Social Integration in Youth: Insights from a Social Network Perspective

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Abstract

Research repeatedly demonstrates the detrimental consequences of social isolation, but little is known of why adolescents lack social integration. Therefore, the present study uses social network analyses to take a unique look at adolescents' degree of integration. A total of 317 seventh through ninth graders (13.7 years, 162 girls) out of 18 classes reported friendship patterns and their respective class teachers provided information on students' social skills. Results showed that social-skill indicators improve with higher categories of integration. Furthermore, in two-level-random-intercept models (L1: adolescents, L2: peer groups) indicators of social skills predicted the degree of integration each adolescent had on both, the individual and the contextual level. Findings support the importance of adaptive peer relationships, because the degree to which adolescents are socially integrated in class is not merely related to their own but also to their friends social-psychological constitution.

Keywords: Social integration, Social network analysis, Peer relationships, Adolescence, Social skills

Social Integration in Youth: Insights from a Social Network Perspective

Human beings are social beings, driven by an interpersonal desire to be connected with other people, and motivated by a fundamental need to belong (Baumeister & Leary, 1995). Especially in adolescence, much importance is attached to peers and functioning peer relationships (LaFontana & Cillessen, 2009), because they provide benefit, support, and resources (Gilman, Schonfeld, & Carboni, 2009). In this respect, school is the most important social context, wherein adolescents establish and maintain connections to and friendships with peers (Steinberg, 1993). However, the degree to which students are integrated varies and in the worst case, they are socially isolated from their peers.

The lack of social integration is defined as low frequencies of peer interaction and differs conceptually from low levels of peer acceptance (Gottman, 1977; Margolin, 2007; Qualter & Munn, 2003). That is, this study does not focus on adolescents who are rejected, but on those who are ignored by peers which is, as a form of ostracism, suspected to be common in adolescent peer interaction (Williams, 2001). In contrast to traditional concepts of school-related victimization such as bullying (Olweus, 1993) or peer-rejection (Asher & Coie, 1990), isolated adolescents do not get any attention from others, not even the harmful kind from bullies (Williams & Nida, 2009).

Much progress has been made to improve our understanding of the detrimental consequences of social isolation: Several studies showed that an experimentally reduced frequency of peer interaction causes social pain (Eisenberger, Lieberman, & Williams, 2003), contradicts fundamental human needs (Zadro, Williams, & Richardson, 2004), and leads to various problematic forms of internalized or externalized behavioral reactions (Twenge, Baumeister, Tice, & Stucke, 2001; Twenge, Catanese, & Baumeister, 2003). Moreover, longitudinal research suggests that social isolation even affects our physical well-being (Caspi, Harrington, Moffitt, Milne, & Poulton, 2006).

While much is known about the negative impact of social isolation, only a few studies shed light on the reasons why adolescents lack social integration, partly because of methodological problems in measuring this construct (Marangoni & Ickes, 1989). In general, the existing empirical evidence supports the social skill deficit framework (as reviewed in Farmer, Pearl, & Van Acker, 1996) in the way that less integrated adolescents lack either appropriate social skills as they are required within successful peer interactions (Coie, Dodge, & Kupersmidt, 1990; Margolin, 2007) or contextual opportunities to acquire those social skills due to their less integrated status (Parker & Asher, 1987; Stormshak, Bierman, Bruschi, Dodge, & Coie, 1999). Unfortunately, to our knowledge, studies combining individual and contextual factors in explaining lacking social integration are deficient.

Social Integration from a Social Network Perspective

A common limitation in research on social integration and the lack thereof refers to the psychometric property of self-reported measures (Marangoni & Ickes, 1989) or the ecological validity of experimental paradigms (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007). One alternative way of measuring social integration is to use social network analyses (SNA). This methodological approach provides a way to precisely investigate real-life social integration by examining aggregated dyadic data and the influence of direct as well as indirect peer affiliations in a complete network system such as a school class. As SNA reaches beyond close friendship patterns by considering relationships within the larger peer network system (e.g. Gest, Farmer, Cairns, & Xie, 2003), it is characterized by a greater degree of accuracy. In contrast to the restriction of friendship dyads, SNA additionally considers indirect and complementary peer connections. For example, some peers may not form best friends, but they can create secondary friendships within a larger network and receive comparable peer support. Misleadingly, those adolescents would be labeled as isolated by using dyadic forms of analyses, whereas SNA takes more information into account and creates a more valid picture. Over the last years, researchers increasingly recognize the methodological value of

SNA and successfully apply advanced techniques to examine peer relationships in youth (Espelage, Green, & Wasserman, 2007; Light & Dishion, 2007; Veenstra, Lindenberg, Munniksma, & Dijkstra, 2010). However, despite the progress in this field and the potential of SNA for providing unique information concerning peer interactions, a social network perspective has rarely been used to investigate adolescents' degree of integration (Gilman et al., 2009).

