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# Peer Victimization, Self-esteem, and Ego Resilience Types in Adolescents: A Prospective Analysis of Person-context Interactions

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## Abstract

*This study examined bidirectional, longitudinal associations between peer victimisation and self-esteem in adolescents, and tested for moderator effects of undercontrolling, overcontrolling, and ego-resilient personality types in these associations. Data were used from 774 adolescents ages 11–16 years who participated in a three-wave (i.e., 2005, 2006, and 2007) longitudinal study. Structural equation modelling analyses in Mplus demonstrated that, controlling for earlier levels of self-esteem, self-reported peer victimization was associated with lower self-esteem across one-year time intervals. Vice versa, however, low self-esteem was not predictive of subsequent self-reported victimization. Evidence was also found for a moderator effect of personality type on the longitudinal associations between self-esteem and victimization. Only in the subgroup of overcontrolling adolescents was lower self-esteem related to subsequently higher levels of peer victimization; their undercontrolling and ego-resilient peers were unaffected.*

*Keywords:* Peer victimization; self-esteem; person-context interactions; longitudinal

## Introduction

Adolescents' peer relations can be seen as predictors of both concurrent and future psychosocial development (Egan & Perry, 1998), and peer relationships are widely considered to be the primary context for healthy social-emotional development (Veenstra, Lindenberg, Oldehinkel, Winter, Verhulst, & Ormel, 2005). Not surprisingly, then,

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many studies on peer victimization have focused on the possible negative associations with adolescents' self-esteem. Overall, consistent results have been reported (for a review see Hawker & Boulton, 2000), in that victimised adolescents report lower self-esteem than their non-victimised peers—with correlations between measures of peer victimization and low self-esteem varying from .32 to .39 ( $p < .001$ ). The explanation that is put forward for this link is that peer victimization may result in lowered feelings of self-worth because it communicates negative appraisals of how a victim is considered by peers (Lopez & DuBois, 2005). Victims might incorporate harmful opinions into their self-concept, leading to a devaluation of their self-esteem and further social withdrawal from peers (Salmivalli, Kaukiainen, Kaistaniemi, & Lagerspetz, 1999).

Although at first sight this theoretical mechanism may appear valid, not many empirical studies have been able to provide clear evidence in favour of it. Specifically, previous studies have very often examined cross-sectional instead of longitudinal links (Hawker & Boulton, 2000), and hardly any study has investigated the bidirectional-longitudinal associations between self-esteem and peer victimization. Furthermore, most studies on this topic have focused on children without replicating the findings in adolescent samples. In this study, therefore, we set out to examine bidirectional associations between self-esteem and peer victimization in a sample of early and middle adolescents. Taking a person-oriented approach, moreover, we explored the moderator role of undercontrol, overcontrol, and ego-resilient personality types as moderators in these links—as we assumed that peer victimization puts some youths more at risk for low self-esteem than others.

### *Reciprocity between Self-esteem and Peer Victimization*

Studies concerning the linkages between self-esteem and peer victimization have consistently shown that adolescents with low self-esteem are more frequently victimised than are adolescents with high self-esteem (Egan & Perry, 1998; Grills & Ollendick, 2002). An explanation for this predictive relationship could be that adolescents with feelings of low self-esteem attract negative attention from peers, provoking specific bullying behaviours from others (Kaltiala-Heino, Rimpelä, Marttunen, Rimpelä, & Rantanen, 1999; Olweus, 1992). These adolescents' behaviours may signal feelings of insignificance and cautiousness, implying they will not retaliate when offended (Olweus, 1992). Such self-deprecating behaviours could be interpreted as an invitation to more bullying behaviours from peers (Egan & Perry, 1998). In addition, adolescents with low self-esteem are actually less capable in executing organised counter-attacks (Hodges & Perry, 1999). Low self-esteem might thus interfere with victims' capacities to defend themselves effectively, encouraging bullies to attack. Thus, a lack of certain social assertive skills in adolescents with low self-esteem might play a role in being victimised (Salmivalli et al., 1999).

