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Predicting the development of victimization from early childhood internalizing and externalizing behavior

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ABSTRACT

The aim of this 8-year longitudinal study was to predict children's ($n = 96$) level of self-reported victimization at age 9 and their development of victimization from age 9 to 13 from parent-reported and teacher-reported internalizing and externalizing behaviors at age 5. We also examined whether ego-resiliency was a protective factor in these associations. Findings revealed that early childhood externalizing behavior was positively related to chronic experiences of peer victimization from age 9 to 13, especially among children with low levels of ego-resiliency. Internalizing behavior in early childhood was not related to peer victimization throughout middle childhood and adolescence. Suggestions for further research and practical implications for early prevention of peer victimization were discussed.

Introduction

Children who deviate from social group norms by displaying externalizing or internalizing behaviors are at risk for bullying victimization by peers (Reijntjes et al., 2011; Reijntjes, Kamphuis, Prinzie, & Telch, 2010). Children are victims of bullying when they are repeatedly, and over a prolonged period of time, exposed to intentional harmful behavior while being unable to defend themselves (Salmivalli, 2010). Most previous studies have examined internalizing and externalizing behaviors as predictors of victimization in middle childhood and adolescence (Cillessen & Lansu, 2015; Sentse, Prinzie, & Salmivalli, 2017; Sugimura, Berry, Troop-Gordon, & Rudolph, 2017). Less is known about internalizing and externalizing behaviors in early childhood as predictors of peer victimization. Moreover, long-term longitudinal studies that span from early childhood to adolescence are scarce. Because the impact of externalizing and internalizing behaviors on victimization may change with age due to developmental variation in the normativity of these behaviors, we cannot generalize from studies with older children to studies with younger children (Boivin, Petitclerc, Feng, & Barker, 2010). Thus, it is still unclear how early childhood internalizing and externalizing behaviors predict victimization several years later.

Answering this question is important because it has been argued that prevention programs should be targeted at young children, before victimization stabilizes in middle childhood and detrimentally impacts long-term functioning (Hanish & Guerra, 2004; Pouwels, Souren, Lansu, & Cillessen, 2016). As social behavior is more malleable in early childhood than in adolescence, early intervention of social behavior is expected to yield higher returns than programs that target peer victimization in adolescence (Heckman, 2006; Shaw & Taraban, 2017). Moreover, early childhood functioning forms the basis for social relationships and well-being throughout later in development; thus, there should be long-term payoffs from early intervention (Hay, Payne, & Chadwick, 2004). To intervene early, and to do so effectively, requires a developmentally-grounded understanding of early risk factors for long-term victimization.

In this study, we draw on developmental variation in the normativity of internalizing and externalizing behaviors to present a theoretical framework for how the risks associated with peer victimization vary with age. Next, we provide initial evidence for a part of our framework. We first examined how internalizing and externalizing behaviors in early childhood (age 5) were related to children's peer victimization four years later, in middle childhood (age 9). Second, we assessed whether early childhood internalizing and externalizing

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behaviors were related to the rate of change in peer victimization from middle childhood to adolescence (age 9 to age 13).

A developmental perspective on internalizing behavior as a predictor of victimization

The symptoms-driven model states that internalizing problems may precede the development of poor peer relationships, such as victimization (Kochel, Ladd, & Rudolph, 2012). Internalizing behaviors reflect inwardly-facing emotions and socially hesitant or withdrawn behaviors that are indicative of somatic problems, anxiety, and depression (Achenbach, 1991). Children with high levels of internalizing behaviors tend to behave submissively, express fear, or withdraw from peer interactions. This may signal that they are unable or unwilling to defend themselves against aggressive acts and that they would suffer from aggression, all of which can increase the likelihood of victimization concurrently and over time (Hodges & Perry, 1999; Sentse et al., 2017; Vaillancourt, Brittain, McDougall, & Duku, 2013). Moreover, children with internalizing problems are sometimes disliked due to a lack of social skills (Sandstrom, Cillessen, & Eisenhower, 2003). As a result, they may not receive support from peers in the form of protection from or retaliation against their victimizers (Hodges & Perry, 1999). This puts internalizing children at risk for chronic victimization (Serdiouk, Rodkin, Madill, Logis, & Gest, 2015). Thus, there are reasons to expect a prospective association between internalizing behaviors and subsequent peer victimization.

Although meta-analysis supports an overall effect of internalizing behavior on later peer victimization (Reijntjes et al., 2010; for more recent studies, see e.g., Sentse et al., 2017; Vaillancourt et al., 2008), there appears to be developmentally-related variation in the strength of this effect. Finding from studies examining the short-term prospective relation between internalizing behaviors measured in early childhood and subsequent victimization in middle childhood have been mixed. Some studies have found no effect of internalizing problems measured at age 6 and 7 on peer victimization one year later (van Lier et al., 2012; van Lier & Koot, 2010), others have found mixed effects across intervals from one to three years later in samples ranging from 5 to 7 years old (Kochenderfer-Ladd & Wardrop, 2001; Leadbeater & Hoglund, 2009; Rudolph, Troop-Gordon, Hessel, & Schmidt, 2011), and still others have found a prospective link between internalizing and victimization or peer exclusion (from age 5 to 9, Gazelle & Ladd, 2003; from age 5 to 7, Snyder et al., 2003). Thus, the evidence for a longitudinal association between early childhood internalizing behavior and victimization in middle childhood is equivocal.

The non-robust effects of early internalizing on victimization may reflect age-related changes in children's perceptions of internalizing behavior as normative or non-normative. Behaviors that are indicative of internalizing, such as withdrawal or playing alone, are relatively common and even normative among young children (Ladd, 2006; Younger, Schwartzman, & Ledingham, 1985). Furthermore, young children may simply ignore internalizing behaviors as they are not salient (Gazelle & Ladd, 2003; Younger et al., 1985).

Beyond early and middle childhood, youth become increasingly socially, emotionally, and cognitively skilled, which may affect how they detect and respond to internalizing behaviors. Internalizing behaviors, such as withdrawal, not only become more salient, but may, in cases of peer interaction and conflict, increasingly be seen as a less normative and mature way of coping (Ladd, 2006). Thus, in adolescence, internalizing behaviors are seen as deviating from the social norm (Ladd, 2006), which may increase the likelihood that adolescents are a risk for victimization. Accordingly, there is stronger empirical support for a prospective relation between internalizing behaviors and victimization in late childhood and (early) adolescence than in early childhood (for samples ranging from age 8 to 16 across intervals from 0.5 to 6 years, see Goldbaum, Craig, Pepler, & Connolly, 2003; Hodges & Perry, 1999; Sentse et al., 2017; Sugimura et al., 2017; Vaillancourt

et al., 2013). However, as these studies started after early childhood, the early predictors of victimization in adolescence remain unclear. Previous studies showed that internalizing symptoms are moderately stable over time (see, e.g., Mesman, Bongers, & Koot, 2001). In the present study, we therefore tested the hypothesis that there would be a long-term predictive association between early internalizing behaviors and later increases in victimization from middle childhood to early adolescence.