A second limitation in this field of research is the restriction to processes on the individual level. However, social integration is also based on complex group processes and needs to be analyzed in accordance with its contextual influences. Moreover, data on the individual level are not completely independent from each other. Within the school class, social selection processes result in peer groups that consist of similar others and within these peer groups, social influence processes, in turn, shape each group member's attitudes and behaviors (McPherson, Smith-Lovin, & Cook, 2001). Consequently, adolescents within a peer group are more similar to each other than adolescents between peer groups. By means of SNA that illuminates the latent peer group structure and in combination with multilevel modeling (Raudenbush & Bryk, 2002) that adequately accounts for the nested data structure (adolescents as units of peer groups), we are also able to address this second limitation and simultaneously consider individual and contextual effects.

Objectives and Hypotheses

This study uses social network analyses to take a unique look at adolescents' degree of integration and explains their social status within a multilevel framework. Therewith, we aim to detect risk factors differentiating between isolated adolescents and their integrated peers. Based on the social skill deficit framework, we will explore aspects of social skills in their relation to social integration. For this purpose, the current study covers a broad range of indicators assessing social skills as well as related factors indicating the quality of social interactions, such as peer popularity and relational aggression. Especially relational

aggression was found to be of high value in predicting the social position among peers (Neal, 2010), much more than overt aggression (Cillessen & Mayeux, 2004). This comprehensive approach and the simultaneous consideration of individual and contextual effects enables us to find a differentiated social-skill pattern that underlies mechanisms of social integration in youth. The following hypotheses will be tested:

1. Social isolation is a ubiquitous phenomenon in school classes.
2. Socially integrated adolescents have higher social skills, are more popular, and score lower on relational aggression compared to their less integrated peers.
3. Social integration is explained by predictors on both, the individual and the contextual level.

Method

Sample

Two schools from two large German cities voluntarily participated in an intervention program which focused on preventing bullying and promoting social competencies. The first data collection (prior to the intervention) of a two-wave evaluation study was reanalyzed for the purpose of the study (see Bull, Schultze, & Scheithauer, 2009).¹ Out of the 18 initially approached secondary school classes, we received from all but 16 students parental consent to participate in the evaluation study. Of these 354 adolescents, completed data were available for 317 participants (162 girls; 155 boys), which ranged from grade seven to grade nine with an average age of 13.7 years ($SD = 1.4$). Most participants were Germans (72%) and those with foreign background were predominantly of Turkish descent. As it is not acceptable in Germany to ask students about their ethnicity, no exact information are available in this regard. However, the vast majority of German students are of Caucasian ethnicity.

Note that in German school up to grade ten students spent most of their classes with the same classmates in a designated classroom with teachers rotating from classroom to classroom. Therefore, the classroom creates a strong social network. Although friendships

between students from different classrooms occur, they are structurally limited in the time they can spend together during a regular school day.

Measures

Data were collected with a standardized student questionnaire, which was administered by trained personnel during regular class period. Homeroom teachers completed a separate teacher questionnaire. All scales that were not of German origin were translated, retranslated and checked for discrepancies by native speakers.

Social integration. A suitable form of measuring integration from a social network perspective represents the social cognitive mapping (Cairns, Cairns, Neckerman, Gest, & Gariépy, 1988), which was applied to and validated within the context of school classes (Gest et al., 2003; Kindermann & Skinner, 2009; Rodkin, Wilson, & Ahn, 2007). In particular, its mechanism is designed to study peer connections in networks, whose quantity is comparable to the usual school class size of 20 to 30 adolescents. Using this peer-report technique, participants named all peer groups in their class, which they were able to recall by providing grouped lists of student names, e.g. Amy, Sarah, and Britney. With a class roster that listed all classmates, participants were prompted to name groups of which they are members as well as groups they do not belong to.