Results from the few longitudinal studies that have focused on self-esteem and victimization in children indicate that peer victimization and low self-esteem operate as mutually reinforcing systems (Hodges & Perry, 1999). Peer victimization might thus be influenced by, and contribute to, children's self-esteem. It seems that a 'causal circle' may develop in which, on the one hand, low self-esteem triggers bullying behaviour in peers, and, on the other hand, this victimization leads to lower levels of self-esteem. Indeed, previous longitudinal research has shown that children who are bullied by their classmates subsequently report lower levels of self-esteem (Egan & Perry, 1998; Grills

& Ollendick, 2002). In accordance with these findings, in our present study, we expect to find bidirectional, cross-lagged longitudinal associations between peer victimization and low self-esteem in adolescents.

*Person-context Interactions: Ego Resilience, Undercontrol, and Overcontrol*

Personality factors are recognised as important contributors in the impact of stressors on emotional (mal)adjustment. A growing body of evidence indicates that child characteristics like personality may moderate—buffer or exacerbate—the relationship between peer victimization and low self-esteem (Hart, Atkins, & Fegly, 2003; Smith, 2004). Thus, peer victimization is unlikely to affect all youths in exactly the same way. Personality, in general, is defined as people's tendencies to behave, think, and feel in certain, consistent ways (Shiner & Caspi, 2003). The big five model is one of the most accepted personality classifications and includes the following concepts: neuroticism—the opposite of emotional stability—which describes the extent to which the world is perceived as distressing; extraversion, which refers to the amount of engaging or avoiding the social environment; conscientiousness, describing the degree and strength of goal-directed behaviour and impulse control; agreeableness, which captures people's interpersonal nature on a continuum from warmth to antagonism; and openness, reflecting the complexity and specific nature of one's mental and experiential life.

Based on these five personality dimensions, three personality types have consistently been identified across different cultures, judges, and ages (e.g., Akse, Hale, Engels, Raaijmakers, & Meeus, 2004; Hart, Hofmann, Edelstein, & Keller, 1997; Scholte, Van Lieshout, De Wit, & Van Aken, 2005). Resilient adolescents generally have a favourable personality constellation with respect to the big five, scoring high on the dimensions openness, extraversion, conscientiousness, and agreeableness—but low on neuroticism (Hart et al., 1997; Van Lieshout, Van Aken, & Scholte, 1998). Overcontrollers commonly manifest low extraversion and high neuroticism, whereas undercontrollers manifest high extraversion and low scores on agreeableness and conscientiousness (Asendorpf & Van Aken, 1999; Van Leeuwen, Mervielde, Braet, & Bosmans, 2004a). These personality types can be described in terms of ego-control and ego-resilience. Overcontrollers score high on ego-control and are likely to suppress their impulses, needs and feelings (Van Lieshout et al., 1998), whereas undercontrollers are incapable of a sufficient modulation of their impulses. Resilient persons are generally characterised by responding flexibly and resourcefully to changing situational demands and thus have a high ego-resilience.

In the present study, we examine the effect of ego-resilience-based personality subtypes on the longitudinal associations between peer victimization and low self-esteem. To our knowledge, no previous research has examined potential moderator effects of ego-resilience subtypes of adolescents with regard to the association between self-esteem and peer victimization. In a previous study, however, Van Leeuwen, Van de Fruyt and Mervielde (2004b) found evidence for moderator effects of personality types on the relationship between parental control and adolescents' externalising behaviours. When we apply the Van Leeuwen, Van de Fruyt et al. findings to our present study, we expect the cross-lagged associations between peer victimization and self-esteem to be significant for overcontrollers, but not for undercontrollers and ego-resilients. The high levels of neuroticism in the former type may reduce one's ability to cope resourcefully, and in an assertive manner, with peer victimization, which could exacerbate the feelings of low self-worth (Weir & Gjerde, 2002). Resilient youths, in contrast, are

assumed to be resourceful problem solvers, and therefore, capable of adequately and effectively coping with peer victimization (Van Lieshout et al., 1998). Undercontrollers, although scoring relatively high on neuroticism, are expected to 'act out' when victimised and to externalise rather than internalise any social stress (Van Leeuwen, et al., 2004a,b).

As for the cross-lagged associations from low self-esteem to peer victimization, we hypothesise that especially overcontrollers are likely to evoke bullying behaviours from their peers—because of their tendency towards internalisation and their limited capacity to manifest assertive social behaviour in contacts with peers (Salmivalli et al., 1999). Their undercontrolling and ego-resilient peers with low self-esteem might be less easy targets for peer victimization because they do not tend to internalise to a great extent and—especially undercontrollers—are less inclined to suppress their impulses (Van Lieshout et al., 1998) and are thus more likely to retaliate when being bullied.

