



Peer victimization and internalizing problems in children: A meta-analysis of longitudinal studies

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ABSTRACT

Objective: A recent meta-analytic review of cross-sectional studies examining correlations between peer victimization and indices of internalizing problems indicates that victims of bullying are highly distressed. However, the reliance on cross-sectional studies precludes interpretation of the direction of effects. The present study was designed to investigate if internalizing problems are antecedents of victimization, consequences of victimization, or both.

Method: This paper provides a meta-analysis of 18 longitudinal studies examining prospective linkages between peer victimization and internalizing problems ($n = 13,978$). Two prospective paths were examined: the extent to which peer victimization at baseline predicts changes in internalizing problems, as well as the extent to which internalizing problems at baseline predict changes in peer victimization.

Results: Results revealed significant associations between peer victimization and subsequent changes in internalizing problems, as well as significant associations between internalizing problems and subsequent changes in peer victimization. Several moderator effects were observed.

Conclusions: Internalizing problems function as both antecedents and consequences of peer victimization. These reciprocal influences suggest a vicious cycle that contributes to the high stability of peer victimization.

Practice implications: This study should further encourage steps to reduce bullying at schools.

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Introduction

During the past 2 decades, a body of research has emerged showing that many children in elementary and high school are victimized by their peers (Kochenderfer & Ladd, 1996; Nansel, Overpeck, Pilla, Ruan, Simons-Morton, & Scheidt, 2001). It is common for most children to occasionally be the target of peer victimization (Hanish & Guerra, 2000; Storch & Ledley, 2005), and 10% of children receive regular and chronic victimization from their peers (Epstein, 1990; Storch & Ledley, 2005).

Peer victimization can take various forms, including direct bullying behaviors (e.g., teasing, physical aggression) as well as more indirect manifestations such as group exclusion or malicious gossip (Crick, Kasas, & Ku, 1999). Tradition-

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ally, researchers have distinguished between aggressive and passive victims of peer torment (Craig, 1998; Perry, Kusel, & Perry, 1988; Salmivalli & Nieminen, 2002). Aggressive victims (“provocative victims” or “bully-victims”) are high in both victimization and bullying. These children are easily angered and provoked, and often display a hostile-aggressive style of social interaction (Ma, 2004; Pellegrini, 1998; Schwartz, 2000). The passive subtype, which comprises the large majority of victims, pertains to socially withdrawn children who often display internalizing problems (e.g., sadness, manifest anxiety).

Numerous studies have shown that peer victimization is concurrently associated with a range of adjustment difficulties, including loneliness (Boivin & Hymel, 1997), school-related fear, anxiety or avoidance (Kumpulainen et al., 1998), depression (Kaltiala-Heino, Rimpela, Marttunen, Rimpela, & Rantanen, 1999), and low self-esteem (Egan & Perry, 1998; Juvonen, Nishina, & Graham, 2000). Almost a decade ago, Hawker and Boulton (2000) presented a meta-analytic review of cross-sectional studies examining correlations between peer victimization and indices of psychosocial maladjustment. Their meta-analysis included 23 studies and over 5,000 children. Results showed that relative to their peers, victimized children display significantly higher levels of psychological problems, including depression, loneliness, and anxiety. Moreover, higher levels of peer victimization were negatively related to global self-esteem and social self-concept. After controlling for shared method variance, mean effect sizes as indexed by Pearson's r ranged from .19 (anxiety) to .29 (depression).

The Hawker and Boulton (2000) meta-analysis provides clear evidence that victims of bullies are highly distressed individuals. However, due to the reliance on cross-sectional studies it remains unclear if peer victimization is a cause or a consequence of psychological maladjustment, or both. Many theorists consider victimization primarily as “an agent of future adjustment problems” (Hanish & Guerra, 2000, p. 58). To the extent that the experience of peer abuse is aversive and humiliating, it may cause depression, reinforcement of negative self-evaluations, and fear or avoidance of social interactions. Conversely, psychological difficulties may also precede subsequent victimization (Finnegan, Hodges, & Perry, 1996). Proponents of this latter view posit that victimized children often exhibit behaviors such as fearfulness and social withdrawal that invites bullying by peers. Moreover, children who display internalizing problems (e.g., manifest anxiety, crying easily) are likely hampered in their ability to defend themselves effectively during attacks, and this may lead aggressive children to expect impunity with respect to their bullying behavior.