A developmental perspective on externalizing behavior as a predictor of victimization

Children's tendencies to display externalizing behaviors are also predictive of their prospective levels of peer victimization (Hanish et al., 2004; Reijntjes et al., 2011; van Lier et al., 2012). Externalizing behaviors, such as aggression and delinquency, indicate outwardly-directed emotions such as anger (Achenbach, 1991). Children who behave in externalizing ways are often disliked by their peers (van den Berg, Lansu, & Cillessen, 2015) due to their aggression, rule-breaking behavior, and lack of social skills, which, in turn, increases their risk of victimization (Sandstrom et al., 2003; Serdiouk et al., 2015). Moreover, children with high levels of externalizing behaviors may become embroiled in a cycle in which they respond to peer provocation by retaliation (Perren & Alsaker, 2006; Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1998; Unnever, 2005), which may provoke further aggression and lead to escalating hostile interactions (Kochenderfer & Ladd, 1997). Thus, although children who behave in externalizing ways interact very differently with peers than children who behave in internalizing ways, the behaviors of both groups increase their likelihood of chronic victimization by peers.

Just as studies on the association between internalizing behavior and victimization suggest that a developmental model might be useful, a developmental model is also needed to explain the link between externalizing behavior and victimization. Whereas the longitudinal association between internalizing behavior and victimization appears to increase from early childhood to adolescence, the strength of the prospective association between externalizing behavior and victimization appears to decline over time (Boivin et al., 2010; Hanish et al., 2004; Hodges & Perry, 1999).

Previous short-term longitudinal studies have shown a link between externalizing behavior and prospective levels of peer victimization in early and middle childhood across intervals of 0.5 to 1.5 years (ages 3 to 5, Hanish et al., 2004; ages 5 to 6, Snyder et al., 2003; ages 6 to 7, van Lier & Koot, 2010). Moving from childhood and into adolescence shows a different picture, with studies suggesting that externalizing behavior in early adolescence is not related to subsequent changes in peer victimization (from age 9 to 12, Boivin et al., 2010; from age 10 to 14, Vaillancourt et al., 2013). The age-related decrease in the strength of the association of externalizing behavior with prospective levels of peer victimization (Barker et al., 2008; Hodges & Perry, 1999) can be explained by the heterogeneity of students with externalizing behaviors in adolescence.

According to a developmental taxonomy of antisocial behavior, there are two groups of adolescents who display externalizing behaviors: a life-course-persistent group and an adolescence-limited group (Moffitt, 1993). Both adolescence-limited and life-course-persistent youth display externalizing behaviors in adolescence. However, youth in the adolescence-limited group only show externalizing behaviors in adolescence and display behaviors that are normative in this age period (e.g., rule-breaking behavior, delinquency, aggression). In contrast, the life-course-persistent group displays aggressive and hyperactive behaviors throughout childhood and adolescence and into adulthood (Moffitt, 1993). This group has a restricted behavioral repertoire (Caspi & Moffitt, 1995) and lacks opportunities to develop social skills, leading to escalating negative interactions with peers throughout development. Therefore, only the latter group may be further at risk for victimization

during adolescence. As a result, the short-term longitudinal effect of externalizing behaviors on peer victimization in early and middle childhood is cancelled out in adolescence when externalizing behaviors are more normative. Despite this decreasing association, early externalizing behaviors may still be related to high and increasing levels of peer victimization from middle childhood to early adolescence as they are characteristic of life-course persistent youth.

The moderating role of ego-resiliency

There may be heterogeneity among youth in the strength of the links of internalizing and externalizing behavior with peer victimization. For example, only some 9-to-14-year old children with high levels of anxiety, withdrawn behavior, or aggression are at risk for increased peer victimization in the next year (Goldbaum et al., 2003). Thus, the predictive value of internalizing and externalizing behavior for later victimization may be stronger for certain youth than others.

Here, we consider ego-resiliency as a factor that might moderate the associations of early childhood internalizing and externalizing behaviors with peer victimization in middle childhood and adolescence. Ego-resiliency refers to children's ability to adjust their impulses and emotions flexibly, but persistently and resourcefully, to social situations (J. H. Block & Block, 1980). We focus on ego-resiliency because it can be seen as a proxy of social competence (Waters & Sroufe, 1983) and an umbrella construct that is related to multiple cognitive and personality competencies and variables reflecting children's behavior and functioning. Ego-resilient children tend to be effortful controllers who are cognitively flexible and can switch off top-down self-regulation when the situation does not demand it (Eisenberg, 2017). Accordingly, a quadratic association between ego-resiliency and impulsivity has been found (Eisenberg, 2017); ego-resilient individuals are neither rigid over controllers (i.e., low impulsive) nor undercontrollers (i.e., high impulsive). As ego-resiliency has been found to be moderately to highly stable across childhood and predictive of children's socio-emotional development (J. Block & Block, 2006; Chuang, Lamb, & Hwang, 2006), we expected it to play an important role in the development of victimization.

Children who have difficulty adjusting their impulses and emotions to stressful situations generally display more internalizing or externalizing behaviors, which is in line with the social skills deficits view (Sutton, Smith, & Swettenham, 1999a). However, the moderate size of these associations indicates that some children who behave in internalizing or externalizing ways are more ego-resilient than others (Oshri, Rogosch, Burnette, & Cicchetti, 2011). The variation in ego-resiliency among externalizing children, for example, is consistent with the notion that not all bullies are impulsive and socially incompetent. At least some bullies (i.e., the proactive ringleader bullies) are low in impulsivity and highly socially intelligent and socially skilled (Sutton, Smith, & Swettenham, 1999b). To systematically and intentionally distribute their power, they should be able to flexibly adjust their externalizing behaviors to social situations. In other words, they should be highly resilient and their risk for peer victimization is relatively low (Salmivalli & Helteenvuori, 2007).

We hypothesized that early childhood ego-resiliency may protect children who behave in internalizing or externalizing ways against peer victimization throughout middle childhood and adolescence. If children's emotional expressions and behavioral impulses are well adapted to situational demands, they are less likely (than their peers whose behaviors are less adaptable) to provoke their peers or display reactions that are rewarding to bullies. Thus, they should have lower risk for a range of social problems, such as low peer status and low levels of peer competence, which may reduce their risk on victimization (Hofer, Eisenberg, & Reiser, 2010; van den Berg, Deutz, Smeekens, & Cillessen, 2017). Internalizing and externalizing behaviors may therefore be related to experiences of peer victimization among children who are relatively low in ego-resiliency, but not among children who are

relatively high in ego-resiliency.

There is some preliminary evidence in support of this hypothesis. Overbeek, Zeevalkink, Vermulst, and Scholte (2010) found that highly ego-resilient adolescents with low levels of self-esteem were not at risk of victimization, whereas adolescents with low levels of ego-resiliency and self-esteem were at risk, but only if they always suppressed their impulses, regardless of the situation. This suggests that ego-resiliency may protect children with internalizing problems against victimization. Although we do not know of similar evidence for externalizing behavior, we also expected that ego-resiliency may protect children with externalizing problems against victimization.