## **Method**

### *Sample and Procedure*

We used a stratified sampling procedure to attain the sample for the SODA (i.e., *S*ocial Development of *A*dolescents) study at T<sub>1</sub>. Firstly, we selected 28 high schools in a 100-kilometre radius around the city of Nijmegen, The Netherlands. These schools were approached to participate by sending them a letter introducing the research and making a follow-up phone call. After this first round, 23 schools decided to participate in the study (82 percent). Secondly, the research team, together with the school administrations, decided which and how many classes would be selected in each school. Thirdly, from January to March 2005, the questionnaires were administered to the adolescents by undergraduate students involved in our doctoral thesis programme. All of these students were given instructions regarding the content of the questionnaire and the administration procedure in a classroom situation. Adolescents filled in the questionnaire in their class during a regular lesson (45–50 min) at school. Both adolescents and parents were informed about the content and purpose of the study. All parents agreed in the participation of their children, but some students called in sick, and thus, missed the questionnaire assessment. In most classes, a teacher was available to assist the undergraduate in distributing the questionnaires among the students and keeping order. We explained to the adolescents they were not allowed to talk about their answers in the questionnaires with other students and guaranteed that their information would not be shared with a third party (i.e., teachers or parents). After the data collection was finished, we sent each school a research report on the social development of all participating adolescents, (without providing information that identified individual adolescents). For the T<sub>2</sub> (2006) and T<sub>3</sub> (2007) data collection, identical procedures were followed.

At T<sub>3</sub>, 19 secondary schools still participated in the study (83 percent). The main reason for schools to stop participating was that most of the students who were included at T<sub>1</sub> had graduated and left school. In most Dutch secondary schools, class composition—in terms of students following lessons together—changes quite drastically across the years. Thus, within schools we were unable to retain all T<sub>1</sub> students in the longitudinal sample, as many were transferred to other classes. The high attrition rate, then, can be explained by the school boards' active replacement of students across classes in a school year rather than students' active refusal to participate in the study.

To acquire an optimal sample size, we only included classes at T<sub>2</sub> and T<sub>3</sub> in which at least seven students were present who had also participated in the first wave. Of the 2475 students who took part at T<sub>1</sub>, 1419 (57 percent) still participated at T<sub>2</sub>, whereas 774 (31 percent) students were left at T<sub>3</sub>. The three-wave longitudinal sample consisted of 405 girls (52.3 percent) and 369 boys. Concerning the educational level, 407 students (52.7 percent) followed lower vocational education programmes, and 365 students (47.3 percent) were enrolled in middle or higher-level education programmes. At T<sub>1</sub>, adolescents' average age was 13.6 years ( $SD = .89$ ; min–max = 11–16 years). About 93 percent of the adolescents were from an indigenous Dutch background, and most adolescents (89.1 percent) came from intact, two-parent families. Logistic regression analyses with dropout as dichotomous dependent variable showed that no selective attrition occurred across the two-year time interval between T<sub>1</sub> and T<sub>3</sub> with regard to gender, age, educational level, delinquency, loneliness, self-esteem, introversion, neuroticism, and sociometric indices of being victimised or disliked.

### Measures

*Peer Victimization.* We assessed peer victimization using the Olweus (1992) self-report questionnaire. The Olweus self-report measure consists of a victimization subscale consisting of five items on a five-point scale ranging from 1 *never or not at all* to 5 *five times or more*. Adolescents were asked to give an indication of the frequency of the victimization in several ways, such as 'How often have you been bullied at school the last five days?' At each wave, in the questionnaire, we provided the participants with the exact same definition of bullying, that they could base their answers on. This definition was presented as follows: 'Almost everyone has at some time encountered bullying behaviours. Behaviour is called "bullying" when a youth or a group of youths purposely try to tease or hurt another youth, who is not able to defend him or herself well. It is called bullying when a youth is being hit, kicked, threatened, or when a youth is being neglected or isolated socially. It is NOT bullying if two youths who are equally strong are mean to each other'. Thus, all individual participants defined bullying in the same way across all time intervals. Cronbach's alpha was .68 at T<sub>1</sub>, .69 at T<sub>2</sub>, and .66 at T<sub>3</sub>. Although until now the literature lacks a thorough investigation into its psychometric properties, the Olweus questionnaire has been widely used globally. Employing this questionnaire was thus logical, in terms of acquiring sound cross-national and cross-study data comparisons.