These reported friendship patterns presented the basis for the SNA as they allowed to extract all peer groups within the class and to calculate two central outcomes for social integration. First, SCM specified a discrete criterion of each participant's integration within his or her peer group and, in turn, each group's integration within the class by using three categories: Nuclear integration (the upper 30% within the range of group-membership nominations), secondary integration (the following 40% within this range), and peripheral integration (the lowest 30% within this range). An additional category on the individual level presented social isolation, to which persons were assigned without any group membership. Second, a continuous criterion of social integration, the number of group-membership

nominations each person received from his or her classmates in percentage to the total number of group-membership nominations in each class indicated students' degree of social integration. The two criteria were highly correlated, $\tau(315) = .71$; $p < .01$.

Social skills. Based on the observed behavior over the last months, teachers evaluated their students on the Strength and Difficulties Questionnaire (SDQ; Goodman, 1997; German translation: Klasen et al., 2000) using a three-point scale (0 = *not true*, 1 = *somewhat true*, 2 = *certainly true*). Four different subscales with five items each assessed different domains of social-psychological difficulties (emotional symptoms, conduct problems, hyperactivity, and peer problems). The sum of these items equaled a total difficulties score, whose recoded value presented the indicator of social skills with a reliability of Cronbach's $\alpha = .83$.

Peer popularity. Peer nominations were used to determine the degree of popularity. Participants nominated an open-end number of peers they like and peers they dislike. A score was computed by subtracting the number of negative nominations from the number of positive nominations which, in turn, was divided by the number of classmates. Peer-popularity scores ranged from -1 (*highly disliked*) to 1 (*highly liked*) with a mean score of .04 ($SD = .24$).

Relational aggression. Teachers reported students' expression of relational aggression utilizing the Children's Social Behavior Scale - Teacher Form (CSBS-T; Crick & Grotpeter, 1995; German translation: Bull & Scheithauer, 2006). On five items, teachers rated the frequency of observed relationally aggressive acts for each student using a five-point scale (from 1 = *never* to 5 = *very often*). The mean score presented the scale relational aggression with a reliability of Cronbach's $\alpha = .94$.

Statistical Analyses

We performed SNA utilizing social cognitive mapping (SCM 4.0). Self nominations for a given group were ignored and a cut-off score of one was applied, so that participants needed at least two peer nominations in order to be assigned to a specific group. If an

adolescent had a multigroup membership, which was the case for eight participants (2.5%), only the stronger group membership was considered for the analyses lest a student is not counted twice.

In a first step, categories of social integration were analyzed with respect to differences in social skills, peer-popularity, and relational aggression. In a second step, we used multilevel modeling (Raudenbush & Bryk, 2002; Raudenbush, Bryk, Cheong, & Congdon, 2004) to simultaneously consider individual and contextual influences and to adequately account for the nested data structure (adolescents nested within peer groups). A two-level-random-intercept model predicted the continuous criterion of social integration using individual variables as predictors on level 1 (individual level) and group-aggregated variables as predictors on level 2 (contextual level). All predictors besides sex were z-standardized, separately on each level, and added as uncentered variables in HLM. Models were estimated by full information maximum likelihood (FIML).

Results

Social Network Analyses

Based on the overall number of 2.049 peer nominations (per class: $M = 114.94$, $SD = 37.33$), SNA extracted 85 peer groups including 276 adolescents. The remaining 41 cases (13%) that did not belong to any of the extracted groups were identified as socially isolated. Isolated students were found in 16 out of 18 classes with an average of 2.28 isolates per class ($SD = 1.76$). Isolates were balanced across different grades, with 11% in grade 7, 14% in grade 8, and 14% in grade 9. Their average age ($M = 13.85$, $SD = 1.42$) was almost identical compared to the mean age of the overall sample, and the gender proportion was nearly equally distributed by slightly favoring girls (boys = 12%, girls = 14%).

Considering the discrete criterion of social integration we found a ceiling effect as most adolescents were nuclear integrated within their peer group (68%) and most peer groups, in turn, were nuclear integrated within their class (63%). Therefore, to conduct meaningful

group comparisons, we had to perform the following classification in categories: (a) nuclear integrated adolescents, who are nuclear integrated members of nuclear integrated peer group ($n = 156$; 49%); (b) less integrated adolescents, who are neither nuclear integrated nor isolated ($n = 120$, 38%); and (c) socially isolated adolescents, who are not integrated in any peer group ($n = 41$, 13%). Analyses of this discrete criterion will be presented in the following part of the result section. The continuous criterion, the number of group-membership nominations each adolescent received from his or her classmates in percentage to the total number of group-membership nominations in each class, had a mean score of 14.62 ($SD = 8.96$). Results regarding this continuous criterion will be presented in the final part of this section.

