Journal of Experimental Child Psychology 166 (2018) 1–16

Contents lists available at ScienceDirect

Journal of Experimental Child Psychology

journal homepage: www.elsevier.com/locate/jecp

Examining co-occurring and pure relational and physical victimization in early childhood

Sarah J. Blakely-McClure *, Jamie M. Ostrov

Department of Psychology, University at Buffalo, State University of New York, Buffalo, NY 14260, USA

ARTICLE INFO

Article history:
Received 7 October 2016
Revised 15 July 2017

Keywords:
Co-occurrence
Relational victimization
Physical victimization
Internalizing
Bifactor
Adjustment

ABSTRACT

The current study took a novel approach to examining peer victimization experiences on a continuum in early childhood. A bifactor approach was used to examine co-occurring victimization as well as the relative contribution of subtypes of victimization, including both physical and relational victimization. To date, no known research has examined co-occurring victimization in early childhood. The fit of a bifactor model, as well as the utility of the model in testing associations with internalizing problems, was examined. The short-term longitudinal study ($N = 231$; 109 girls; $M_{age} = 47.46$ months, $SD = 7.35$) found support for a hierarchical structure of victimization, including co-occurrence and "pure" victimization dimensions, in early childhood. Regression analyses supported that both co-occurring victimization and relational victimization were associated with internalizing adjustment outcomes. These associations differed by gender. A bifactor model may be a useful statistical technique to address the common finding of co-occurrence of victimization to better understand peer harassment experiences and risk for adjustment problems.

Introduction

Research on peer victimization is important because it has been identified as a common experience among children that may lead to adjustment problems such as internalizing problems (i.e., depression

* Corresponding author.
E-mail address: sarahjes@buffalo.edu (S.J. Blakely-McClure).

http://dx.doi.org/10.1016/j.jecp.2017.07.011
0022-0965/

and anxiety) for some youths (Card & Hodges, 2008; Hawker & Boulton, 2000). Peer victimization can broadly be defined as the receipt of aggression or threats of aggression (Crick, Casas, & Ku, 1999). Two types of victimization that are commonly discussed in the literature are physical victimization (e.g., children harmed or threatened to be harmed with physical force such as pushing, punching, and kicking; Crick & Grotpeter, 1996; Crick et al., 1999) and relational victimization (e.g., children harmed or threatened to be harmed with damage to their relationship with others such as social exclusion and malicious secret spreading or gossiping; Crick & Grotpeter, 1996; Crick et al., 1999). Verbal aggression can be defined as any hostile verbal act such as teasing, taunting, or making fun of another that does not expressly include physical threats or threats to the relationship (Crick & Grotpeter, 1996). In the current study, verbal victimization was not included; although physical and relational acts can involve verbal components in their expression, they differ in regard to the content of these acts. Previous research in adolescence has identified that individuals who experience multiple forms of victimization have been found to be at greater risk for adjustment problems such as internalizing problems (Card & Hodges, 2008; Crick & Bigbee, 1998; Hanish & Guerra, 2002; Malti, Perren, & Buchmann, 2010; Olweus, 1993; Prinstein, Boergers, & Vernberg, 2001; Troop-Gordon & Ladd, 2005). Moreover, receiving peer victimization in early childhood has been found to be associated with adjustment problems later in life, suggesting that early victimization can have a lasting impact (McDougall & Vaillancourt, 2015). One of the challenges the current literature faces is how best to examine the co-occurrence (receiving multiple forms of victimization) of peer victimization and its associated adjustment problems. Previous analytic strategies have grappled with how to best measure co-occurring victimization, and to our knowledge co-occurring victimization has not been examined using an early childhood sample.

Recent statistical approaches have typically focused on a single type of victimization while controlling for the other form of victimization and grouping children into dichotomous categories. These approaches have limitations in their ability to examine co-occurrence of victimization. Furthermore, although there have been a few concurrent studies demonstrating links between forms of peer victimization and social–psychological adjustment in early childhood (e.g., Crick et al., 1999; Garner & Lemerise, 2007; Nelson, Robinson, Hart, Albano, & Marshall, 2010; Ostrov, Woods, Jansen, Casas, & Crick, 2004), there has been limited longitudinal work on early childhood peer victimization experiences and adjustment problems (cf. Kamper-DeMarco & Ostrov, 2017). Previous meta-analyses examining peer victimization and adjustment (see Casper & Card, 2016; Reijntjes et al., 2011) included only three early childhood studies. Given the relative lack of research examining peer victimization more generally as well as co-occurrence in early childhood, more research is needed that may inform the design of prevention and intervention efforts earlier in development (Hawker & Boulton, 2000). To this end, the current study is an examination of the overlap or co-occurrence of the subtypes of peer victimization among a young sample using a bifactor model approach, which differs from previous studies examining peer victimization in childhood and adolescence.