*Self-esteem.* Self-esteem was assessed at each wave using the Rosenberg self-esteem scale, translated into Dutch by Van der Linden and Roeders (1983). Adolescents scored 10 items with regard to their self-evaluation. For instance, 'Sometimes I definitely feel useless' or 'In general I am satisfied with myself'. All items were answered on a four-point scale from 1 *does not fit me at all* to 4 *fits me well*. Cronbach's alpha was .84 at T<sub>1</sub>, .83 at T<sub>2</sub>, and .88 at T<sub>3</sub>. Support for the construct and concurrent validity of the Rosenberg self-esteem scale has been found in numerous studies (e.g., Ghaderi, 2006; Westaway, Maritz, & Golele, 2003), and test-retest reliability has been shown to be adequate (Salyers, McHugo, Cook, Razzano, Drake, & Mueser, 2001). The measure has been translated and effectively used in previous research worldwide.

*Personality Types.* Personality was measured at T<sub>1</sub> using a personality questionnaire based on the big five factor model proposed by Goldberg (1990), later reworked and

shortened for research with Dutch samples as the 'quick big five' (QBF; Gerris, Houtmans, Kwaaitaal-Roosen, Schipper, Vermulst, & Janssens, 1998). The QBF consists of 30 items that assess the big five personality dimensions—openness, conscientiousness, extraversion, agreeableness, and neuroticism—on a seven-point scale ranging from 1 *does not fit me at all* to 7 *fits me perfectly*, such as with 'withdrawn' or 'nervous' for example. Previous research has shown that the big five personality construct is applicable to adolescent populations, providing evidence in favour of the reliability and construct validity of the QBF in adolescent samples (Scholte, Van Aken, & Van Lieshout, 1997; Scholte et al., 2005). In the present study, Cronbach's alpha for the separate personality dimensions ranged from .65 to .82 at T<sub>1</sub>.

Based on a K-means cluster analysis, we found three personality types, which were identified as undercontrol, overcontrol, and ego-resilient (Robins, John, Caspi, Moffitt, & Stouthamer-Loeber, 1996; Scholte et al., 2005). The percentage of estimated variance for the three clusters was 79.9 percent. For each of the separate QBF items, an analysis of variance showed significant *F*-values for partitioning under the three clusters. Identical results were obtained for the big five personality dimensions, with *F*-values ranging from 99.28 (*df* = 2, 1322) for openness to 834.66 (*df* = 2, 1322) for extraversion. The personality clusters could be described as follows: overcontrolling adolescents not only had high scores on neuroticism and conscientiousness, but also scored relatively high on agreeableness and openness. They reported low levels of extraversion. Their undercontrolling peers also scored high on neuroticism, but had relatively low scores on conscientiousness and agreeableness, and reported average levels of extraversion and openness. Finally, the ego-resilient group of adolescents had lowest scores on neuroticism, highest scores on extraversion, scored high on conscientiousness and agreeableness, and had average scores of openness to experience.

## Results

As for the analyses, we first performed general linear modelling (GLM) repeated measures analyses, estimating within-subjects (i.e., focusing on significant mean differences across time intervals) and between-subjects (i.e., focusing on significant mean differences across gender, age, and educational level) variances in our dependent variables of peer victimization and self-esteem. Secondly, we computed Pearson correlations in order to examine bivariate associations between self-reported victimization at T<sub>1</sub>, T<sub>2</sub>, and T<sub>3</sub> on the one hand and self-esteem at these measurement waves on the other. Fisher Z-tests were then conducted to examine differences in the strength of the bivariate links for ego-resilient, overcontrolling, and undercontrolling youths.