Differentiating Categories of Social Integration

Table 1 presents all indicators broken down by categories of social integration. Except for relational aggression, the group differences followed the expected pattern: Nuclear integrated adolescents scored higher on social skills and were more popular than their less integrated peers, which, in turn, differed in the same way on these factors from the socially isolated adolescents.

Insert table 1 about here

MANOVA revealed significant differences regarding social skills and peer popularity, whereas relational aggression was unrelated to categories of social integration. Post-hoc comparisons (Scheffé) indicated that nuclear integrated and socially isolated adolescents significantly differed on social skills and on peer popularity. Significant group differences between nuclear and less integrated adolescents were restricted to social skills, and between less integrated and isolated adolescents to peer popularity.

Predicting the Degree of Social Integration

In the multilevel modeling, indicators were used as predictors of the degree of social integration and the corresponding group-aggregated variables (across all members of the peer group) as level two predictors. Inevitably, isolated students created a “one-student group”

with identical predictor variables on both levels. In order to demonstrate the robustness of the effects as a function of the data nestedness, we ran two parallel sets of analyses. The first set of models considered all individuals including social isolates ($N = 317$ on level 1, $N = 126$ on level 2), whereas the second set of models considered only adolescents who were part of a peer group ($N = 276$ on level 1, $N = 85$ on level 2).² Both sets, with and without isolates, included three models: First, the unconditional model without predictors, followed by the individual predictor model with all level-one predictors (social skills, popularity, and relational aggression as well as age and sex as control), and finally the contextual model with all level-two predictors (all corresponding aggregated indicators as well as peer group size as control). The results of the multilevel analyses are summarized in table 2.

Insert table 2 about here

Model 1 and 1b estimated the unconditional model to calculate the percentage of variance attributable to the individual level compared to the variance at the group level. For the set of models with and without isolates the intra-class coefficient (ICC) was 0.71 and 0.63, respectively. That is, roughly two third of the variance of social integration was on the group level compared to one third of the variance on the individual level. Moreover, the variance between differed significantly from zero in both sets of models, $\chi^2(125) = 962.54, p < .001$ and $\chi^2(84) = 593.22, p < .001$, respectively. This substantial proportion of variance between groups indicates that peer groups can be characterized by the average level of integration of their members. In fact, the peer group with the lowest average integration coefficient (4.00) scored only slightly higher than the average integration coefficient of all isolated ($M = 2.64, SD = 3.07$).

Model 2 revealed significant relationships between social integration and social skills, popularity, and relational aggression, when controlling for age and sex. Including group-level predictors in model 3 yielded no contextual effects for popularity and relational aggression, whose effects remained stable on the individual level. In contrast, model 3 revealed a

significant association between social integration and the group-aggregated social skill score which, in comparison to model 2, renders this effect on the individual level, even when controlling for the size of the peer group. Moreover, adding the interaction term 'peer group size x social skills' in a post-hoc analysis revealed a non-significant interaction ($p = .62$), which additionally demonstrated the robustness of this contextual effect. Deviance comparisons proved a significant fit improvement from model 2 to model 3, $\chi^2(4) = 46.76$, $p < .001$, indicating the incremental effect of the contextual model in predicting social integration. Finally, the right panel on table 2 (model 1b, 2b, 3b) illustrates that the findings are stable and that the overall results remained the same, even after removing the isolated from the analysis.

Discussion

The primary purpose of this study was to identify antecedences of social isolation and the level of social integration in adolescence by taking into account the informal nature of peer groups. The main findings of this study refer to the prevalence of social isolation, the individual risks of lacking social integration, and the importance of both, individual and contextual effects.

Prevalence of Social Isolation

Social isolation was measured in this study indirectly and overcame limitations in self reports, such as social desirability or the ability and willingness to report about isolation, which led to contradictory findings in previous studies (Qualter & Munn, 2003). The high amount of generated network information allowed to uncover direct and complementary peer relationships, to identify social isolates with high accuracy, and to reveal a comprehensive picture of the entire social system. Given its advanced validity in contrast to self reports, SNA allows the interpretation of prevalence rates for social isolation. The current study revealed that social isolation has a low prevalence and most students are well integrated in class with a sufficient access for peer support. However, on average two adolescents are socially isolated in each class and rates of isolation were equally distributed across grades, age and gender.