Co-occurrence of victimization and adjustment

Historically, research focused largely on physical forms of peer victimization, and this work supported an association between physical victimization and internalizing problems (Boulton & Underwood, 1992; Crick et al., 1999; Olweus, 1993). However, the sole focus on physical victimization was problematic because it is more commonly experienced by boys in comparison with girls (Crick & Bigbee, 1998; Crick et al., 1999). Hence, a focus on just physical victimization may have biased findings that failed to identify peer harassment experiences for girls, suggesting that girls are not victimized. Crick and Bigbee (1998) estimated that failure to consider relational victimization in their middle childhood sample likely excluded 30% of the "victims," and many were girls. Thus, researchers since 1996 have argued that it is important to consider relational victimization for a more gender-balanced approach to understanding victimization experiences (Crick & Grotpeter, 1996). More current research has identified that relational victimization has also been found to be associated with several internalizing problems such as depression and anxiety, particularly for girls in middle childhood and adolescence (Crick & Bigbee, 1998; Crick et al., 1999; Kawabata, Crick, & Hamaguchi, 2013; Kochenderfer & Ladd, 1996b; Prinstein et al., 2001; Rudolph, Troop-Gordon, & Flynn, 2009).

Cullerton-Sen and Crick (2005) further found support that including relational victimization in research aids in the identification of unique information about adjustment outcomes in middle childhood beyond accounting for physical/overt aggression, physical victimization, and relational aggression. This is notable because these behaviors are also associated with adjustment problems in middle childhood (see Murray-Close, Ostrov, & Crick, 2007). These previous findings highlight the potential importance of understanding both forms of victimization in the prediction of internalizing problems. Although victimization has also been associated with externalizing problems, the current study sought to examine the relation between co-occurring victimization and internalizing problems. In particular, Bradshaw, Waasdorp, and Johnson (2015) argued that receiving multiple forms of victimization may increase the likelihood of having self-blame attributions that may increase the risk for development of internalizing problems. These types of attributions have been thought to be associated with internalizing problems such as depressive and anxious symptoms. Although we did not directly test attributions' association with adjustment outcomes within this study, we wanted to examine internalizing problems within the study as a beginning step to examining related developmental processes among young children.

A key concern when studying multiple forms of victimization is that there is often a high degree of overlap between forms of peer victimization (i.e., experiencing multiple forms of victimization is common; Bellmore & Cillessen, 2006; Bradshaw, Waasdorp, & O'Brennan, 2013; Nylund, Bellmore, Nishina, & Graham, 2007; Prinstein et al., 2001). Previous research with middle childhood and adolescent samples has also identified that experiencing multiple forms of victimization is associated with increased risk for developing internalizing problems (Bradshaw et al., 2013; Prinstein et al., 2001). Bradshaw et al. (2015) suggested that these associations exist because experiencing multiple forms of victimization is more difficult to cope with, leading to internalizing problems. Including an assessment of co-occurrence of victimization, as well as understanding the relative contribution of each form, allows for a better understanding of the history of adaptation of children to better predict adjustment outcomes (Crick & Zahn-Waxler, 2003).

Measuring co-occurrence of victimization

Given that victimization often co-occurs (Nylund et al., 2007; Prinstein et al., 2001), one of the challenges for researchers to grapple with is how best to methodologically or statistically handle the high degree of overlap between victimization experiences. Past research has included two traditional approaches: (a) controlling for the other form of victimization (e.g., Cullerton-Sen & Crick, 2005) and (b) parceling data into dichotomous categories (e.g., Prinstein et al., 2001; van der Ploeg, Steglich, Salmivalli, & Veenstra, 2015). The first approach, controlling for the other form of victimization, does not allow the ability to account for co-occurrence of multiple forms of victimization. The second approach, which relies on formation of arbitrary discrete categories, could result in spurious associations, reduction of power, and loss of information regarding individual differences (Colder et al., 2013). Alternatively, researchers have taken various data-driven approaches (e.g., latent class analysis) to capture and address the overlap between forms of victimization (Bradshaw et al., 2013, 2015; Nylund et al., 2007). However, these approaches are limited in their ability to capture the dimensional nature of constructs in that they do not represent the full range of real-world experiences of victimization (Bradshaw et al., 2015; Markon, Chmielewski, & Miller, 2011). Furthermore, Markon et al. (2011) argued that dimensional approaches, such as the bifactor model, have provided more reliable and valid assessments (i.e., treating victimization on a continuum of high to low experiences).

A bifactor model accounts for covariance in observed measures in one general factor, with domain-specific factors that also take into account unique variance above and beyond the general factor allowing for the evaluation of importance of "pure" domain-specific factors (Brown, 2014). Previous studies have found the use of a bifactor approach to be useful for examining co-occurrence for aggression forms (Tackett, Daoud, De Bolle, & Burt, 2013), aggression functions (Fite, Colder, & Pelham, 2006), disruptive behaviors (Martel, Roberts, Gremillion, von Eye, & Nigg, 2011), and externalizing and internalizing problems (Colder et al., 2013; Keiley, Lofthouse, Bates, Dodge, & Pettit, 2003; Krueger, Markon, Patrick, Benning, & Kramer, 2007). The bifactor model is better able to account for the dimensional nature of peer victimization. It may also better model higher and lower peer victimization experiences

that are often complex (i.e., experiencing multiple forms of victimization with varying degrees of frequency). An additional benefit of using this approach is that it may allow researchers to not only account for the overlap of victimization by creating a variable that represents the co-occurrence and shared variance between forms of victimization but also permits researchers to account for the unique amount of variance associated with each specific form. To date, however, no known research examining physical and relational victimization has used a statistical approach such as a bifactor model. We aimed to test this model in early childhood to examine whether a bifactor model provides a useful approach to examining co-occurring victimization. We further examined the predictive utility of these models for internalizing problems.