The present study

The current study extended the time span of previous studies by examining how internalizing and externalizing behaviors in early childhood are related to the development of peer victimization throughout childhood and adolescence. Providing a developmental perspective on peer victimization is important as the impact of externalizing and internalizing on peer victimization may change with age due to developmental variation in the normativity of externalizing and internalizing behaviors. To examine the early predictors of victimization, we used data from an 8-year longitudinal study in which we predicted children's level of peer victimization at age 9 (intercept) and change in victimization from age 9 to age 13 (slope) from their internalizing and externalizing behaviors at age 5. We also examined whether ego-resiliency was a protective factor in this association.

Our first goal was to predict children's later levels of victimization at age 9 and the subsequent rate of change in victimization from early childhood levels of internalizing behavior. We expected a null effect or a slight positive effect of internalizing behavior at age 5 on peer victimization at age 9 (intercept), based on the mixed findings of previous studies (Gazelle & Ladd, 2003; Kochenderfer-Ladd & Wardrop, 2001; Leadbeater & Hoglund, 2009; Rudolph et al., 2011; Snyder et al., 2003; van Lier et al., 2012; van Lier & Koot, 2010). As there is stronger empirical support for a prospective relation between internalizing behaviors and victimization in late childhood and (early) adolescence than in early childhood (Goldbaum et al., 2003; Hodges & Perry, 1999; Sentse et al., 2017; Sugimura et al., 2017; Vaillancourt et al., 2013), we expected children with more early internalizing behaviors to increase more in peer victimization later (slope). We further assessed whether the effects of early internalizing behavior on victimization at age 9 and subsequent change in victimization were moderated by ego-resiliency at age 5. Our hypothesis was that ego-resiliency would weaken the effect of internalizing on peer victimization at age 9 and on the subsequent increase of victimization (Overbeek et al., 2010).

Our second goal was to predict victimization at age 9 and further change in victimization from children's early externalizing behavior at age 5. Our hypothesis was that externalizing behavior at age 5 would positively predict peer victimization at age 9 (intercept) and a faster increase in victimization after age 9 (slope). We also tested whether these effects were moderated by ego-resiliency at age 5. Our hypothesis was that ego-resiliency would weaken the effect of early externalizing behavior on later peer victimization at age 9 and on the subsequent increase in victimization.

Method

Participants

The current study was part of the ongoing Nijmegen Longitudinal Study (NLS) on infant and child social development (van Bakel & Riksen-Walraven, 2002). In 1998, we recruited families with a 15-month-old child who lived in a city in the east of The Netherlands. Local health-care centers provided contact information for a subset of 639 families, to whom we sent a letter explaining the study goals. A return

card of interest was sent back by 174 families. Out of these families, we randomly selected a subsample of 129 parent-child dyads to participate in the study as we had limited time and financial resources. This resulted in a community sample of 129 children and their parents, which was representative of the Dutch population of families with young children in terms of the number of single parents (5%) and fathers as primary caregiver (2%). This community sample has been followed since the children were 15 months old. To prevent attrition, we aimed to provide them with a sense of commitment to the study by sending birthday cards to the children and newsletters about the study.

Of the original sample of 129 15-month-old children, 116 participated at age 5, 108 at age 9, 116 at age 12, and 114 at age 13. We conducted our analyses on the subsample of participants with complete teacher data at age 5 and with data on self-reported victimization in at least one of three other waves (age 9, 12, and/or 13). Eighteen children were excluded due to missing data on the age 5 predictor variables; two children were excluded due to missing data on all three victimization variables. The final sample included 96 children who were present at age 5 (49% girls, $M_{\text{age}} = 5.37$, $SD = 0.08$), 80 children who were present at age 9 (49% girls, $M_{\text{age}} = 9.33$, $SD = 0.15$), 81 who were present at age 12 (43% girls, $M_{\text{age}} = 12.59$, $SD = 0.18$), and 88 who were present at age 13 (50% girls, $M_{\text{age}} = 13.54$, $SD = 0.25$). Table A1 shows the number of participants at ages 9, 12, and 13 in the final sample. For further descriptions see Smeekeens, Riksen-Walraven, and van Bakel (2007), Peters, Riksen-Walraven, Cillessen, and de Weerth (2011), and van den Berg, Burk, and Cillessen (2015).

Procedure

At each wave of the NLS study, the aim of the assessment was to obtain a complete overview of children's socio-emotional competence and functioning relevant to the given age and to future social and emotional development. For the current study, we used a subset of data out of a larger battery of measures collected at age 5 (Wave 3), 9 (Wave 5), 12 (Wave 6), and 13 (Wave 7), representing early childhood, middle childhood, and early adolescence. At each of these ages, we asked parents for informed active consent. Children gave verbal assent. After parents gave active consent, we asked them to provide us the contact information of children's primary classroom teachers, who were invited to participate in the study. At each wave, almost all participants were enrolled in a different classroom, although one teacher filled in a questionnaire for two participants. For more details on the classroom characteristics see Peters et al. (2011) and van den Berg, Burk, and Cillessen (2015).

At age 5, the primary classroom teachers were asked to complete several questionnaires and a Q-sort on children's behavior, which were returned by mail. Primary caregivers completed the questionnaires during a home visit. In the present study, we used parent-reported and teacher-reported data on internalizing and externalizing behaviors and teacher-reported data on ego-resiliency.

At ages 9, 12, and 13 children were visited at school between the autumn and spring. We obtained informed consent from teachers according to their school policies. As five teachers did not give consent, six children completed the questionnaires at home rather than school. One additional child completed the questionnaire at home because the child did not want to participate in a classroom session. The other children completed several questionnaires on their socio-emotional functioning during a one-hour classroom session. During the classroom session, research assistants were present to monitor the data collection and to answer children's questions. Children completed the questionnaires on paper at age 9 and on mini-laptop computers at ages 12 and 13. In the present study, we assessed self-reported peer victimization at these ages.

Measures

Internalizing and externalizing behavior

Internalizing and externalizing behaviors were assessed at age 5. Primary caregivers completed the Dutch version of the Child Behavior Checklist and teachers completed the Teacher Report Form (TRF) of the Child Behavior Checklist (CBCL, Achenbach, 1991). Primary caregivers and teachers rated problem behavior items belonging to 9 subscales on a 3-point scale (0 = not true, 1 = somewhat or sometimes true, 2 = very true or often true). Internalizing behavior consisted of the sum of the raw scores on the following subscales: Anxiety/Depression (14 items in CBCL and 16 items in TRF; e.g., “cries a lot”), Somatic Complaints (9 items in CBCL and TRF; e.g., “dizziness”), and Withdrawal (9 items in CBCL and 8 items in TRF, e.g., “too shy or timid”). Externalizing behavior consisted of the sum of the raw scores on the following subscales: Aggressive Behavior (18 items in CBCL and 20 items in TRF, e.g., “being disobedient at school”) and Delinquent Behavior (13 items in CBCL and 11 items in TRF, e.g., “lying or cheating”). Cronbach's α was 0.77 and 0.80 for internalizing behavior and 0.86 and 0.90 for externalizing behavior, for the CBCL and TRF, respectively.