During the past decade, several longitudinal studies, with time frames ranging from 6 months to 2 years, have examined linkages between indices of psychological maladjustment and peer victimization over time (Bond, Carlin, Thomas, Rubin, & Klein, 2001; Dhami, Høglund, Leadbeater, & Boone, 2005; Hanish & Guerra, 2002; Snyder et al., 2003). Some studies have found that recurrent peer victimization predicts significant increases in maladjustment over time, whereas others have failed to chronicle such linkages. For instance, Schwartz, McFadyen-Ketchum, Dodge, Pettit, and Bates (1998) observed that peer victimization was not a significant predictor of increases in internalizing problems during a 2-year period. In a similar vein, some studies demonstrated that psychological maladjustment predicts significant increases in peer victimization (Hodges & Perry, 1999), but others have observed no such association. For instance, Bond and colleagues (2001) found no support for a linkage between psychological problems and subsequent increases in victimization.

In a recent narrative review Storch and Ledley (2005) discuss studies examining the cross-sectional and longitudinal relations between peer victimization and psychological adjustment in children. The authors conclude that victimization during childhood predicts increases in a variety of internalizing problems over time. They also cite evidence suggesting that such psychological problems invite increased victimization over time. However, it should be noted that the review did not include several null-finding studies (Khatri, Kuperschmidt, & Patterson, 2000; Snyder et al., 2003).

Several leading meta-analytic researchers (Rosenthal, 1995) have asserted that when evaluating associations between constructs meta-analyses extend narrative reviews in important ways. First, whereas qualitative reviews typically count the number of studies supporting various sides of an issue, ignoring sample size, effect size, and research design, a meta-analysis yields a more objective, quantitative estimate of the strength of the linkage. This effect size estimate enables a comparison with other potential factors influencing the variable of interest. Second, unlike narrative reviews, meta-analyses aim to reveal factors causing differences in outcomes across studies, thereby often yielding important and/or promising directions for future research (Egger & Smith, 1997).

The major aim of the current study was to provide a quantitative review of studies examining the prospective linkages between peer victimization and psychological maladjustment in children, as indexed by internalizing problems (i.e., depression, anxiety, withdrawal, loneliness, somatic complaints). Only prospective studies that followed the same group of children over two or more points in time were included. A quantitative analysis examining the mean effect sizes associated with *both* directions of influence allows for the strongest inferences with regard to the temporal sequence of (changes in) peer victimization and (changes in) psychological maladjustment. Hence, two prospective paths were examined: (a) peer victimization at Time 1 predicting changes in psychological maladjustment from Time 1 to Time 2, after controlling for Time 1 maladjustment, and (b) psychological maladjustment at Time 1 predicting changes in peer victimization from Time 1 to Time 2, after controlling for Time 1 peer victimization.

The secondary aim of the present meta-analysis was to examine factors that may moderate the prospective relations between peer victimization and psychological maladjustment. In view of the many significant developmental events that occur between early childhood and adolescence, age is a potential moderator of the linkages between victimization and psychological maladjustment. In addition, we aim to examine the potential moderating role of several study design characteristics including sample size, gender composition, attrition rate, information source for victimization and maladjustment, time interval between baseline and follow-up assessment, analytic approach, and years since publication.

Table 1
Measures for internalizing problems.

Domain	Measure
Internalizing problems	Revised Clinical Interview Schedule, SPAI-C, SAS-A, School Liking and Avoidance Questionnaire, LSDQ, adapted version of the PNI, adapted version of the Revised Class Play, CBCL-TRF, YSR, adapted version of the CBCL-TRF, CACI, K-YSR, Short Depression Inventory for Children, author constructed depression scale, CBQ, CBS, observation of anxiety/sadness, ESBS

CACI = Computer Assisted Child Interview, CBCL-TRF = Children Behavior Check List, Teacher Report Form, CBQ = Children's Behavioral Questionnaire, CBS = Children Behavior Scale, CDI = Children Depression Inventory, ESBS = Early School Behavior Rating Scale, K-YSR = Korean Youth Self-Report, LSDQ = Loneliness and Social Dissatisfaction Questionnaire, PNI = Peer Nomination Inventory, SAS-A = Social Anxiety Scale for Adolescents, SPAI-C = Social Phobia and Anxiety Inventory for Children, and YSR = Youth Self-Report.