Developmental considerations

Previous work examining victimization type has typically been conducted in middle childhood and adolescence (8–18 years of age). As mentioned previously, early peer victimization experiences have been found to be associated with internalizing problems later in life, suggesting that understanding peer victimization experiences at an early age is important (McDougall & Vaillancourt, 2015). Although not much is known about early childhood in regard to co-occurring victimization, we do know that a key developmental task in this period of development is learning about social contexts and beginning to form social relationships (Sroufe & Rutter, 1984). Children who do not meet these developmental tasks often are placed on a negative developmental trajectory (Sroufe & Rutter, 1984). Thus, children who are repeatedly experiencing victimization are experiencing multiple forms of social failure and may be at greater risk for maladjustment (Crick & Zahn-Waxler, 2003). There is interest in considering multiple forms of victimization in early childhood (3–5 years of age; e.g., Crick & Bigbee, 1998; Crick et al., 1999; Nelson, Yang, Coyne, Olsen, & Hart, 2013; Ostrov, 2008) because this work provides the opportunity for early preventive intervention (e.g., Godleski, Kamper, Ostrov, Hart, & Blakely-McClure, 2015). Crick and Bigbee (1998) identified that victimization even in the early school years is associated with psychosocial maladjustment such as peer rejection and loneliness. Previous work has been able to identify that both relational and physical victimization in early childhood have been associated with internalizing problems (e.g., Crick et al., 1999; Kochenderfer & Ladd, 1996a; Ostrov & Godleski, 2013). Although internalizing disorders such as depression and anxiety have not yet typically emerged at 3 to 5 years of age, internalizing symptoms are evident at this age, including fearful/anxious affect (e.g., a worried and fearful child), depressed affect (e.g., a child who often looks sad and does not appear to have fun), asocial behavior (e.g., a child who may avoid or withdraw from peers; Crick et al., 1999; Kochenderfer & Ladd, 1996a; Ostrov & Godleski, 2013). More recent work in early childhood has found unique associations between relational victimization and internalizing problems (Kamper-DeMarco & Ostrov, 2017). To date, despite a growing clinical and developmental literature on this topic, there is no known research that attempted to examine co-occurrence of victimization and the relative contribution of victimization forms in predicting associations with internalizing problems in young children (e.g., Bradshaw et al., 2013, 2015; Crick & Bigbee, 1998; Crick & Grotpeter, 1996; Crick et al., 1999; Kawabata et al., 2013; Prinstein et al., 2001; Rudolph et al., 2009; van der Ploeg et al., 2015).

Gender

In early childhood, research examining aggression and victimization has found support for gender-linked displays of aggression (e.g., Ostrov & Keating, 2004). For example, research by Crick et al. (1999) found that girls were more relationally victimized and boys were more physically victimized. Moreover, previous studies have found support for within-gender differences, such that girls experienced more relational victimization in comparison with physical victimization and boys experienced higher levels of overt victimization (i.e., physical and verbal forms of victimization) relative to relational victimization (e.g., Casper & Card, 2016; Phelps, 2001; Putallaz et al., 2007). Prior theory regarding gender schema's support that gender plays an important role in children's social and behavioral preferences, schemas, knowledge, and memory for social experiences (Ostrov & Godleski, 2010). This integrative gender-linked aggression subtypes theory suggests that memory and developmental impact for

gender salient and consistent experiences, such as relational victimization for young girls and physical victimization for young boys, may be greater than social experiences that are gender non-normative (i.e., physical victimization for girls). In support of this model, previous research has also found differential predictions for boys and girls in regard to depressive symptoms (Prinstein et al., 2001). That is, for girls relational victimization predicted depressive problems, whereas for boys overt victimization predicted depressive symptoms (Prinstein et al., 2001). Theoretically, it is important to include both relational and physical victimization in order to include constructs that are theoretically relevant for both genders in this developmental period (Ostrov & Godleski, 2010; Rose & Rudolph, 2006). If we do not include both forms, it could support the myth of the benign childhood for girls because their peer harassment experiences might not be captured (Crick & Zahn-Waxler, 2003). The experiences that are more developmentally salient for each gender may influence how form of victimization is associated with adjustment outcomes (Rose & Rudolph, 2006). More specifically, relational victimization may be a more salient experience for girls, whereas physical victimization may be more salient in particular for boys in early childhood (Crick & Zahn-Waxler, 2003; Ostrov & Godleski, 2010). Furthermore, previous studies have found that boys who later expressed dysthymia expressed these problems in a more externalizing fashion than girls (Block, Gjerde, & Block, 1991). This prior theory and research findings suggest that we may see different outcomes due to differing expression of maladjustment and, thus, gender differences should be explored (Crick & Zahn-Waxler, 2003). Given these potential gender differences and the possibility of differential predictions for relational and physical victimization, it was important to examine the role of gender in the current study.

The current study

The current study attempted to use the bifactor model as a way to examine both form of victimization and co-occurring victimization in early childhood. Given previous findings, research was also needed to examine the predictive utility of the bifactor model by testing the model's association with adjustment outcomes. Previous work on peer victimization can be used to guide preliminary hypotheses that would support the utility of the bifactor model. As we highlighted previously, both physical and relational victimization have been found to be associated with internalizing problems (e.g., Hawker & Boulton, 2000). Furthermore, co-occurring victimization has also been found to increase risk for developing internalizing problems (Bradshaw et al., 2013). Thus, we posited that the bifactor model could help to better examine the potential unique risk factors for both co-occurring and "pure" forms of victimization. Collectively, the current study may help to demonstrate how researchers who adopt the bifactor technique may possibly avoid the typical statistical and methodological issues that have limited the interpretability and usefulness of prior victimization studies.