To obtain robust measures of internalizing and externalizing behavior, we created composite scores of the caregiver- and teacher-reports. A similar approach was used in previous research (Smeekeens, Riksen-Walraven, & van Bakel, 2009). We standardized the raw scales and subsequently computed an average scale score for internalizing behavior and externalizing behavior, respectively. The correlation between the CBCL and TRF scores was 0.30 for internalizing behavior, $p = .003$, and 0.56 for externalizing behavior, $p < .001$.

Ego-resiliency

Children's ego-resiliency was assessed at age 5 by asking teachers to complete the Nijmegen-California Kinder Sorteertechniek (NCKS), the Dutch version of the California Child Q-set (J. H. Block & Block, 1980; van Lieshout & Haselager, 1994). The NCKS consists of 100 descriptions of behavioral, affective, and cognitive child characteristics (e.g., “is inhibited and constricted”; “is self-confident and sure of her/himself; makes up her/his mind on her/his own”; “is a warm person and responds with kindness to other people”). Teachers were asked to sort the descriptions in 9 categories based on how salient each characteristic was for the child (1 = extremely uncharacteristic, 9 = extremely characteristic). The neutral category had to contain 12 cards and all remaining categories 11 cards. Each child's Q-sort was scored by correlating it with a criterion Q-sort profile of a prototypically ego-resilient child that was provided by clinical experts (see J. H. Block & Block, 1980). Correlations represent the similarity between the child and the criterion profile of the prototypical ego-resilient child (-1.00 = highly dissimilar (low ego resiliency), 1.00 = highly similar (i.e., high ego resiliency)). It has been found that the CCQ is a valid instrument to measure ego-resiliency (J. H. Block & Block, 1980) and that it is a robust indicator of children's general competence and predictive of their peer competence in later years (van Lieshout, Scholte, Van Aken, Haselager, & Riksen-Walraven, 2000). Split-half reliability in this sample was high ($r = 0.96$, see also van den Berg et al., 2017).

Peer victimization

Peer victimization was assessed at ages 9, 12, and 13 with the Victim Scale of the Olweus Bully/Victim Questionnaire (Solberg & Olweus, 2003). Children reported how often they were victimized in the current school year. Items reflected verbal, physical, and relational victimization (e.g., “In the current school year, how often have you been bullied because one of your classmates said nasty things about you at school?”). Children responded on a 5-point scale (0 = never, 1 = once in a while, 2 = one or two times a month, 3 = one or two times a week, 4 = three or more times a week) at age 9 and 12 and on a 4-point scale (0 = never, 1 = one to three times a month, 2 = one or two times a week, 3 = three or more times a week) at age 13. Although

Table 1
Descriptive statistics and correlations among main study variables.

	<i>M</i>	<i>SD</i>	Min	Max	1.	2.	3	4.	5.
1. Internalizing age 5	−0.04	0.73	−1.21	1.50					
2. Externalizing age 5	−0.07	0.74	−1.18	−1.46	0.29**				
3. Ego-resiliency age 5	0.48	0.28	−0.35	0.80	−0.44***	−0.47***			
4. Victimization age 9	−0.01	0.94	−1.18	2.22	−0.09	0.36**	−0.08		
5. Victimization age 12	−0.03	0.93	−1.05	2.13	0.10	0.47***	−0.22*	0.47***	
6. Victimization age 13	−0.04	0.93	−0.84	2.41	0.19	0.51***	−0.38***	0.35**	0.74***

* $p < .05$.

** $p < .01$.

*** $p < .001$.

items assessing different forms of peer victimization were included in this scale, it was not possible to calculate separate subscale scores by form as the number of items was small and some items did not specifically reflect a particular form of victimization. The one-factor solution was also supported by an exploratory factor analysis. Cronbach's α was 0.81 at age 9, 0.89 at age 12, and 0.85 at age 13. Mean scores were standardized by wave to control for differences in response categories.

Attrition analyses

We examined whether the children in the final analyses differed on any of the predictor variables at age 5 from children who were not included at ages 9, 12, or 13. We conducted a separate t -test for each age. Children who were included in the analyses at age 9 scored significantly lower on externalizing behavior ($M = 0.33$, $SD = 1.10$) than children who were not included ($M = -0.11$, $SD = 0.73$), $t(40.47) = 2.05$, $p = .046$, Cohen's $d = 0.65$. They also scored higher on ego-resiliency ($M = 0.51$, $SD = 0.28$) than those who were not included ($M = 0.31$, $SD = 0.29$), $t(96) = -2.65$, $p = .009$, Cohen's $d = 0.69$. There were no other differences.

Data analysis

For all variables, outliers were replaced by scores reflecting the outlier limits (3 SDs above or below the mean, Tabachnick & Fidell, 2007). Results of the final models, in which we set the outliers to the outer limits, did not differ from models in which outliers were not replaced. Multi-level growth curve models were run to predict the development of victimization. The growth models were estimated by using a linear mixed-effects modelling approach, using the lmer function in the lme4 package (version 1.1–12, Bates, Maechler, Bolker, & Walker, 2016) in R (version 3.1.2, R Core Team, 2016). The mixed-effects model consisted of two levels, with repeated assessments of victimization (Level 1) nested within children (Level 2). An advantage of mixed-effects models is that all 96 children who completed the victimization measure on at least one out of the three waves could be included in the analyses by using maximum likelihood estimation. Singer and Willet (2003) showed that the multi-level model of change is suitable for small samples (i.e., 82 students).

Different nested models with increasing levels of complexity were tested. We first tested preliminary models to examine the relative amount of variance in victimization within and between students (Model 1), students' unconditional growth in peer victimization (Model 2), and the variance between students in their growth in peer victimization over time across intervals of one year (Model 3). Subsequently, we controlled for gender (Model 4). We did not test for interactions including gender due to limited power for testing this moderation effect. Next, we added the substantive predictors (i.e., internalizing, externalizing, ego-resiliency); these were tested in separate models for internalizing and externalizing behavior (Models 5A and 5B). Finally, the interaction between ego-resiliency with either internalizing or externalizing behavior was tested (Models 6A and 6B).

Nested models were compared using the likelihood ratio test, for which p -values were determined by parametric bootstrapping using the PBmodcomp function in the pbkrtest package (version 0.4–6, Halekoh & Højsgaard, 2016). Significance of the fixed effects was determined using parametric bootstrapping implemented in the bootMer function in the lme4 package, with 5000 simulations. Confidence intervals were obtained by the function boot.ci of the package boot (version 1.3–1.8, Canty & Ripley, 2016; Davison & Hinkley, 1997).