Thirdly, we performed structural equation modelling (SEM) analyses in Mplus 4.2 (Muthén & Muthén, 1998), using a full information maximum likelihood estimation technique for handling missing data in latent variable analysis. In addition, we employed a parcelling technique (Bandalos, 2002) to decompose the original observed variables into subvariables or 'parcels'. Information on these parcels (i.e., number of items and factor loadings in the Mplus models) is presented in Table 1. The three latent variables 'peer victimization' at T<sub>1</sub>, T<sub>2</sub>, and T<sub>3</sub> each loaded on two indicator parcels, whereas the three latent variables of 'self-esteem' at T<sub>1</sub>, T<sub>2</sub>, and T<sub>3</sub> each loaded on three indicator parcels. The error variances of indicator variables for one specific construct were specified to correlate across time intervals. After specifying a baseline model, we examined whether the path from self-esteem T<sub>1</sub> to self-esteem T<sub>2</sub> was equal to the path from self-esteem T<sub>2</sub> to self-esteem T<sub>3</sub>. The same was done for autoregressive paths with

**Table 1. Factor Loadings (Lambdas) and Number of Items in SEM Parcels**

	Number of items	Standardised lambda values
Self-esteem 1a	3	.85
Self-esteem 1b	3	.81
Self-esteem 1c	4	.80
Self-esteem 2a	3	.85
Self-esteem 2b	3	.79
Self-esteem 2c	4	.78
Self-esteem 3a	3	.85
Self-esteem 3b	3	.82
Self-esteem 3c	4	.85
Peer victimization 1a	2	.69
Peer victimization 1b	3	.76
Peer victimization 2a	2	.64
Peer victimization 2b	3	.81
Peer victimization 3a	2	.61
Peer victimization 3b	3	.88

regard to peer victimization. In neither case was an increase of model chi-square observed [self-esteem:  $\Delta\chi^2(1) = .06$ , NS | peer victimization:  $\Delta\chi^2(1) = .34$ , NS]. Therefore, autoregressive paths were set equal across time intervals. Following an identical procedure, we found that the cross-lagged paths from self-esteem  $T_1$  to peer victimization  $T_2$  could be set equal to the cross-lagged paths from self-esteem  $T_2$  to peer victimization  $T_3$ —and, *vice versa*, from peer victimization to subsequent self-esteem.

Because of the highly skewed and leptokurtic distribution of adolescents' self-reported victimization scores, we followed a bootstrapping procedure. By randomly drawing subsets of data from the total dataset (with replacement), this procedure allowed us to estimate the precision of standard errors and parameter estimations in our model (Davison & Hinkley, 1997). Finally, in order to examine whether adolescents' ego resiliency profiles moderated the longitudinal associations between self-esteem and peer victimization, we performed a multigroup comparison of the model across three ego resiliency profiles: undercontrol, overcontrol, and ego resiliency. Fit of the main effects and multigroup models was assessed by examining  $\chi^2/df$  ratios, CFI and TLI parameters, and the RMSEA.

#### *Mean-level Trends: GLM Repeated Measures*

The results from a first set of GLM repeated measures analyses—with self-esteem and self-reported victimization as dependent variables—demonstrated that adolescents generally reported relatively low levels of victimization (1.35,  $SD = .55$  at  $T_1$ ) as well as relatively high levels of self-esteem (3.18,  $SD = .55$  at  $T_1$ ). Overall tests of within-subjects effects showed that for neither self-esteem nor peer victimization significant

mean differences emerged across the two-year time interval from  $T_1$  to  $T_3$  self-esteem: [ $F(2, 679) = 1.168, p = .31$ ]; peer victimization: [ $F(2, 733) = 1.692, p = .18$ ]. However, *post hoc* Bonferroni contrasts showed that peer victimization was significantly different when  $T_1$  and  $T_3$  scores were compared ( $\Delta M = -.06, p < .01$ ). We found no significant gender difference with regard to victimization (see Table 2). In contrast, girls scored significantly lower than boys on self-esteem. Adolescents in middle or higher education programmes reported higher self-esteem and less victimization than their peers who were enrolled in vocational education programmes. Finally, age differences were found, showing that 11–13-year-old adolescents reported lower self-esteem and more victimization than 14–16-year-old adolescents.

#### *Bivariate Associations: Pearson Correlation Tests*

Table 3 features the Pearson correlations between the measures of self-reported victimization and self-esteem at  $T_1$ ,  $T_2$ , and  $T_3$ . The cross-sectional associations between self-esteem and self-reported victimization ranged from  $-.23$  ( $p < .001$ ) to  $-.27$  ( $p < .001$ ) indicating that adolescents reporting lower levels of self-esteem perceived themselves to be more victimised by their peers. The results clearly showed that self-reported victimization was related to subsequent lower self-esteem across one-year time intervals ( $T_1$ – $T_2$  and  $T_2$ – $T_3$ ) and a two-year time interval ( $T_1$ – $T_3$ ). Similarly, lower self-esteem was also significantly related to subsequently higher levels of self-reported victimization across these same time intervals, although these bivariate linkages were not as strong.