The bifactor approach, in the current study, allowed us to distinguish between co-occurring relational and physical victimization from what we would consider "pure" relational victimization and "pure" physical victimization. A bifactor model was predicted to provide a better fit to the data than a two-factor model composed solely of physical and relational victimization. Furthermore, we tested the predictive utility of these dimensions by examining their association with a variety of future adjustment difficulties. Using adjustment outcomes may provide additional insight into the utility of the bifactor model. All three factors were hypothesized to predict internalizing problems (e.g., depressed affect, anxious/fearful, asocial/social withdrawal), such that peer victimization factors would be positively associated with subsequent internalizing problems. We also predicted that co-occurring victimization would have a stronger effect on outcomes in comparison with the associations for pure physical and relational victimization, respectively. Gender was examined as a potential moderator of the association. We hypothesized that robust effects for the co-occurring factor would be revealed for boys and girls, suggesting that co-occurring victimization would be associated with high levels of adjustment problems. However, pure physical victimization was expected to be associated with internalizing problems for boys (Boulton & Underwood, 1992; Crick et al., 1999; Olweus, 1993), and pure relational victimization was expected to be associated with internalizing problems for girls (Crick et al., 1999).

Method

Participants

The current study is a secondary analysis of data from three cohorts and three studies that were conducted across a 4-year span. The same procedures were used in each study unless noted below. The current sample included 231 preschool children (M_{age} = 47.46 months, SD = 7.35) from seven early childhood centers in the northeastern United States. All of these sites are nationally (i.e., NAEYC [National Association for the Education of Young Children]) accredited or recently accredited preschool classrooms. The sample consisted of 122 boys and 109 girls. The majority of children (63%) were Caucasian. The remaining children were multiracial (13.2%), Asian or Pacific Islander (10.6%), African American (5.1%), Hispanic/Latino (2.6%), and other/unknown ethnicities (5.5%). Using the Hollingshead's (1975) four-factor index 9-point scoring system (i.e., 9 = executives and professionals, 1 = service workers), the overall sample was identified as primarily middle class (the majority of the sample fell above an occupation code of 7, which represents the category of occupations that include small business owners, farm owners, managers, and minor professionals). Portions of the data have been used in previous publications (see Godleski et al., 2015; Kamper-DeMarco & Ostrov, 2017; Ostrov, Godleski, Kamper-DeMarco, Blakely-McClure, & Celenza, 2015; Ostrov, Kamper, Hart, Godleski, & Blakely-McClure, 2014). However, these prior studies addressed different research questions that do not overlap with the goals of the current study. Attrition analyses revealed that 12.4% of the children left the study from Time 1 to Time 2. These individuals who left the study did not significantly differ on key study variables (e.g., relational and physical victimization). Missing data in the current study were found to be missing completely at random.

Three of the child-care centers were university affiliated, and the remaining centers were from the general community. This includes a mix of public centers, not-for-profit university-affiliated centers, and private centers with religious affiliation that are open to the public. The samples used in this study included data collected in the fall (Time 1) and approximately 4 months later in the spring (Time 2). The first sample was collected in the fall of 2011 and the spring of 2012. Of note, the second sample was collected during an intervention study in the fall of 2013 and the spring of 2014 (Ostrov et al., 2015). Data in the current study at Time 2 were included only for those in the randomly assigned control group to reduce potential bias from intervention effects. Furthermore, there was no teacher component for the intervention study, and no teachers or classroom that would have received the intervention were included in the current study. The third dataset included was from a study collected in the fall of 2014 and the spring of 2015 and included schools from the intervention study. No carryover effects were anticipated because the sample was independent, there was no teacher component for the intervention, and children who were in the intervention study were not included.

Procedures

All three studies were approved by the local institutional review board. Parents provided written informed consent to participate in the study. At the start of the school year, consent forms were distributed to families at the school. Those who returned consent forms (79% consent rate) participated in the study. Teachers also provided written informed consent to participate in the study and were provided $10–$25 (depending on the number of consented children in their classroom) for their participation in completing child questionnaires. Parents and schools were also provided newsletters summarizing the key findings.

Measures

Teacher ratings of peer victimization

Teachers reported peer victimization using the Preschool Peer Victimization Measure–Teacher Report–Revised (PPVM-TR-R; Ostrov, 2008, 2010). The use of teacher report is an empirically validated approach to assessing peer victimization and aggression in early childhood (Ostrov, 2010; Ostrov et al.,

2014). This measure was slightly revised from an instrument developed by Crick et al. (1999) for children in preschool. The revised measure contains 12 items that measure relational victimization, physical victimization, and received prosocial behavior. In the current study, prosocial behavior items were not used and were included as positively toned filler items. Revisions from the original measure included the addition of three new items based on the Preschool Social Behavior Scale–Teacher Form (PSBS-TF; Crick, Casas, & Mosher, 1997). These additions aided in increasing the range and reliability of responses. Two subscales were used to assess peer victimization in the current study. Items were averaged to form scores for each subscale. Teachers rated the frequency of children's victimization on a scale ranging from 1 (*never or almost never true*) to 5 (*always or almost always true*). Specifically, four items measured relational victimization and included questions such as "This child gets told 'you aren't my friend/buddy' if they do not comply with a playmate's request." The relational victimization subscale demonstrated acceptable reliability in the current study with a Cronbach's α of .86. Physical victimization was assessed with four items as well and included questions such as "This child gets hit, kicked, or pinched by peers." This subscale also demonstrated acceptable reliability within the current study with a Cronbach's α of .88.