Results

Descriptive statistics and correlations

Table 1 shows the descriptive statistics and correlations for the main study variables. The stability correlations for victimization across the 1- to 4-year intervals were moderate to high (Cohen, 1977). Correlations were higher across shorter intervals. Internalizing behavior at age 5 was not correlated with victimization at any age. Externalizing behavior at age 5 was positively correlated with victimization at all ages. Internalizing and externalizing behavior were positively correlated. Ego-resiliency at age 5 was negatively correlated with victimization at ages 12 and 13, but not at age 9. Ego-resiliency was also significantly negatively correlated with internalizing and externalizing behavior. Although the correlation between ego-resiliency and internalizing and externalizing behavior was negative, 38% and 42% of the children who scored above average on internalizing or externalizing behavior, respectively, also scored above average on ego-resiliency.

Preliminary linear growth models

Unconditional means model (Model 1)

We started the analyses by predicting the unconditional means model (Model 1), a model with no predictors on either level, to examine the relative amounts of within-person and between-person variance in victimization, $AIC = 613.93$, $BIC = 624.48$, deviance = 607.93. The intraclass correlation was 0.56, indicating that 56% of the variance in victimization was due to differences between children. The other 44% of the variance was due to variation of children's individual scores around their individual mean over time. As expected, no significant intercept (Y_{00}) for victimization was found. This was due to the sample mean at each wave being zero because children's victimization scores were standardized.

Unconditional growth models (Models 2 & 3)

Next, we predicted the unconditional growth model to examine the baseline amount of change, by adding time (Y_{10}) as a predictor to the model (Model 2), $AIC = 615.20$, $BIC = 629.27$, deviance = 607.200. Unequal intervals between the waves were taken into account in the specification of the time variable (Hox, Van De Schoot, & Moerbeek, 2018). We coded time as 0, 3, and 4, corresponding to children's ages of 9, 12, and 13, respectively. The intercept therefore reflected children's victimization scores at age 9 and the effect of time represented the slope

of children's victimization development across 1 year. The likelihood ratio test indicated that the fit of Model 2 was not significantly better than the fit of Model 1, $PBtest = 0.73$, $p = .409$. This indicates that there was no significant effect of time on victimization, which was due to the standardization of victimization at each time point.

Next, we added the random effect of time to the model to examine heterogeneity in children's development of victimization (Model 3), $AIC = 603.37$, $BIC = 624.47$, $deviance = 591.37$. Model fit significantly improved, as indicated by the likelihood ratio test, $PBtest = 15.83$, $p < .001$, demonstrating that there was significant variation between children in the slope of victimization. There was also a negative correlation between the intercept and slope ($r = -0.51$), indicating that children who initially scored low on victimization increased more in victimization over time than children who initially scored high.

Gender

Next, we added gender (γ_{01}) as a control variable to the model (Model 4), $AIC = 598.66$, $BIC = 623.29$, $deviance = 584.66$. Gender was dummy coded (0 = boys, 1 = girls). The likelihood ratio test showed that, by adding gender to the model, the fit of Model 4 was significantly better than the fit of Model 3, $PBtest = 6.70$, $p = .013$. The fixed effect of gender revealed that boys scored significantly higher on victimization than girls (see Model 4, Table 2). This Model 4 was the baseline model to which the models testing the main effects of internalizing, externalizing, and resiliency were compared.

Substantive linear growth models

We ran two separate models to predict levels of victimization at age 9 from internalizing (Model 5A) and externalizing (Model 5B) behavior,

respectively (γ_{02}). In both models, we also added the main effect of ego-resiliency (γ_{03}). In addition to examining the effects of the predictors on levels of victimization at age 9, we were also interested in the effects on the rate of change in victimization. These effects were estimated by including the two-way interactions of internalizing and externalizing behavior, respectively, with time (γ_{12}), and of ego-resiliency with time (γ_{13}).

Finally, we ran two separate models to predict victimization at age 9 from the two-way interaction between ego-resiliency and internalizing (Model 6A) and the two-way interaction between ego-resiliency and externalizing (Model 6B), respectively (γ_{04}). We also added the three-way interaction of internalizing or externalizing, respectively, with ego-resiliency and time (γ_{14}), to test interaction effects on the rate of change in victimization.

Internalizing behavior model

The fit of models 5A and 6A, that included internalizing behavior and ego-resiliency, was better than the fit of Model 4, as indicated by the likelihood ratio test (see Table 2). However, the fixed effects showed that neither internalizing behavior nor the interaction between internalizing and ego-resiliency were related to victimization at age 9 (i.e., intercept) or the rate of change (i.e., slope) in victimization (see Table 2, Model 5A & 6A). We also did not find a significant effect of ego-resiliency on victimization at age 9 and the rate of change in victimization.

Externalizing behavior model

The fit of Model 5B, in which externalizing behavior and ego-resiliency were added to Model 4, significantly improved compared to Model 4, as indicated by the likelihood ratio test (see Table 2). Moreover, the likelihood ratio test also showed that the fit of Model 6B, in

Table 2

Effects of early internalizing behavior, externalizing behavior, and ego-resiliency on victimization at age 9 and rate of change of victimization from age 9 to 13.

	Parm	Model 4		Model 5A		Model 6A		Model 5B		Model 6B	
				Internalizing		Internalizing		Externalizing		Externalizing	
		<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Fixed effects											
Victimization Age 9											
Intercept	γ_{00}	0.21	0.13	0.18	0.13	0.16	0.13	0.09	0.12	0.01	0.12
Gender	γ_{01}	−0.41**	0.16	−0.32	0.15	−0.31*	0.15	−0.16	0.14	−0.24	0.15
Internalizing/Externalizing	γ_{02}			−0.25	0.16	−0.20	0.16	0.53**	0.16	0.40*	0.16
Ego-resiliency	γ_{03}			−0.66	0.42	−0.53	0.47	0.23	0.38	0.56	0.38
Internalizing/Externalizing × Ego-Resiliency	γ_{04}					−0.10	0.47			−1.41**	0.49
Rate of change in victimization (Age 9 to 13)											
Time	γ_{10}	−0.02	0.03	−0.02	0.03	−0.01	0.03	−0.02	0.03	0.01	0.03
× Internalizing/Externalizing	γ_{12}			0.07	0.04	0.07	0.04	−0.01	0.04	0.01	0.05
× Ego-resiliency	γ_{13}			−0.05	0.11	−0.13	0.13	−0.15	0.11	−0.23*	0.11
× Internalizing/Externalizing × Ego-Resiliency	γ_{14}					0.15	0.13			0.31*	0.14
Random effects											
Level 1											
Within-person		0.22	0.47	0.22	0.47	0.22	0.47	0.22	0.47	0.22	0.47
Level 2											
In victimization Age 9	σ_{ϵ}^2	0.67	0.82	0.64	0.8	0.64	0.8	0.55	0.74	0.47	0.67
In rate of change	$\sigma_{u_1}^2$	0.04	0.29	0.04	0.19	0.04	0.19	0.04	0.2	0.03	0.18
Correlation	(u_0, u_1)	−0.53		−0.56		−0.56		−0.61		−0.56	
Fit statistics											
AIC		598.66		593.92		597.25		577.84		573.87	
BIC		623.29		632.61		642.98		616.53		619.6	
Deviance		584.66		571.92		571.25		555.84		547.87	
Parametric Bootstrapping Likelihood Ratio Test		6.70*		12.75*		0.67		28.32**		7.97*	

Note. We ran two separate models for internalizing and externalizing behavior (Model 5A & 5A and 6B & 6B, respectively). Victimization scores were standardized at each time point, therefore we predicted relative growth in victimization in comparison to peers, rather than absolute growth. Time was centered at Age 9. Gender was dummy-coded (0 = boys, 1 = girls).

