, moderate, and low supportive norms. This was necessary to analyze our complex questions and is in line with previous work (Lanina-Wijnen et al., 2017). Future work could consider the classroom norm as a class-level variable in the longitudinal social network analysis.

Fifth, we included gender as a control variable but did not examine whether selection and influence processes differ for boys and girls. We also did not examine whether these processes differ for cross-gender and same-gender friendships (see for an exemplary study: Hsiao et al., 2019). These would be interesting avenues for further research. Another avenue for further research may be to examine how students' social position (e.g., perceived popularity) would be a mechanism by which friends' characteristics (e.g., depression) would influence adolescents' victimization. In addition, this study only focused on the interactions between adolescents and friends experiencing the same vulnerability. Future study can extend to the cross-domain interaction between adolescents and friends experiencing different vulnerabilities.

Last, caution is necessary when interpreting the results given the relatively small numbers at the classroom level, the small coefficients, and the fact that effect sizes cannot be calculated using RSiena analyses. However, our findings were in line with those of several other studies which used other analytical methods (e.g., Schacter & Juvonen, 2017) or social network analysis (Veenstra & Huitsing, 2021).

CONCLUSIONS AND PRACTICAL IMPLICATIONS

Having vulnerable friends can both hurt and help vulnerable adolescents in Chinese middle school. Socially and emotionally vulnerable friends pose a *social risk* to vulnerable adolescents by increasing their likelihood of becoming victimized. At the same time, victimized friends may provide victimized adolescents with *emotional* benefits by diminishing their depressive symptoms over time. These processes vary across classrooms, depending on supportive norms: when supportive norms are higher, depressive youth with depressive friends are

more likely to increase in victimization, whereas victimized youth with victimized friends are more likely to decrease in depressive symptoms.

The current findings present an interesting paradox—when victims are friends with other victims, they feel less depressed but are more likely to be the target of continued victimization; this is challenging for social interventions. Grouping high-risk individuals together (e.g., victimized and depressed students) and encouraging them to share their experiences of mistreatment and depressed thoughts, through the shared plight, may help vulnerable students and their friends to alleviate their distress. At the same time, teachers' attunement (Marucci et al., 2021) should be induced in the group with vulnerable students to protect them from being the target of bullying. The teachers' role could be particularly important in the intervention program in the Chinese culture, because Chinese children are required to respect and obey adults or authority, especially their teachers (Chen et al., 2019).

Our findings suggest that having supportive friendships or being in a generally supportive classroom may not be enough and can sometimes even work adversely for some adolescents. Suffering from depressive symptoms and clustering with depressive friends may put adolescents at risk for victimization, particularly in supportive classrooms. Therefore, for social interventions in Chinese middle schools, it may not be sufficient only to take a whole-classroom approach when improving the classroom environment: a targeted approach may be needed that focuses on the most vulnerable students, who may be at extra risk of becoming victimized. If interventions succeed in diminishing the depressive symptoms of these adolescents, they may become more open to relating to other classmates and benefit from the supportive environment around them. At the same time, norm-related victimization should be combatted in such classrooms: not every student may be able to conform to highly prosocial norms, and interventions may need to make classmates more tolerant of such students. More knowledge of the underlying mechanisms of why vulnerable friends and classroom supportive norms may help or hurt vulnerable adolescents will be key to further improving interventions.

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2/1, 9712 TS Groningen, The Netherlands; or Ping Ren, Beijing Normal University, No.19 Xijiekouwai Street, Beijing 100875, China.

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DATA AVAILABILITY STATEMENT

Data, code, and materials are available from the first author upon reasonable request.


ORCID

Xingna Qin  <https://orcid.org/0000-0002-3662-8348>

Lydia Laninga-Wijnen  <https://orcid.org/0000-0001-6158-8950>

Christian Steglich  <https://orcid.org/0000-0002-9097-0873>

Yunyun Zhang  <https://orcid.org/0000-0002-3898-539X>

Ping Ren  <https://orcid.org/0000-0002-0035-1041>

René Veenstra  <https://orcid.org/0000-0001-6686-6307>

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SUPPORTING INFORMATION

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