Research assistant report of behavior

Trained undergraduate and graduate research assistants conducted naturalistic observations with focal child sampling with continuous recording procedures. These trained observers underwent rigorous training, including readings and video observation discussions, practice observations using six standard observation sessions, and vignette tests regarding physical and relational aggression and victimization (see Ostrov & Keating, 2004). Observers spent 2 months in the classroom. Trained observers conducted eight 10-min observations for each focal child with continuous observations. Observers spent similar amounts of time and observed in comparable settings across the schools, with minor differences in length of time based on the number of participants in a given classroom. After observations were completed, observers used standard teacher report instruments to report on children's behavior, including depressed affect, asocial behavior, and anxious/fearful behavior. Previous studies (see Ostrov, Ries, Stauffacher, Godleski, & Mullins, 2008) have found moderate to strong correlations of observer reports and teacher reports when assessing social–psychological adjustment constructs (e.g., Ostrov, 2008; Ostrov & Keating, 2004; Ostrov, Murray-Close, Godleski, & Hart, 2013).

Research assistant report of depressed affect. Research assistants reported on children's depressed affect using the PSBS-TF (Crick et al., 1997). Depressed affect is a three-item subscale that includes the items "This child looks sad," "This child doesn't have much fun," and "This child smiles at other kids" (the latter one reverse coded). Observers responded to these items using a 5-point Likert scale ranging from 1 (*never or almost never true*) to 5 (*always or almost always true*). The subscale demonstrated good reliability in the current study with a Cronbach's α of .76, which is consistent with previous research (Crick et al., 1997).

Research assistant report of psychosocial adjustment (asocial and anxious/fearful). The Child Behavior Scale (CBS; Ladd & Profilet, 1996) was completed by research assistants. The CBS is a psychometrically sound measure of young children's social behavior and adjustment. The 35-item CBS is composed of six subscales, but only two subscales were used in the current study. These subscales were asocial (6 items; e.g., "avoids peers," "prefers to play alone," "keeps peers at distance," "withdraws from peer activities") and anxious/fearful (4 items; e.g., "fearful or afraid," "appears miserable, distressed"). Teachers responded on a 3-point scale ranging from 1 (*doesn't apply*) to 3 (*certainly applies*). This measure has appropriate psychometric properties, including factor structure and internal consistency in the past (Ladd & Profilet, 1996). In the current study, these subscales were found to have appropriate internal consistency. The asocial subscale (i.e., social withdrawal behavior) demonstrated good reliability (Cronbach's $\alpha = .92$). The anxious/fearful subscale also had acceptable reliability (Cronbach's $\alpha = .73$).

Results

Preliminary analyses

Researchers seem to agree that larger sample sizes are better for structural equation modeling analyses, but there is not a general consensus on what constitutes a large enough sample size (Fritz & MacKinnon, 2007; Wolf, Harrington, Clark, & Miller, 2013). Previous models in early childhood using cross-lagged path analyses examining victimization and adjustment problems were sufficiently powered with 97 participants (Kamper-DeMarco & Ostrov, 2017). Some researchers have suggested that the number of participants per parameter is what is pertinent, with cutoffs suggested at 5 or 10 participants per parameter (Kline, 2010; Schreiber, Stage, King, Nora, & Barlow, 2006). Given the current predicted models, the current study meets the 10 participants per parameter guideline. Given these guidelines, the current sample should be sufficiently powered because it included 231 preschool children.

Data went through several phases of cleaning before data analysis was complete as per the guidelines by Kline (2010). Descriptive statistics indicated that measures of skew and kurtosis were within the acceptable range (Kline, 2010). Descriptive statistics are reported in Table 1. Skew ranged from 0.59 to 1.36, and kurtosis ranged from −0.37 to 1.87. This suggests that non-normality of the data was not a concern (Kline, 2010), and maximum likelihood estimation procedures were used, allowing for all participants who had missing data on the key study variables to be included within the models.

Data analysis

Items on the PPVM-TR-R were rated on a continuous scale; therefore, maximum likelihood estimation procedures were used for the bifactor model. All models were estimated using Mplus 7.3 (Muthén & Muthén, 1998–2014) maximum likelihood estimation. For the root mean square error of approximation (RMSEA), values < .06 would suggest good model fit. For the standardized root mean square residual (SRMR), values < .08 would suggest good fit. For the comparative fit index (CFI) and Tucker–Lewis index (TLI), values > .95 were considered to be good fit (Hu & Bentler, 1999). A variable representing the three cohorts was controlled for in all of the subsequent models to account for any unanticipated differences across the cohorts.

Measurement model

A bifactor model with three latent variables (i.e., "pure" physical victimization, "pure" relational victimization, and co-occurring physical and relational victimization) was estimated, with each item

Table 1
Descriptive statistics and bivariate correlations of key study variables.