* $p < .05$.

** $p < .01$.

Fig. 1. Effect of externalizing behavior and ego-resiliency on victimization Age 9 (i.e., intercept).

Note. $**p < .01$. Simple slopes for ego-resiliency were calculated at values 1 SD below and above the mean.

which the interaction between externalizing behavior and ego-resiliency was added, significantly improved compared to Model 5B (see Table 2).

We first discuss the fixed effects on the intercept of victimization, which corresponds to levels of victimization at age 9. Model 5B showed a significant positive main effect of externalizing behavior at age 5 on the intercept of victimization. No main effect of ego-resiliency on victimization at age 9 was found. Model 6B showed that the effect of externalizing behavior on levels of victimization at age 9 was further qualified by a two-way interaction between externalizing behavior and ego-resiliency. We determined the significance of the effect of externalizing behavior on the intercept of victimization among low (Sample mean – 1 SD) and high values of ego-resiliency (Sample mean + 1 SD) using the web utility of Preacher, Curran, and Bauer (2006). The interaction is plotted in Fig. 1. Externalizing behavior was significantly positively related to levels of victimization at age 9 among children with low levels of ego-resiliency, whereas externalizing was not significantly related to victimization at age 9 among children with high levels of ego-resiliency. Because values of 1 SD below or above the mean are relatively arbitrary, we also calculated the region of significance of the interaction (Curran, Bauer, & Willoughby, 2006) using the web utility of Preacher et al. (2006). The region of significance specifies the values of the moderator (ego-resiliency) at which the effect of the predictor (externalizing behavior) on the outcome (peer victimization) transitions from non-significant to significant. Externalizing was significantly related to victimization for values of ego-resiliency lower 0.54, indicating that the effect of externalizing behavior at age 5 on victimization at age 9 was significant only for children with relatively low to moderate levels of ego-resiliency at age 5.

In addition to the effects on victimization at age 9 (intercept), we were also interested in whether externalizing behavior and ego-resiliency at age 5 could predict the rate of change in victimization across one-year intervals (i.e., slope) from age 9 to 13. Model 5B revealed no significant interaction of externalizing behavior with time, indicating that externalizing behavior at age 5 did not predict changes in children's level of victimization from age 9 to 13. In contrast, Model 6B showed a significant two-way interaction of ego-resiliency and time, that was further qualified by a significant three-way interaction between externalizing behavior, ego-resiliency, and time. The three-way interaction was treated in the same way as the two-way interaction. To interpret the three-way interaction, we calculated the effect of time among low (Mean – 1 SD) and high values (Mean + 1 SD) of externalizing behavior and ego-resiliency, using the web utility of Preacher et al. (2006). The interaction is plotted in Fig. 2. Children with high levels of both externalizing behavior and ego-resiliency (1) and children with high levels of externalizing behavior and low levels of ego-resiliency (2) did not show significant changes in their levels of victimization across time. Among children with low levels of externalizing behavior, the effect of time on victimization depended on their level of resiliency. Children who scored low on externalizing

Fig. 2. Effect of externalizing behavior and ego-resiliency on rate of change in peer victimization from age 9 to 13 (i.e., slope).

Note. $*p < .05$. Simple slopes for externalizing behavior and ego-resiliency were calculated at values 1 SD below and above the mean.

behavior and high on ego-resiliency (3) significantly decreased in their level of victimization over time, whereas children who scored low on both externalizing behavior and resiliency (4) did not show significant changes in their level of victimization with time.

We also calculated the region of significance of the interaction according to the technique described by Curran et al. (2006) using the web utility of Preacher et al. (2006). For children who scored high on ego-resiliency, the slope of victimization was significant for values of externalizing behavior lower than –0.28, indicating that the effect of time on victimization was significant only for children with low levels of externalizing behavior and high levels of ego-resiliency at age 5.

Discussion

In this 8-year longitudinal study, we predicted children's peer victimization at age 9 and development of victimization from age 9 to 13 from their internalizing and externalizing behaviors at age 5. There was no link between early internalizing behavior and later peer victimization, but early externalizing behavior was related to chronic peer victimization throughout childhood and adolescence, especially for children with low ego-resiliency.

Predicting peer victimization from early childhood internalizing behavior

Short-term longitudinal studies have shown that the association between internalizing behavior and later peer victimization increases in strength from early childhood to adolescence (Boivin et al., 2010; Hanish et al., 2004; Hodges & Perry, 1999), likely due to developmental changes in the normativity and salience of internalizing problems (Younger et al., 1985). Therefore, we hypothesized that children with internalizing behaviors in early childhood would be at risk for victimization in adolescence because they would then still be displaying internalizing behaviors (Mesman et al., 2001). However, early childhood internalizing behaviors at age 5 were not associated with later peer victimization at age 9 or to changes in victimization from age 9 to 13.

The lack of these associations may be explained by the fact that there is, indeed, no association between internalizing behavior at age 5 and later victimization. As indicated, the literature has yielded mixed findings regarding an association between internalizing behavior and victimization among young children (Leadbeater & Hoglund, 2009; van Lier et al., 2012). Perhaps the display of internalizing behaviors among relatively young children is simply not indicative of social problems (concurrently or prospectively). That is, withdrawal, shyness, and inhibition can be relatively common among young children and may not deviate from age norms (Ladd, 2006). As children develop, these behaviors may be replaced by more adaptive behaviors simply as a function of maturation. Only for a subgroup of children internalizing behaviors may become increasingly severe with age, and turn into a risk factor for peer rejection and victimization. This is supported by research showing that although there is some stability in internalizing behaviors from early childhood into early adolescence, internalizing

behavior is not as stable as externalizing behavior (Mesman et al., 2001). This makes it difficult to predict from early internalizing behaviors who will display age-atypical internalizing behavior later in childhood or adolescence. If this is true, a consistent link between internalizing behaviors and victimization may not be expected until later in development, when internalizing behaviors more reliably signal social problems. Because our study focused on predicting victimization from early childhood internalizing behaviors, the prediction of early adolescent victimization from internalizing behaviors at age 9 to 13 could not be tested. Future longitudinal studies that take the stability of internalizing into account and control for maturational processes may clarify this possibility.