#### *Prospective Multivariate Associations: SEM (Multigroup) Analyses*

The results from the SEM analyses confirmed the pattern of findings from the bivariate analyses. Figure 1 shows the results for the prospective analysis in the total sample (estimated through a bootstrap procedure), in which peer victimization was specified to predict subsequent self-esteem across one-year time intervals (controlling for participants' previous level of self-esteem in each of the models) and, *vice versa*, self-esteem was specified to predict subsequent peer victimization across one-year time intervals. The results showed that controlling for autoregressive and concurrent associations, self-reported peer victimization significantly predicted subsequently lower self-esteem in adolescents ( $\beta = -.08, p < .01$ ). However, self-esteem was not significantly associated with subsequent peer victimization across the one-year time intervals.

Outcomes of the multigroup SEM analyses demonstrated that for separate groups of undercontrollers, overcontrollers, and ego-resilients, none of the one-year longitudinal associations from peer victimization to self-esteem reached significance. However, given the fact that similar beta values were attained as in the total sample test, this is likely due to the relatively small number of participants in each subgroup (and consequently, the lower statistical power). This demonstrates that, although a significant association was found between peer victimization and subsequent low self-esteem, this association was not very strong and was characterised by a low effect size. The multigroup analysis further showed that lower self-esteem was related to subsequently higher levels of peer victimization in overcontrolling adolescents only, whereas ego-resilient and undercontrolling adolescents remained unaffected (see Table 4).

**Table 2. Repeated Measures Multivariate Analyses of Variance (MANOVAs) for Peer Victimization and Self-esteem**

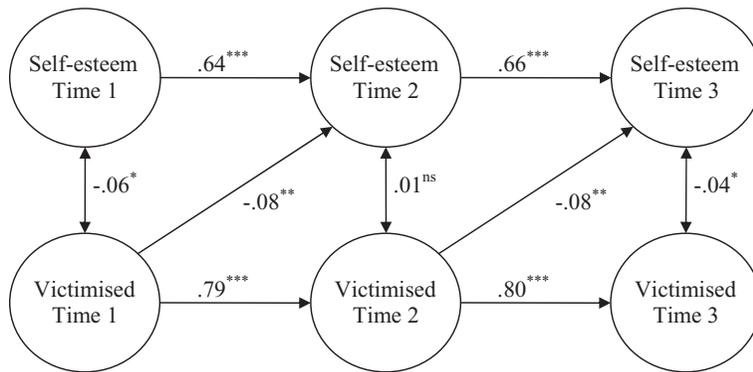
	Peer victimization (N = 665)			Self-esteem (N = 608)		
	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
<i>Gender</i>	$F_{BS}(1, 655) = 1.711NS$					
Boys	1.35 (.56)	1.37 (.52)	1.31 (.56)	$F_{BS}(1, 608) = 59.371^{***}$		
Girls	1.34 (.58)	1.29 (.52)	1.26 (.50)	3.31 (.60)	3.30 (.59)	3.36 (.60)
<i>Education</i>	$F_{BS}(1, 655) = 7.697^{**}$					
Vocational	1.46 (.61)	1.38 (.61)	1.36 (.57)	3.07 (.54)	3.06 (.59)	3.06 (.35)
Middle-higher	1.24 (.43)	1.25 (.51)	1.21 (.49)	3.26 (.56)	3.27 (.56)	3.28 (.57)
<i>Age</i>	$F_{BS}(1, 655) = 8.309^{**}$					
11–13 years	1.43 (.58)	1.38 (.56)	1.32 (.58)	$F_{BS}(1, 608) = 6.301^*$		
14–16 years	1.21 (.47)	1.24 (.52)	1.21 (.47)	3.10 (.52)	3.10 (.54)	3.11 (.57)
				3.27 (.60)	3.24 (.57)	3.28 (.56)

Note:  $F_{BS}$  =  $F$ -value for MANOVA between-subjects difference test.  
 \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ . NS is not significant.