	1	2	3	4	5	6	7
1. PVICT	–						
2. RVICT	.57**	–					
3. Dep Affect	.14*	.09	–				
4. Asocial	−.06	−.16*	.57**	–			
5. Anx/Fear	.09	−.00	.70**	.51**	–		
6. Gender[a]	−.06	.01	−.11	−.03	−.02	–	
7. Age	.07	.06	−.01	−.16*	−.04	.05	–
M	1.56	1.83	2.00	1.49	1.30	1.48	47.45
SD	0.66	0.79	0.76	0.51	0.39	0.50	7.37
Range	1.00–3.25	1.00–4.25	1.00–4.33	1.00–3.00	1.00–3.00	1.00–2.00	34.87–63.00
% Missing	1.30	0.90	10.30	10.30	10.30	0.00	8.20

Note. PVICT, physical victimization; RVICT, relational victimization; Dep Affect, depressed affect; Anx/Fear, anxious/fearful.
[a] Gender (1 = male, 2 = female).
* $p < .05$.
** $p < .001$.

loading on two factors (the co-occurrence factor and the relevant victimization subscales). Covariances between latent factors were constrained to zero because the co-occurrence factor was expected to adequately account for covariation between physical and relational victimization. The initial model produced a Heywood case, suggesting that perhaps the model was overparameterized. Accordingly, residual variances were constrained to be equal for indicators of physical victimization and for indicators of relational victimization. This model converged without any Heywood cases and provided a good fit to the data, $\chi^2(23) = 66.49$, $p < .001$, *RMSEA* = .09, *CFI* = .96, *TLI* = .94, *SRMR* = .03. Factor loadings are presented in Table 2, and standardized loadings above .30 were considered to be substantial (Tabachnick & Fidell, 2007). All standardized factor loadings for the co-occurring factor were statistically significant, ranging from .42 to .88 (see Table 2). One indicator of the pure physical victimization factor (Item 11; see Table 2) was not statistically significant and fell below .30, suggesting that this item does not have any unique variance left after accounting for co-occurrence of relational and physical victimization. This item differs from other physical items in that the direct physical contact and resulting harm are not as explicitly clear in the item. That is, the act of taking a toy in this item may be different from that of hitting or kicking a peer. Overall, the factor model provides support for the proposed victimization factor structure.

Comparison model

A confirmatory factor analysis (CFA) model was run with two latent variables (i.e., physical and relational victimization) that were allowed to covary to serve as a comparison with the bifactor model. Although the items loaded substantially on their hypothesized factor, this model fit the data less well than the bifactor model, $\chi^2(19) = 77.83$, $p < .001$, *RMSEA* = .12, *CFI* = .95, *TLI* = .93, *SRMR* = .06. Indeed, a chi-square difference test suggested a significant decrement in model fit with the two-factor model, $\Delta\chi^2(2) = 37.53$, $p < .001$. Thus, the bifactor model was retained for subsequent analysis predicting adjustment outcomes.

Full structural model

Next, a hybrid structural equation model was estimated with latent victimization factors and adjustment outcome observed variables. In this model, Time 2 observed adjustment variables of depressed affect, asocial, and anxious/fearful were regressed on the three Time 1 victimization latent factors (i.e., pure physical, pure relational, and co-occurring victimization). The model provided an

Table 2
Standardized factor loadings for measurement model.

PPVM-TF-R item number T1	Physical victimization	Relational victimization	Co-occurring victimization	R^2
1. "This child gets hit, kicked, or pinched by peers"	.46		.66	.69
4. "This child gets pushed or shoved by peers"	.49		.75	.78
7a. "This child gets things thrown at him/her when others are angry with him/her"	.45		.72	.74
11a. "This child gets toys or objects taken away by peers when they are mad at him/her"	$-.17^{ns}$		.90	.84
3. "This child gets ignored by playmates when they are mad at him/her"		.68	.47	.70
6. "This child gets left out of the group when someone is mad at them or wants to get back at them"		.62	.47	.63
9. "This child gets told 'you aren't my friend/buddy' if they do not comply with a playmate's request"		.62	.52	.68
12a. "This child gets told "you can't play" by peers when they are angry at him/her"		.54	.61	.69

Note. Standardized factor loadings are depicted in the table. All were significant at $p < .05$ except the one with an "*ns*" superscript, which identifies a nonsignificant loading. PPVM-TR-R, Preschool Peer Victimization Measure–Teacher Report–Revised; T1, Time 1. Missing item numbers are items that were positively toned filler items and were removed for the current study.

adequate fit to the data, $\chi^2(38) = 90.92$, $p < .001$, *RMSEA* = .08, *CFI* = .96, *TLI* = .93, *SRMR* = .04. Co-occurring victimization at Time 1 was positively associated with depressed affect at Time 2 ($\beta = .17$, $p < .05$). Physical victimization at Time 1 was negatively associated with depressed affect at Time 2 ($\beta = -.16$, $p = .05$). Relational victimization at Time 1 was also negatively associated with asocial behavior at Time 2 ($\beta = -.21$, $p < .05$). No other associations were found between latent victimization factors and adjustment outcomes above and beyond Time 1 adjustment variables.

Multiple group analysis

To test for possible gender differences, we first tested measurement invariance for the bifactor measurement model using a CFA with adjustment variables and structural paths removed from the model. A metric invariant model was compared with a configural model to test for gender invariance across factor loadings. All factor loadings in the configural model were estimated freely across gender. For the metric model, one factor loading for each factor was set to 1.0 and all other factor loadings were constrained across groups to be equal. The configural model provided an adequate fit to the data, $\chi^2(46) = 103.45$, $p < .001$, *RMSEA* = .10, *CFI* = .95, *TLI* = .93, *SRMR* = .04. Constraining the factor loadings to be equal across gender did not result in a decrement in model fit, $\Delta\chi^2(12) = 10.72$, $p > .05$. The model with equality constraints provided a good fit to the data, $\chi^2(58) = 114.17$, $p < .001$, *RMSEA* = .09, *CFI* = .95, *TLI* = .94, *SRMR* = .05, suggesting that the factor model was the same for boys and girls.