Method

Study selection

Multiple sources were used to identify potentially eligible studies. First, a large set of studies ($n = 243$) was retrieved by searches in PsycLIT, PsycInfo, Web of Science, and PubMed. No specific year was indicated, and the following Keywords: were used in varying combinations: peer victimization; peer harassment; peer aggression; bullying; children; youth; adolescence; and names of authors in the field. Second reference sections of retrieved studies were examined for other potentially eligible studies. We also used the "cited by" research tool. Third researchers in the field were contacted to obtain other relevant studies.

Next, a selection was made from the retrieved articles. To be included, studies had to control for the initial value of the outcome under study (i.e., peer victimization, or internalizing problems). Moreover, only prospective studies presenting data on both peer victimization and one or more measures tapping symptoms of internalizing problems were included. Peer victimization could include both direct and indirect manifestations. Due to their limited number, studies focusing exclusively on the linkage between peer victimization and variables not directly tapping internal psychological problems (e.g., academic performance) were excluded.

Studies exclusively targeting externalizing psychopathology were excluded from the present meta-analysis. The reason for this exclusion was twofold. First, the prevailing view in the field is that internalizing problems in particular play a central role in the emergence and sequelae of peer victimization, whereas externalizing problems are thought to be particularly important for just a subgroup of victims (i.e., "bully-victims"). Second, relatively few ($n = 7$) studies were retrieved that prospectively examined the linkages between externalizing problems and peer victimization. According to Rosenthal (1995), meta-analytic results lack stability when they are based on a limited number of studies. Based on this same argument, the limited number of prospective studies examining linkages between interpersonal difficulties such as peer rejection or a lack of friends and victimization were not included. These two factors combined render including studies examining externalizing problems unsuitable at this point in time.

The decision to employ the broad-band dimension of internalizing problems, as opposed to more narrow-band clusters such as depression, anxiety, and withdrawal, was based on the relatively large number of studies that reported findings only at this level of aggregation. In cases where the research did not report sufficient statistical information to permit calculation of effect sizes ($n = 4$), an attempt was made to contact the corresponding author for additional information. Data were obtained for one additional study, thus leading to the exclusion of 3 studies.

The final sample of the current meta-analysis included 18 studies that met the criteria for inclusion. Of these, 15 examined the prospective effects of victimization on changes in internalizing problems over time; 11 studies examined internalizing problems predicting changes in victimization over time; and 8 studies investigated both antecedents and consequences of peer victimization in the context of a single study. Table 1 presents the measures that were used to assess internalizing problems. Table 2 presents a list of the included studies and their characteristics.

Coding of study characteristics

All eligible studies were coded using a detailed coding scheme. Measures indexing internalizing problems included anxiety, depression, withdrawal, loneliness, and somatic symptoms (e.g., headache, poor appetite), or combinations thereof. With regard to sample characteristics, we recorded gender composition (as indexed by percentage males) and the mean age of participants at baseline. As can be seen in Table 2, the variability in range with regard to gender composition was very limited (percentage males ranged from 49% to 54%). Age was broken down into a categorical moderator, including early childhood (age 0–6 years), middle childhood (age 7–12 years) and adolescence (older than 12 years). Most of the studies examined children in middle childhood, with only two examples of each of the other age groups (see Table 2). Hence, unfortunately, the potential moderator effects of age and gender composition cannot be tested adequately with the present set of studies.

Table 2
Summary of studies examining internalizing problems and peer victimization.