These findings build on previous research suggesting a high and stable occurrence of persons being left out (Williams, 2001), and provide objectively precise prevalence rates for social isolation. In sum, the frequency and demographics of isolated adolescents demonstrates that social isolation is the expected ubiquitous phenomenon that comparably occurs in all subpopulation with an average prevalence rate roughly above 10%.

Risk Factors of lacking Social Integration

The utilization of peer nominations for establishing social networks in combination with teacher reports for assessing social skills and relational aggression reduced shared method variance within the current studies risk-factor analyses. Findings suggest that social isolation is not a phenomenon of the average student. In accordance with the social skill deficit framework, isolates are not only less popular compared to nuclear and less integrated classmates, but tend to lack social skills as lower categories of integration were characterized by an decreased social-skill pattern.

While these group comparisons provide initial insights, they do not consider that an adolescent can be part of a peer group without having a high social integration. Being peripheral integrated at the fringe of the network confronts adolescents with quite similar problems as being completely isolated, namely having a lack of benefit, support, and resources from his or her peers. Importantly, these group comparisons were confirmed with the individual model in HLM that predicted a continuous criterion. Across different analyses, social skills and popularity were positively associated with the degree of social integration.

In contrast, the picture becomes more complicated with relational aggression. At first glance, the positive effect of relational aggression contradicts the idea that social integration is associated with higher social skills. However, research suggests that aggression and social status do not necessarily contradict each other, because aggressive children can be perceived as cool, powerful, and popular (Rodkin, Farmer, Pearl, & Van Acker, 2006). This finding may be based on the fact that relational aggression is used by integrated adolescents as a tool to

maintain their social status. As Janicik and Larrick (2005) argue, people within a network possess the knowledge about where the missing and present relations are located and students may use this network knowledge to their own advantage. Alternatively, relational aggression may be an adaptive strategy of group regulation (Brewer, 2005; Stormshak et al., 1999) and represents a consequential behavior of integrated adolescents to peers that were exhibiting contra-normative behavior, resulting in a loss of their social status.

Taken together, these results suggest that becoming part of a peer group and staying integrated is an active process which some adolescence are psychologically better equipped for than others. However, in contrast, the contextual model in HLM indicates that social skills are related to social integration as long as one merely considers the individual level. Build on previous research that emphasized the role of contextual factors (Farmer et al., 1996; Parker & Asher, 1987; Salmivalli, 2010; Stormshak et al., 1999), this study provided initial insights in illuminating contextual influences beyond the individual perspective, which indicates the serious consequences when researchers ignore the group dynamics.

Taking the Group Dynamic into Account

While it is most likely that peer groups form, among others, on similarity in psychological characteristics (McPherson et al., 2001), it is not surprising that individual effects are in part eclipsed when peer group characteristics are taken into account. Results demonstrated that the degree to which adolescents are integrated in class is not merely related to their own social skills, but also to the collective scores of the peer group they are embedded in. This global result was robust, even after controlling for the peer group size, their interaction with social skills and no matter whether we considered or disregarded social isolates in our models. Findings indicate the compensatory and protective role of peer groups: An adolescent with low social skills lacks not necessarily social integration as long as his or her friends possess high social skills, who buffer the individual at risk. On the other hand, less

integrated adolescents either are members of peer groups with low social skills or—in the extreme form as isolates—do not have any compensatory peers.

In sum, the degree to which adolescents are integrated within the entire network of their class can be traced back to their own popularity and relational aggression as well as to their friends' social skills. These results support the two perspectives of the social skill deficit framework and the transactional causality between social skills and social integration, as the complex interplay of both, individual abilities and contextual opportunities determines youth's degree of integration.

These findings implicate that social isolation is “treatable” in school, if students have learning opportunities to improve their social skills. However, in accordance with the uncovered contextual effects, it is not enough to address this issue on the individual level and intervention strategies have to be designed and implemented in a way that peer groups are considered as units of intervention. For instance, programs have to take into account the social norms on the group level which influence adolescents' attitudes, such as acceptance of aggression or empathy for isolates, and consequently shape their behavior. Additionally, interventions should address the overall sense of belongingness. Especially decentralized networks with a high density will prevent the occurrence of social isolation, because alternative connections exist.