Next, the adjustment outcomes and covariate were reintroduced into the model with constrained factor loadings, and structural paths from the victimization factors were tested for invariance across gender. The configural model with all paths from victimization to the observed adjustment outcomes freely estimated provided a good fit to the data, $\chi^2(89) = 161.17$, $p < .001$, *RMSEA* = .08, *CFI* = .95, *TLI* = .93, *SRMR* = .06. Constraining all structure paths from the victimization factors at Time 1 to the observed adjustment outcomes at Time 2 to be equal across gender resulted in a statistically significant decrement in model fit, $\Delta\chi^2(9) = 22.29$, $p = .01$. Accordingly, structural paths were allowed to vary across gender.

For boys, consistent with the full structural model, co-occurring victimization at Time 1 was significantly negatively associated with asocial adjustment at Time 2 ($\beta = -.30$, $p < .01$) (see Fig. 1). For girls, a different pattern of associations emerged; co-occurring victimization at Time 1 was found to be positively associated with depressed affect at Time 2 ($\beta = .42$, $p < .001$) (see Fig. 2). Co-occurring victimization also was positively associated with anxious/fearful characteristics ($\beta = .25$, $p < .05$). Relational victimization at Time 1 was negatively associated with asocial (social withdrawal) adjustment at Time 2 ($\beta = -.28$, $p < .05$). Lastly, there was also a nonsignificant trend for girls, such that the co-occurring factor at Time 1 tended to be positively associated with Time 2 asocial adjustment ($\beta = .19$, $p < .07$).

Discussion

The goal of the current study was to evaluate a more recent complex factor model approach to examining the shared (co-occurrence) and unique (pure) variance between physical and relational victimization. Previous research has identified a moderate to high correlation between physical and relational victimization, and victimization experiences often co-occur (Nylund et al., 2007; Prinstein et al., 2001; van der Ploeg et al., 2015). It was hypothesized that a bifactor model would be a good fitting solution to examine peer victimization experiences (Colder et al., 2013; Keiley et al., 2003; Krueger et al., 2007). Consistent with our hypothesis, results support a bifactor model of victimization that includes both a general co-occurring factor and specific "pure" factors. Co-occurrence in this model represents the statistical degree to which one form of victimization correlates with another form of victimization, supporting that victimization experiences occur on a continuum (Colder et al., 2013; Fite et al., 2006; Keiley et al., 2003). The current findings also highlight that co-occurrence alone cannot describe all victimization experiences, and additional specific factors account for unique variance beyond that accounted for by co-occurrence. The current model may be better able to examine victimization experiences and the association with adjustment and maladjustment. The model may help us

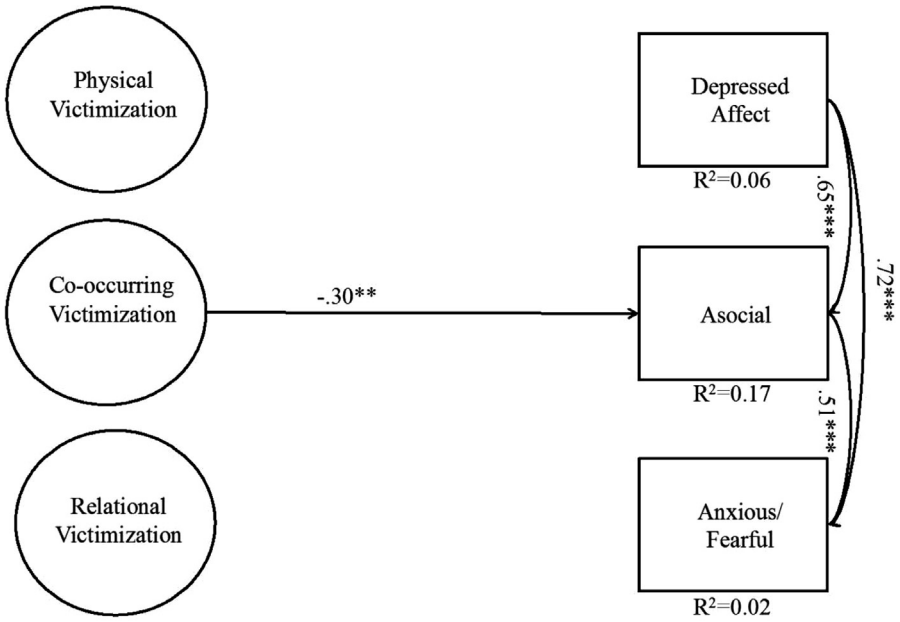

Fig. 1. Full structural model for Time 1 victimization factors predicting Time 2 adjustment outcomes for boys. Victimization factors were constrained to correlate with each other at zero. Significant standardized parameters are presented. Nonsignificant effects and the covariate (cohort) are not shown for ease of communication. $^{**}p < .01$; $^{***}p < .001$.