Study	Year	Sample size	% Male	Age	Internalizing problems assessed	Interval between time 1 and time 2 (months)	Peer victimization informant	Peer victimization measure	Shared method variance	Retention rate (%)	SEM	Effect size victimization to internalizing	Effect size internalizing to victimization
Boivin et al.	1995	641	49	10.8	Depression loneliness	12	Peers	Continuous	No	2.8	No	.09 [*]	N/A
Bond et al.	2001	2,559	47	13.5	Anxiety and depression	12	Self-report	Categorical	Yes	92.1	No	.21 ^{**}	.04
Dhami et al.	2005	423	51	6.3	Emotional problems	6	Self-report	Continuous	No	98.0	No	N/A	.06
Fekkes et al.	2006	1,118	50	10.0	Somatic symptoms anxiety expression	7	Self-report	Categorical	Yes	72.2	No	.26 ^{**}	.15
Goodman et al.	2001	361	49	11.5	Internalizing	24	Peers, observer, and teacher combined	Continuous	No	94.3	Yes	.39 ^{***}	N/A
Hanish and Guerra	2000	1,068	N/R	7.3	Withdrawal	24	Peers	Continuous	No	61.2	No	N/A	-.05
Hanish and Guerra	2002	1,469	50	7.3	Anxiety and expression withdrawal	24	Peers	Continuous	No	71.0	No	.07 ^{**}	N/A
Hanish et al.	2004	126	54	4.4	Anxiety	6	Teacher	Continuous	No	100	No	N/A	.10
Hodges and Perry	1999	173	50	11.3	Internalizing	12	Peers	Continuous	Yes	84.7	No	.23 ^{**}	.20 ^{**}
Hodges et al.	1999	393	48	10.7	Internalizing	12	Peers	Continuous	No	84.0	No	.23 ^{***}	.11 ^{**}
Khatri et al.	2000	471	46	11.5	Depression	12	Peers	Continuous	No	66.0	No	.07	N/A
Kim et al.	2006	1,666	50	13.5	Internalizing somatic symptoms anxiety and depression	10	Peers	Categorical	No	96.9	Yes	.04	.06
Kochenderfer and Ladd	1996	200	53	5.5	Loneliness school avoidance	6	Self-report	Categorical	Yes	100	No	.29 ^{***}	N/A
Schwartz et al.	1998	330	52	9.0	Internalizing	24	Peers	Continuous	No	85.0	No	.03	N/A
Schwartz et al.	2005	199	52	9.0	Depression	12	Peers	Continuous	No	82.9	Yes	.41 ^{***}	N/A
Snyder et al.	2003	266	51	5.5	Depression	18	Observer	Continuous	No	96.6	Yes	.09	.07
Storch et al.	2005	144	35	13.9	Social anxiety	12	Self-report	Continuous	Yes	72.7	No	.18 [*]	.01
Sweeting et al.	2006	2,371	52	11.0	Depression	24	Self-report	Continuous	Yes	92.0	Yes	.19 ^{***}	.18 ^{***}

^{*} $p < .05$.

^{**} $p < .01$.

^{***} $p < .001$.

Several design and measurement characteristics were also coded. For instance, the period of time between baseline (Time 1) and follow-up assessment (Time 2) was recorded. Next, we coded the information source of peer victimization assessment (i.e., participants themselves, peers, teacher, or observer), as well as whether victimization was indexed continuously or categorically. We also coded retention rate and whether or not the same informants were used to provide information on both victimization and maladjustment.

Studies were also classified as to whether or not they used Structural Equation Modeling (SEM). One widely acknowledged advantage of SEM techniques relative to more conventional techniques is the reduction of measurement error. In most of the studies included hierarchical multiple regression analyses were used, with standardized beta's expressing the strength of the relationship between peer victimization and one or more indices of psychological problems. For studies comparing different groups (e.g., victims vs. no-victims), the reported statistics were either odds ratios or incident cases. Finally, we recorded the number of years since publication.

All included studies were coded by the first author. Eleven randomly selected studies were also coded by the second author. Cohen's kappa was computed for the categorical variables included in the meta-analysis. Results revealed excellent between rater agreement; all kappa's exceeded .90.