Alternatively, the lack of associations could be due to challenges in obtaining reliable and valid measurements of internalizing problems (e.g., depression, anxiety) among young children (Achenbach, McConaughy, & Howell, 1987; Youngstrom, Loeber, & Stouthamer-Loeber, 2000). Internalizing problems reflect inner processes that are not easily observable. Young children do not yet have all the cognitive, linguistic, and social-emotional skills needed to self-report internalizing behaviors (Harter, 1998). Thus, young children's internalizing behaviors are often derived from adult observations (parents and teachers) that may be biased (Youngstrom et al., 2000). Two potential problems can arise.

First, adults may inaccurately perceive children's internalizing behaviors and provide assessments with low validity (Achenbach et al., 1987) because they are sometimes difficult to observe and often not disruptive (e.g., in the classroom). As such, they may not attract the attention of adults (Youngstrom et al., 2000).

Second, the perceptions of parents and teachers may be incongruent with the perceptions of peers, who are the victimizers. The correlation between peer- and teacher-reported internalizing behavior is moderate in middle childhood ($r = 0.24$ to $r = 0.37$) (Hymel, Rubin, Rowden, & LeMare, 1990). Thus, the internalizing behaviors that adults see in young children may not be the ones their peers see in middle childhood or adolescence. Multiple informants and measurement methods in the peer context are needed to further address the association between early internalizing behavior and later victimization. For example, interviewing children about their emotional problems with the Berkeley Puppet Interview (Ringoot et al., 2013) may identify young children who will experience chronic internalizing problems and are at risk for later victimization. Another promising method is facial coding of affect in peer interactions (Cohn, 2010).

Finally, sample size may have limited the power to detect a long-term longitudinal effect of internalizing behavior on later victimization. Although this is possible, we did find significant effects for externalizing behavior. Thus, sample size per se may not have been the issue, but rather the effect sizes for internalizing versus externalizing. Future studies with larger samples are needed to replicate the weaker effect of internalizing behavior than of externalizing behavior at age 5 on later peer victimization.

Predicting peer victimization from early childhood externalizing behavior

Short-term longitudinal studies have shown that externalizing behavior in early to middle childhood is a risk factor for peer victimization 6 to 24 months later (Hanish et al., 2004; Snyder et al., 2003; van Lier & Koot, 2010). By extending the time span of these studies, we showed that children who were rated by teachers as highly externalizing at age 5 experienced more peer victimization than their peers at age 9. Thus, externalizing behaviors in early childhood predicted victimization across a long developmental time frame.

We further extended the time frame by examining whether early childhood externalizing behaviors were associated with changes in victimization throughout middle childhood and adolescence. In contrast to our expectation, the victimization of children with early externalizing behaviors did not further increase after age 9 (until age 13),

but remained consistently high. This suggests a ceiling effect; by the time externalizing children enter middle childhood, their growth in victimization may have reached a plateau. This is in line with a recent meta-analysis showing that peer victimization is rather stable from early childhood on (Pouwels et al., 2016), and with several studies that consistently identified a subgroup of chronically victimized children from developmental trajectories of peer victimization (Biggs et al., 2010; Boivin et al., 2010; Goldbaum et al., 2003; Ladd, Ettekal, & Kochenderfer-Ladd, 2017). There are indications that this group displayed high levels of externalizing behaviors in middle childhood (Boivin et al., 2010; Goldbaum et al., 2003). Our study extended the time frame of this work and suggests that externalizing behaviors in early childhood are a risk factor for chronic peer victimization later in life.

Because we examined externalizing behaviors in early childhood, we could not link externalizing behaviors and victimization concurrently in adolescence. Thus, we do not know whether the relatively high rate of victimization in middle childhood and adolescence was due to the continuity of externalizing behavior over time. There are two possibilities: externalizing behaviors may decrease over time or may remain stably high.

First, victims might no longer show externalizing behaviors in adolescence, as the concurrent association between victimization and externalizing behavior in adolescence is weak (Boivin et al., 2010; Cillessen & Lansu, 2015; Hanish et al., 2004). Children who display externalizing behaviors may reduce these behaviors in response to being victimized. Indeed, Boivin et al. (2010) found that chronic victims were more aggressive than non-victims and unstable victims in Grade 3, but decreased in aggression from Grades 4 to 6 to become as (un)aggressive as non-victims. Cillessen and Lansu (2015) also found that victimized youth exhibited high levels of aggression in Grade 4, but decreased in aggression from Grades 4 to 12. With decreasing externalizing behaviors, the chronic victimization of youth with a history of externalizing behavior may be due to low peer status or other deficits, such as in social skills, that they acquired in response to their earlier victimization (Caspi, Elder, & Bern, 1987; Kochenderfer-Ladd & Wardrop, 2001; Scholte, Engels, Overbeek, de Kemp, & Haselager, 2007). Future research should test such mediational processes.

Second, it is possible that chronically victimized students continue to display high levels of externalizing behaviors throughout childhood and adolescence, but this seems counterintuitive given the weak concurrent association between victimization and externalizing behavior at that time (Boivin et al., 2010; Cillessen & Lansu, 2015; Hanish et al., 2004). However, the weak overall association may reflect the heterogeneity of aggressive and delinquent youth (Moffitt, 1993), being life course-persistent or adolescence limited.

The aggression of adolescence-limited youth who are not at risk for peer victimization may cancel out the concurrent association between externalizing behavior and peer victimization. Life course-persistent youth may be the chronically victimized youth whose high externalizing behavior from early childhood to adolescence is associated with victimization. This is consistent with Goldbaum et al. (2003), who found that victims displayed the highest levels of externalizing behaviors, such as bullying, throughout middle childhood (Grades 5 to 7). This suggests that children with externalizing problems in early childhood are at risk to become aggressive victims (or bully-victims) in adolescence, one of two distinct subtypes of victims (Stassen Berger, 2007; Unnever, 2005). This implies continuity of both victimization and externalizing behavior for the life-course-persistent group. Future research should follow chronically victimized youth from childhood into adolescence and further examine their long-term trajectories of aggression. This can reveal whether the early predictors of aggressive victimization and non-aggressive victimization differ.

The protective effect of ego-resiliency

The association of early childhood externalizing behaviors with later peer victimization at age 9 was moderated by ego-resiliency. Externalizing behavior was more strongly related to later peer victimization in middle childhood when children were less resilient. Why would externalizing behaviors be a risk factor for victimization among unresilient (or ego-brittle) children? Because they are not able to flexibly adjust their behavior and emotions to different situations (J. H. Block & Block, 1980), they may respond predictably with rewarding their provocateurs with aggression, making them attractive targets for bullies (Salmivalli & Helteenvuori, 2007). This leads to the hypothesis that the aggression of ego-brittle children is reactive rather than proactive.