**Table 3. Pearson Correlations for Self-esteem and Peer Victimization (Total Sample)**

	(1)	(2)	(3)	(4)	(5)	(6)
(1) T <sub>1</sub> self-esteem	1.00					
(2) T <sub>2</sub> self-esteem	.56***	1.00				
(3) T <sub>3</sub> self-esteem	.54***	.60***	1.00			
(4) T <sub>1</sub> victimization	-.24***	-.21***	-.24***	1.00		
(5) T <sub>2</sub> victimization	-.18***	-.23***	-.21***	.52***	1.00	
(6) T <sub>3</sub> victimization	-.10*	-.12**	-.26***	.44***	.55***	1.00

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



*Figure 1. Structural Model (ML Estimations) for Self-esteem and Peer Victimization (Total Sample). Note:  $\chi^2(74) = 165.27$  | CFI = .98 | TLI = .98 | RMSEA = .04. \*\*  $p < .01$ ; \*\*\*  $p < .001$ .*

**Discussion**

This study examined bidirectional longitudinal relationships between self-reported peer victimization and self-esteem in a sample of 774 adolescents aged 11–16 years. In line with our hypothesis, the results from prospective, multivariate SEM analyses demonstrated that self-reported peer victimization significantly predicted low self-esteem across one-year time intervals. However, self-esteem was not predictive of subsequent peer victimization in the total sample. Evidence was found to support our hypothesis that longitudinal associations between low self-esteem and subsequent peer victimization are moderated by adolescents’ personality types. Specifically, across one-year time intervals, we observed that only overcontrolling adolescents encountered more peer victimization when they had lower self-esteem, whereas for their undercontrolling and ego-resilient peers, this relationship was absent. *Vice versa*, overcontrollers who were victimised by peers were not more likely to develop lower self-esteem in the subsequent one-year time interval.

**Table 4. Cross-lagged Betas for Overcontrollers, Undercontrollers, and Ego-resilients**

	Undercontrol (n = 242)	Overcontrol (n = 255)	Ego-resilient (n = 250)
Self-esteem T <sub>1</sub> → victimization T <sub>2</sub>	.00	-.08**	-.02
Self-esteem T <sub>2</sub> → victimization T <sub>3</sub>	.00	-.15**	-.02
Victimization T <sub>1</sub> → self-esteem T <sub>2</sub>	-.07	-.07	-.06
Victimization T <sub>2</sub> → self-esteem T <sub>3</sub>	-.05	-.06	-.07

Note: Overall model fit  $\chi^2(258) = 387.919$  | CFI = .96 | TLI = .95 | RMSEA = .05.

Chi-square contributions: Undercontrol –  $\chi^2 = 153.05$ ; Overcontrol –  $\chi^2 = 124.58$ ; Ego-resilients –  $\chi^2 = 110.29$ .

\*\*  $p < .01$ .

#### *Recursive Associations between Self-esteem and Peer Victimization?*

This study provided evidence for significant predictive associations between victimization and subsequently lower self-esteem, but it is important to emphasise that the effect size of these associations appears to be relatively small. Although based on previous cross-sectional work (Hawker & Boulton, 2000) one might have expected stronger associations, apparently peer victimization does not seem to be a very potent risk factor in the development of low self-esteem in adolescence. Thus, although adolescents who experience peer victimization are negatively affected in terms of self-esteem, they certainly may be capable of maintaining sufficient levels of self-regard and social participation. It is possible, of course, that the low associations observed are because of the relatively long time lapse between data collection waves in the present study. Especially given the fact that we asked adolescents to report on any bullying behaviours experienced over a previous five-day period, it might be reasonable not to expect very strong associations with general self-esteem over one-year time intervals.

Until now, longitudinal studies had provided contrasting results regarding cross-lagged directions of effect (Kochenderfer & Ladd, 1996). Victimization and emotional maladjustment have generally been conceptualised as mutually reinforcing (Hodges & Perry, 1999). In our present analyses, however, we did not find clear evidence to support the notion that low self-esteem in adolescents *necessarily* triggers bullying behaviours in their peers. It might be necessary, then, to reframe this trigger-hypothesis in light of a threshold value of self-esteem. That is, although some adolescents may have lower self-esteem, this does not evoke any bullying attacks from peers as long as self-esteem is high enough to sustain an average position in the classroom hierarchy.