Data analysis

Consistent with Hawker and Boulton (2000), Pearson's r was used as the effect size metric. Several studies provided direct estimates of r (e.g., partial correlations in Storch, Masia-Warner, Crisp, & Klein, 2005). Standardized beta coefficients were converted to r 's using the procedures outlined by Peterson and Brown (2005). The outcomes of studies reporting odds ratios or incident cases were transformed to r 's using the Comprehensive Meta-Analysis (CMA) program—Version 2.2—developed by Borenstein, Rothstein, and Cohen (2000).

Mean effect sizes for the total sample were calculated using CMA for those studies reporting separate effect sizes for two or more independent groups of participants. For instance, separate effect sizes for subtypes of victimization (overt and relational in Storch et al., 2005) or separate effect sizes for different measures tapping the same underlying construct (SAS-A en SPAI-C both assessing social anxiety in Storch et al., 2005) were combined into one overall mean effect size. In one study (Goodman, Stormshak, & Dishion, 2001), separate effect sizes reported for boys and girls were pooled. Because the magnitude of these effects were very similar (beta's .32 and .37, respectively), no potentially relevant gender differences were obscured by pooling.

Effect sizes were analyzed using the random effects model, in which the error term is composed of variation originating from both within-study variability and between-study differences (Cooper & Hedges, 1994). In contrast to the fixed effects model, which assumes a common underlying effect, the random effects model estimates the average effect size assuming that the studies originate from populations with varying effect sizes (Cooper & Hedges, 1994). Consequently, the random effects model allows for greater generalizability than the fixed effects model. Specifically, in the random effects model the generalization extends beyond the specific studies to other studies considered to be part of the same population (Rosenthal, 1995).

Two separate effect sizes were computed; internalizing problems as antecedents of changes in peer victimization, and changes in internalizing problems as consequences of peer victimization. For each effect size estimate we also calculated statistical significance (p) and the 95% confidence interval (CI). Moreover, the minimum number of studies with null results that are needed to reduce significant meta-analytic results to non-significance (Durlak & Lipsey, 1991) was assessed. Meta-analytic findings are considered to be robust if this fail safe number (FSN) exceeds the critical value recommended by Rosenthal (1991): five times the number of studies, plus 10. This "file drawer problem" refers to the well supported suspicion that the studies retrievable in a meta-analysis cannot be assumed to be a random sample of all studies actually carried out, because published studies are more likely to have found significant results than studies put away in the file drawers (Rosenthal, 1991).

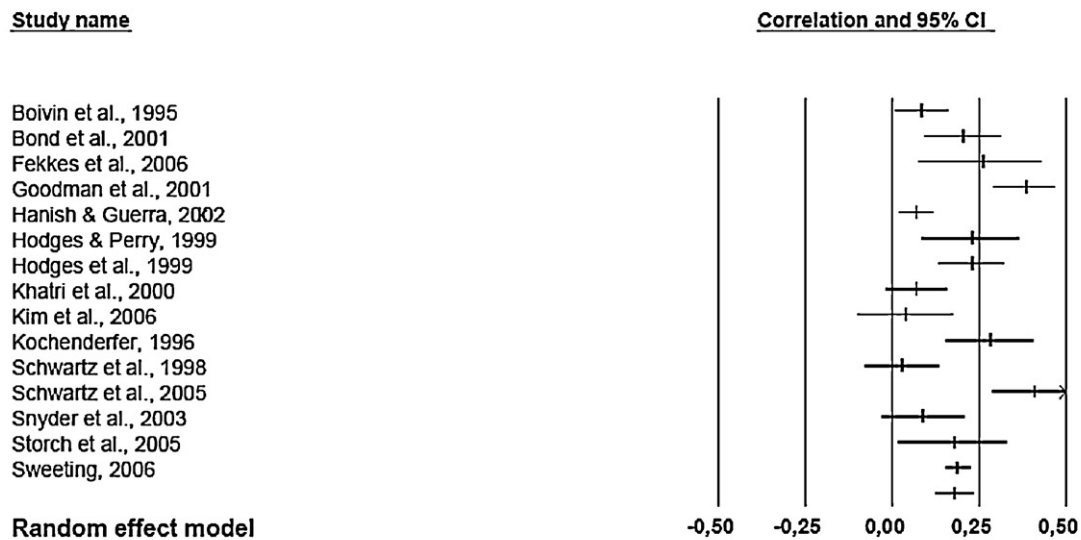
The distribution of effect sizes was examined using tests of heterogeneity. Significant heterogeneity indicates that differences across effect sizes are likely due to sources other than sampling error, such as different study characteristics. Moderator analyses were then conducted to examine the variability in effect sizes across studies. Categorical moderator tests are analogous to analysis of variance (ANOVA) and yield two homogeneity estimates, a within groups Q (Q_w) and a between groups Q (Q_b). A significant value for Q_w indicates that the effect sizes within a category of the moderator variable are heterogeneous, whereas a significant value for Q_b indicates that the effects sizes are significantly different across different categories of the moderator variable (Lipsey & Wilson, 2000). Regression analyses were performed within CMA in instances where the putative moderator variable was continuous.