In contrast, externalizing children with high levels of ego-resiliency are able to adjust their behavior to different social situations (J. H. Block & Block, 1980). It has been argued that ego-resilient children can flexibly and strategically adjust their (externalizing) behavior to the group norms and interactions they discern (van den Berg et al., 2017). This is supported by research showing that popular adolescents are relatively ego-resilient (van den Berg et al., 2017) and proactively aggressive (Stoltz, Cillessen, van den Berg, & Gommans, 2016), and strategically direct their aggression primarily to other popular peers (Closson & Hymel, 2016). This can be seen as adaptation to group norms, as adolescents who direct aggression to high status victims increase in importance and dominance in the peer group (Andrews, Hanish, & Santos, 2017). This suggests that the ability to adapt behavior flexibly, but persistently and resourcefully, to social situations may protect children with externalizing problems in early childhood against being victimized in middle childhood.

Ego-resiliency also moderated the effect of externalizing behavior on the change of peer victimization after age 9. Children with low externalizing behaviors in early childhood decreased in peer victimization from age 9 to 13 if their ego-resiliency was relatively high. Low externalizing ego-resilient children are most socially competent; they behave in a non-impulsive deliberative way, which is normative as youth grow up (Côté, Tremblay, Nagin, Zoccolillo, & Vitaro, 2002). It is not surprising that they are increasingly less victimized.

Strengths, considerations, and suggestions for further research

Strengths of this study were the long-term longitudinal time-span of eight years, a low attrition rate, and a multi-informant approach. Long-term longitudinal studies expand our understanding of social processes to different developmental periods. The current study adds to the literature that the early predictors of peer victimization in middle childhood and early adolescence cannot be generalized from studies that examined predictors at later ages. Early childhood externalizing behavior was a stronger predictor than internalizing behavior of peer victimization in middle childhood and the change in victimization from middle childhood to adolescence. Previous studies that examined internalizing and externalizing behavior in middle childhood and adolescence found the opposite pattern.

In long-term longitudinal studies, constructs can often be measured by a limited number of questions only. Moreover, best practices in assessment change over time. At the time our study was planned, we were not able to include detailed measures of different forms of victimization, as has become common more recently (Crick et al., 2001). New longitudinal studies should build on our findings and include state-of-the-art measures of peer victimization, internalizing and externalizing, and personality. Moreover, new studies should examine which internalizing and externalizing behaviors specifically are related to later peer victimization. Furthermore, our attrition analyses indicated that children with high externalizing and low ego-resiliency were more likely to drop out. Our findings thus cannot be generalized to clinical samples with very high levels of externalizing behavior.

Another consequence of our long-term design is that the sample size was relatively small, due to the considerable time and effort that it takes to follow children over such a long time. We therefore did not have the statistical power to examine gender differences. In some previous short-term longitudinal studies, internalizing behaviors were a stronger predictor of later peer victimization for girls, and externalizing behaviors for boys (see, e.g., Hanish et al., 2004; Sentse et al., 2017; Snyder et al., 2003). Other studies found no gender differences (see, e.g., Barker et al., 2008; Boivin et al., 2010; van Lier & Koot, 2010). Sugimura et al. (2017) demonstrated the relevance of gender for long-term longitudinal research by showing that internalizing and externalizing behaviors differentially predicted later trajectories of victimization for boys and girls. In addition to including gender, we recommend to distinguish different types of externalizing and internalizing problems, such as anxiety and depression, for which gender differences vary (Sentse et al., 2017).

Another limitation is our focus on relative growth in peer victimization because its response format was not identical across waves. Children with relatively low levels of ego-resiliency and high levels of externalizing behaviors stably reported more peer victimization than their peers, but their absolute levels of peer victimization may have changed. For example, the frequency and severity of peer victimization may change over time and may vary depending on children's early childhood characteristics.

This study did not determine causal effects. We found a link between early childhood externalizing behavior and peer victimization in adolescence. Because we did not examine victimization in early childhood, we do not know whether children were victimized due to their externalizing behavior or if they were already victimized in early childhood. Future long-term longitudinal studies that measure a wider array of constructs at each time point are needed to further support the developmental model linking peer victimization and externalizing behaviors.

A further suggestion for future research is to examine how the developmental models that link internalizing and externalizing behaviors with subsequent peer victimization are related. According to the developmental cascade model, children first display externalizing behaviors that lead to later victimization. Victimization leads to the development of internalizing problems, and these internalizing problems lead to further victimization in middle childhood and adolescence (Sentse et al., 2017; Vaillancourt et al., 2013). Consistent with this model, short-term longitudinal studies have shown links between early externalizing behaviors and later internalizing behaviors mediated by negative peer experiences such as victimization (Ladd & Troop-Gordon, 2003; van Lier et al., 2012). Future research should extend the time span of these studies to examine whether early childhood externalizing behaviors are linked to internalizing behaviors in adolescence via peer victimization in middle childhood. Such models require a larger sample size than was available in this study.

Practical implications

It has been argued that peer victimization prevention programs should be targeted at young children, before victimization stabilizes and detrimentally impacts long-term functioning (Hanish & Guerra, 2004; Pouwels et al., 2016). This study enhanced our understanding of early childhood externalizing behavior as a risk factor associated with peer victimization throughout childhood and adolescence. Therefore, we should be concerned about early externalizing children; they may continue to display externalizing behaviors later in life (Hay et al., 2004), and are at risk for chronic peer victimization. They may become aggressive victims who have the most severe psychological and emotional problems (Stassen Berger, 2007; Unnever, 2005), which highlights the importance of targeting this group.

Externalizing behavior early in life may not always be a risk for later maladjustment and peer victimization because children may be

protected by other factors, such as their ego-resiliency. If future studies replicate that externalizing children with low ego-resiliency are particularly at risk, efforts to prevent peer victimization could focus specifically on externalizing children with low ego-resiliency. Future research should address whether the ego-resilient externalizing group is similarly protected against other negative peer experiences. Knowing children's ego-resiliency may help us to identify which externalizing children are at risk for future negative per experiences. Intervention programs may also try to enhance children's ego-resiliency to protect them against later (chronic) victimization and psychopathology. For example, ego-resiliency may be fostered by promoting high quality parent-child interactions (Eisenberg et al., 2005; van den Berg et al., 2017).

Conclusion

This longitudinal study examined the early childhood predictors of later peer victimization. Children with high levels of externalizing behaviors in early childhood experienced chronic victimization. Children with high levels of internalizing behaviors in early childhood did not experience peer victimization throughout middle childhood and adolescence. Not all children with elevated levels of externalizing behaviors were at risk, as ego-resilient children were protected against chronic peer victimization.

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Declarations of interest

none

Table A1
Number of participants in the subsample present across the waves of data collection.

	Absent age 12			Present age 12			Total
	Absent age 13	Present age 13	Sub-total	Absent age 13	Present age 13	Sub-total	
Absent age 9	0	1	1	0	15	15	16
Present age 9	3	11	14	5	61	66	80
Total	3	12	15	5	76	81	96

Note. All 96 participants were present at age 5.

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