#### *Moderator Effects of Personality Types*

Our analyses demonstrated that some adolescents suffer more consequences in their social environment from having lower self-esteem than others. The different effects of lower self-esteem for different groups of adolescents are based on adolescents' ego control and ego resilience (Robins et al., 1996). The latter concepts refer to regulatory

processes within the individual that affect the way in which individuals behave in different contexts. Because bivariate analyses showed that overcontrolling, but not undercontrolling, youths differed from a reference category of ego-resilient peers, our present results indicate that mainly agreeableness and extraversion—in previous studies, also reported as important for the experience of peer victimization and emotional maladjustment (Mak, Blewitt, & Heaven, 2004)—determine the extent to which peer victimization is associated with low self-esteem. In line with our hypothesis, one might reason that especially overcontrollers are likely to evoke bullying behaviours from their peers because of their tendency towards internalisation and their limited capacity to manifest assertive social behaviour in contacts with peers (Salmivalli et al., 1999). Their undercontrolling and ego-resilient peers, who are less inclined to suppress their impulses (Van Lieshout et al., 1998), may thus be more likely to retaliate when being bullied—which leads to fewer attacks and (perceived) victimization from peers.

In contrast with our hypothesis, however, there was no difference between ego-resilient, undercontrolling, and overcontrolling adolescents in the strength of linkages between peer victimization and self-esteem. Apparently, being victimised by one's peers has negative consequences—albeit to a limited extent—for everyone. We need to be careful, however, not to overinterpret the present findings. Despite a clear overall trend in the multigroup analysis, the subsamples were relatively small. This may have limited our statistical power to detect possibly significant associations for one or more subgroups. As the present study is one of the first to explicitly examine possible person-context interactions in the prediction of emotional (mal)adjustment, future studies are clearly needed to replicate these findings on a broader scale before any definite conclusions can be drawn.

### *Strengths and Limitations of This Study*

The present findings provide new insights into the relationships between self-esteem and peer victimization among adolescents. First of all, the three-wave longitudinal design—in contrast with much previous cross-sectional research—enabled us to examine bidirectional prospective linkages between self-esteem and peer victimization. Secondly, by examining specific person–environment interactions (i.e., moderator effects of personality types on the victimization–self-esteem associations) we were able to specify the conditions under which victimization may prove harmful for the development of adolescents' emotional adjustment. However, several limitations of our study need to be addressed as well. For example, we only assessed adolescents' personality traits at baseline. Although personality traits have sometimes been found to be moderately to highly stable, some changes across time probably occur—compromising somewhat the precision with which we assessed the moderator role of personality in the present study. Another limitation concerns the fact that our dataset contained no information on possible differences between schools in the number and/or intensity of anti-bullying activities employed. This is most certainly important, as our results demonstrated that for example lower educational attainment in adolescents was related to lower self-esteem and victimization. Thus, one might assume that especially schools in the lower educational spectrum would benefit from anti-bullying activities and/or programmes.

With regard to our operationalisation of peer victimization, we focused on physical and verbal attacks but excluded any forms of relational aggression. Future studies might consider employing a broader operationalisation of bullying than we did in the

present study. This is important, as relational aggression might have a disproportionate impact on adolescents' low self-esteem or depressive moods (Casey-Cannon, Hayward, & Gowen, 2001; Prinstein, Boergers, & Vernberg, 2001). Finally, it will be of great importance in future research to delineate the ethnic borders along which victimization is played out. This was ignored in the present study (i.e., we exclusively focused on gender, age, and educational level) but has been shown to play an important role in levels of victimization and bullying in classroom settings in other studies (Vervoort, Scholte, & Overbeek, in press).

Notwithstanding these limitations, the present study makes clear that victimization significantly—but only to a limited extent—predicts low self-esteem across one-year time intervals. In addition, this study makes clear that it might be necessary to reframe the trigger-hypothesis in light of a 'threshold value' of self-esteem. Although some adolescents may have lower self-esteem, this does not necessarily evoke bullying attacks from peers as long as one's self-esteem is high enough to sustain an average position in the classroom hierarchy. Although future research should replicate and extend the present findings, they do seem to suggest that any harmful effects of low self-esteem—in terms of subsequently increasing peer victimization—may be dependent on adolescents' personality types, with overcontrolling adolescents being the most vulnerable and problematic group. Although our findings do not allow for any detailed conclusions about anti-bullying interventions in schools, they do suggest that in terms of cost-efficiency, classroom-based social skills training programmes may not be preferable. Instead, an intervention tailored to the needs of specific subgroups (for instance, of overcontrolling adolescents) might produce the most benefits in the long run.

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