Results

Peer victimization predicting changes in internalizing problems

The 15 studies examining this prospective linkage, all controlling for the initial levels of internalizing problems, reported data on 12,361 participants. A list of all studies and their characteristics is presented in Table 2. The distribution of effect sizes is presented in Fig. 1. As can be seen, r 's ranged from .04 to .41.

Time 1 Peer Victimization Predicting Time 2 Internalizing Problems



Time 1 Internalizing Problems Predicting Time 2 Peer Victimization

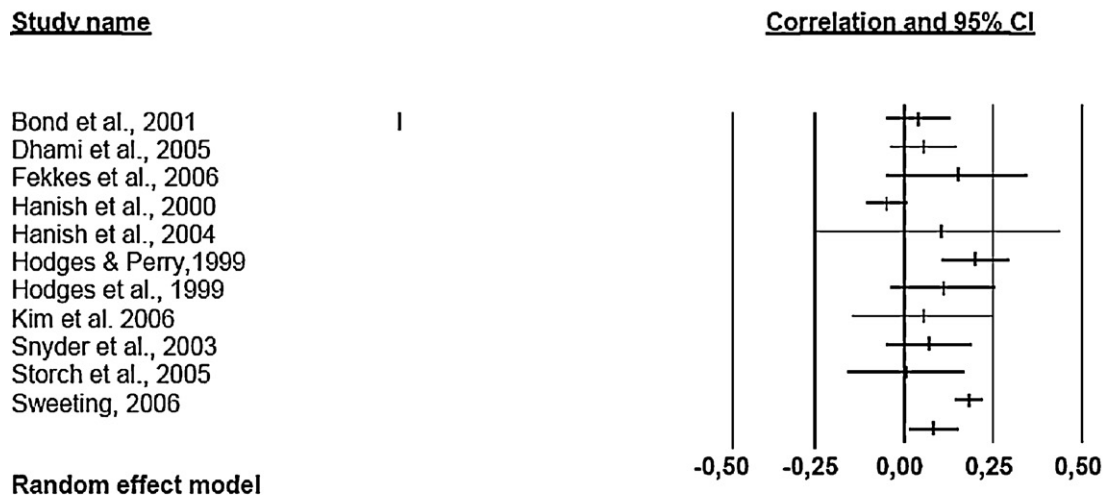


Fig. 1. Effect sizes for studies examining peer victimization at Time 1. Predicting internalizing problems at Time 2 and internalizing problems at Time 1. Predicting peer victimization at Time 2.

Peer victimization significantly predicted changes in internalizing problems over time [$r = .18$ (95% CI $.12 < r < .24$), $Z = 6.16$, $p < .001$]. The fail safe number (FSN) of null results needed to overturn this significant result was 708, which far exceeds the criterion recommended by Rosenthal (1991); that is, 5 times the number of studies in the analysis plus 10; $FSN > 5k + 10$. The results can thus be considered robust against the file drawer effect.

The test of homogeneity of variance indicated significant heterogeneity across samples: $Q(14) = 76.57$, $p < .001$. Moderator analyses revealed a significantly larger effect size for studies that used SEM techniques ($r = .23$, $p < .001$, $n = 5$), relative to those that did not ($r = .15$, $p < .001$, $n = 10$): $Q(1) = 16.00$, $p < .001$. Moreover, studies using the same informant to provide information on both victimization and adjustment reported significantly larger effect sizes ($r = .20$, $p < .001$, $n = 6$) than those that did not ($r = .16$, $p < .001$, $n = 9$): $Q(1) = 10.73$, $p < .002$. No significant effects were observed for the other putative moderators

examined (i.e., period of time between baseline and follow-up assessment, sample size, years since publication, retention rate, information source of peer victimization, and peer victimization measure).