Limitation and Outlook

A challenge for ongoing studies is to analyze social networks longitudinally. In the present study, SNA are snap-shots of a current social system, although networks are rather dynamic systems than stable compositions (Knoke & Yang, 2008). Explaining the fluctuation of network positions will improve our understanding of the peer-group generation, of why specific persons enter a specific peer group, and especially how isolated becoming banished to the fringes of a social network. Longitudinal network studies are also needed if one might to solve the chicken-egg problem concerning the causality of social integration and social

skills or the ambivalent role of relational aggression in its relation to social integration. Our approach to predict social integration on the individual and group level neglects the specific environment. From a multilevel perspective, it would be interesting to additionally consider the class level. Unfortunately, as we conducted class-specific SNA, a third level would merely add “white noise”, because of nonexistent variance in class integration on the class level.

Whereas previous studies primarily focused on examining the effects of lacking social integration, the novel social network and multilevel perspective yielded several interesting results concerning individual and contextual risk factors of less integration. We look forward to upcoming studies with larger samples and technical improved network analyses which replicate these results or challenge the outlined research questions that still remain unanswered or arose anew.

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Footnotes

¹The intervention program between both measurements aims to prevent bullying and to foster the development of social competence. That is, the program objectives contains increasing students' awareness and understanding of social roles, strengthening the class climate, and improving the overall density within the class. In sum, one crucial component of the intervention was to alter the social structure of the examined networks. Therefore, a longitudinal analysis provides less valuable insights for the present research question, as developmental changes within the networks are confounded with the desired intervention effect.

²The design-based necessity to analyze many small clusters is common in research, but can produce statistical problems under certain conditions. However, in the present study the small number of cases per level-2 unit is unproblematic due to the little within-group variance and our primary interest of studying fixed effects (Raudenbush, 2008), which are estimated without any bias in linear two-level models in spite of a small cluster size (Clarke, 2008).

Table 1

Means for Categories of Social Integration

	Nuclear		Less		Socially		MANOVA
	integrated		integrated		Isolated		Overall Test
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i> (2, 314)
Social skills ¹	32.00	5.29	29.64	6.53	27.64	6.71	10.83***
Peer popularity ²	0.10	0.20	0.04	0.22	- 0.14	0.31	19.13***
Relational aggression ³	1.89	0.87	1.98	0.95	1.85	0.82	0.46

Note. ¹Range: 1 – 40, ²Range: -1 – 1, ³Range: 1 – 5

*** $p < .001$

Table 2

Predicting the Degree of Social Integration

	With Isolates ¹						Without Isolates ²					
	Model 1			Model 2			Model 3			Model 1b		
	<i>B</i>	<i>p</i>	<i>SE</i>	<i>B</i>	<i>p</i>	<i>SE</i>	<i>B</i>	<i>p</i>	<i>SE</i>	<i>B</i>	<i>p</i>	<i>SE</i>
<i>L1: Individual level</i>												
Age	1.56	**	0.49	2.08	***	0.43				2.05	***	0.51
Sex ³	-1.97	*	0.97	-2.07	*	0.90				-1.84		0.96
Social skills	0.88	*	0.38	0.32		0.51				0.77	*	0.40
Popularity	2.36	***	0.41	2.02	***	0.57				1.78	***	0.42
Relational aggression	1.22	**	0.41	1.00	*	0.48				1.16	**	0.42
<i>L2: Contextual level</i>												
Peer group size							3.88	***	0.65			
Social skills ⁴							1.39	*	0.83			
Popularity ⁴							-0.71		0.85			
Relational aggression ⁴							0.03		0.81			

Var (<i>R</i>)	23.83	22.31	21.53	23.78	22.41	22.40
Var (<i>Uo</i>)	58.00	39.03	25.71	40.63	27.39	23.82
Deviance (df)	2134 (3)	2080 (8)	2033 (12)	1813 (3)	1773 (8)	1764 (12)

Note. ¹N = 317 students on Level 1, N = 126 peer groups on Level 2; ²N = 276 students on Level 1, N = 85 peer groups on Level 2; ³Sex is coded as 0 = boys and 1 = girls; ⁴aggregated scores. All predictors besides sex are z-standardized and added as uncentered variables in HLM.

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