Internalizing problems predicting changes in peer victimization

The 11 studies examining this relationship, all controlling for the initial levels of peer victimization, included data on 10,307 participants (see Table 2). As can be seen in Boivin et al., 1995; Fekkes et al., 2006; Hanish et al., 2004; Hodges et al., 1999; Kim et al., 2006; Schwartz et al., 2005; Fig. 1, r 's ranged from $-.05$ to $.20$. Internalizing problems at Time 1 significantly predicted changes in peer victimization over time [$r = .08$ (95% CI $.01 < r < .16$), $Z = 2.32$, $p < .03$].

The FSN was 78, suggesting no file drawer threat. The test of homogeneity of variance revealed significant heterogeneity across samples: $Q(10) = 48.58$, $p < .001$. Moderator analyses revealed a significantly larger effect size for studies that used SEM techniques ($r = .13$, $p < .01$, $n = 3$), relative to those that did not ($r = .07$, $p < .08$, $n = 8$): $Q(1) = 23.13$, $p < .001$. Moreover, a significantly larger effect size was observed for studies using the same informant to provide information on both victimization and adjustment ($r = .11$, $p < .002$, $n = 5$), relative to studies that avoided this source of shared method variance ($r = .07$, $p > .15$, $n = 6$): $Q(1) = 17.69$, $p < .001$. No other significant moderator effects were observed.

Peer victimization and internalizing problems: causes, consequences, or both?

To address this question we compared the magnitude of effect sizes for the two directional paths, namely peer victimization at Time 1 predicting changes in psychological adjustment and psychological adjustment at Time 1 predicting changes in peer victimization. The predictive effects of peer victimization on changes in internalizing problems appeared somewhat stronger in magnitude than the reverse model ($.18$ vs. $.08$). However, the difference was not significant when using a random effects model, as evidenced by overlapping 95% confidence intervals. Taken together, the findings suggest a symmetrical bi-directional relationship between peer victimization and internalizing problems.

Discussion

The present meta-analysis examined the linkages between peer victimization and internalizing problems over time. Specifically, we examined the extent to which peer victimization at baseline predicts future changes in internalizing problems, as well as the extent to which internalizing problems at baseline predict future changes in peer victimization. Moreover, moderator analyses were performed to identify variables that may affect the direction and/or strength of these linkages.

Mean effect sizes showed that after controlling for internalizing problems at baseline, peer victimization at Time 1 is significantly associated with higher levels of internalizing problems at follow-up. Fail safe number analyses revealed that the significant path from peer victimization to subsequent changes in internalizing problems is unlikely due to a publication bias. Similarly, the reverse path of internalizing problems leading to subsequent changes in peer victimization was also significant and robust against publication bias. It thus appears that internalizing problems also maintain and solidify children's standing as a victim of peer torment, as opposed to only being a consequence of peer victimization. Taken together, these findings provide objective quantitative support for the conclusions formulated by Storch and Ledley (2005) in their recent qualitative review.

Based on the conventions suggested by Cohen (1988), the observed effect sizes were small to moderate, similar to the effects reported in the cross-sectional meta-analysis (Hawker & Boulton, 2000). The modest magnitude of effects is not surprising given that psychological (mal)adjustment is likely governed by a host of other factors including biological, genetic, and environmental ones (Ahadi & Diener, 1989). It is worth noting that the magnitude of these effect sizes is comparable to those often observed in psychological research (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). Moreover, as noted by McCartney and Rosenthal (2000), even small effect sizes can be of theoretical and practical significance.

As expected, significant variability was observed across studies. Moderator analyses revealed that methodological study characteristics accounted for significant variance in effect sizes. Specifically, similar to the results obtained in the cross-sectional meta-analysis (Hawker & Boulton, 2000), effect sizes were stronger for studies using the same informants to provide information on both victimization and internalizing problems, relative to studies using different informants. This comes as no surprise, since shared method variance is likely to inflate effect sizes. Moreover, studies employing SEM techniques reported stronger effect sizes than studies relying on more conventional techniques such as multiple regression analyses. One implication of this latter finding is that the overall mean effect sizes may underestimate the magnitude of the "true" (i.e., error-free) effect sizes.

Several limitations of the present meta-analysis deserve comment. First, we focused on predictive relations between peer victimization and a general grouping of internalizing problems. Hence, our findings do not directly speak to the relationship between peer victimization and more narrow-band problems (e.g., depression, anxiety). Second, we note that longitudinal studies do not permit strong causal inferences as to whether victimization leads to internalizing problems or vice versa. Although longitudinal studies clarify whether victimization tends to precede the appearance or change/increase in internalizing problems, they are mute with regard to causal relationships. There may be other variables that lead to both victimization and psychological problems (e.g., adverse home environment). Third, the ability to detect moderator effects was limited by both limited variability in range (age, gender composition) and the relatively small number of studies. Consequently, our

current knowledge with regard to possible important age and gender differences remains limited. Moreover, it should be acknowledged that the significant moderator effects that were observed should be interpreted with caution, because these findings are based on a limited number of studies.

Notwithstanding these limitations, our findings add to the findings of the Hawker and Boulton (2000) meta-analysis by showing that internalizing problems are not only concurrently linked to peer victimization, but also constitute a risk factor for changes in peer victimization over time and vice versa. Although our findings do not constitute definite proof of cause effect-relations, they do suggest that internalizing problems are equally strong causes as well as consequences of peer victimization. These reciprocal influences suggest the existence of a vicious cycle contributing to the temporal stability of peer victimization.

Whereas the findings of this meta-analysis add to our knowledge of the dynamics between peer victimization and internalizing problems, many questions remain. Below we offer several recommendations for advancing research.

Greater explication of the peer victimization construct

Our survey of the existing research indicates considerable heterogeneity in both the conceptualization and measurement of the peer victimization construct. Some have opted for a broad conceptualization that includes both social exclusion from one's peer group as well as a persistent exposure to active bullying or teasing from one's peers. Although exposure to persistent social exclusion and persistent teasing/bullying are each likely to exert important effects, future studies are needed that assess children's exposure to both types of experiences separately, in order to assess their unique contribution to psychological maladjustment.

Need for longer follow-up periods and studies examining participants in early childhood and adolescence

The majority of the longitudinal studies to date have used time frames of 12 months or less, thereby focusing on children in middle childhood. Given the high stability of victimization over the childhood years, and evidence showing that the effects of victimization during childhood and early adolescence may have adverse long-term outcomes (Olweus, 1992), we recommend that studies will employ more extended time frames. Moreover, more studies are needed examining the dynamics between peer victimization and psychological maladjustment in both early childhood and adolescence.

Need for repeated assessments to elucidate the causal pathways for the development of specific psychological problems

Most longitudinal studies have relied on only two assessment waves of the targeted constructs. The inclusion of three or more assessment points provides greater information on the *pattern* of change over time, as well as the opportunity to use growth curve modeling such as HLM to test relationships between peer victimization and psychological maladjustment. Moreover, not all maladjustment problems may develop at the same time; multiple assessments also provide the opportunity to investigate how one consequence of peer victimization (e.g., social anxiety) may contribute to the subsequent development of another problem (e.g., depression). Importantly, other adverse life events (e.g., parental divorce, illness) occurring between the multiple assessment points should be assessed and their potential impact on both peer victimization and psychological maladjustment be examined.

Greater attention to the assessment of both risk and protective factors that may moderate the relationship between peer victimization and subsequent psychological maladjustment

Most of the studies to date have paid little attention to factors that put victimized children at greater risk for significant psychological maladjustment as well as factors that may increase children's resiliency to peer victimization. We recommend that future studies assess such variables (e.g., social standing, number of friends, physical strength/weakness, athletic competence) and include moderator analyses to further our understanding of the effects of these risk and protective factors.

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