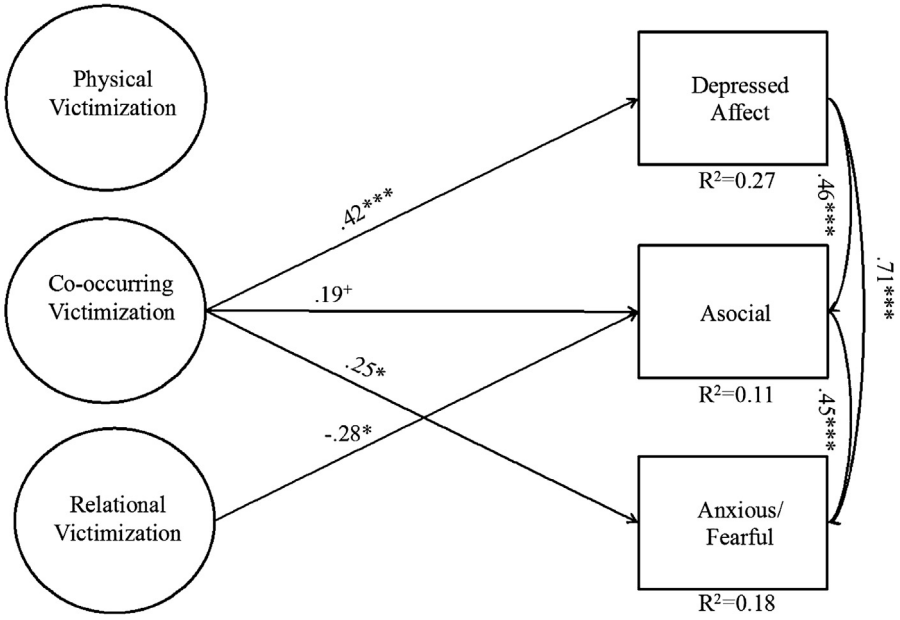

Fig. 2. Full structural model for Time 1 victimization factors predicting Time 2 adjustment outcomes for girls. Victimization factors were constrained to correlate with each other at zero. Significant standardized parameters are presented. Nonsignificant effects and the covariate (cohort) are not shown for ease of communication. $^{+}p < .08$; $^{*}p < .05$; $^{***}p < .001$.

to better simulate real-world experiences of victimization and understand how not only frequency but also form of victimization may contribute to adjustment problems.

In the current study, the second goal was to begin to examine the predictive utility of the bifactor model by examining associations between the measurement model factors and adjustment outcomes. Results of the multiple group difference analyses revealed significant gender differences in associations between victimization and adjustment outcomes. This finding supported the initial hypotheses that the model would have differential predictions for boys and girls, such that for girls there was a unique prediction for relational victimization and internalizing outcomes. However, in contrast to initial hypotheses, girls' relational victimization at Time 1 was negatively, rather than positively, associated with asocial or socially withdrawn behavior at Time 2. Theory led us to anticipate that relational victimization may be more likely to be associated with adjustment problems at Time 2 for girls, whereas physical victimization may be more likely to be associated with adjustment problems for boys (Ostrov & Godleski, 2010). Nonetheless, despite the opposite direction of effect for our finding, this result partially supported our hypotheses related to associations for girls being particularly strong for relational victimization. For girls, these findings suggest that relational victimization is associated with lower levels of future asocial behavior (i.e., less social withdrawal or more involvement with peers). This finding may potentially support the gender-linked aggression subtypes model suggesting that relational victimization experiences may be more salient for girls (Ostrov & Godleski, 2010). For boys, co-occurring victimization at Time 1 was found to be negatively associated with asocial behavior at Time 2. Again, this finding suggests that boys who experience higher levels of co-occurring victimization are engaging in social interactions with other children. Although this was not predicted for boys, this may indicate that victimization experiences for boys may be associated with different adjustment problems than those for girls.

The bifactor model for girls revealed more significant associations for co-occurring victimization. For girls, it was found that co-occurring victimization at Time 1 was positively associated with depressed affect and anxious/fearful behavior at Time 2. A positive trend was found for co-occurring victimization at Time 1 with asocial adjustment or social withdrawal at Time 2. These findings support the notion that experiencing multiple forms of peer victimization, which may reflect more severe victimization, increases the likelihood of future adjustment problems (Bradshaw et al., 2013).

The current study has a number of key implications and directions for future research. In this study, we do not know the quality or nature of children's peer involvement, which is an important topic for future research. That is, in keeping with the notion of provocative victims or aggressive victims (Schwartz, Dodge, Pettit, & Bates, 1997), it could be that victimization is associated with increases in aggression (Ostrov, 2010). However, it could also be that victimization is leading to some more positive social interactions in an attempt to form relationships with other peers in the classroom. To this end, Kamper-DeMarco and Ostrov (2017) recently found that relational victimization was associated with both increases in depressed affect and (somewhat surprisingly) increases in prosocial behavior in early childhood. These authors argued that children may display prosocial behavior submissively as a way to decrease their future involvement in peer victimization (Kamper-DeMarco & Ostrov, 2017). In addition, previous research has hypothesized that withdrawn children have increased motivation to engage in social interaction when they perceive their social environment as not hostile or kind (Rubin, Coplan, & Bowker, 2009). However, if we had a measure of anxious withdrawal—for example, active avoidance or withdrawal from peers despite a desire to interact with peers, with anxiety holding children back from engaging with their peers (Bowker, 2014; Rubin et al., 2009)—we might find a different association than that found in the current study. Specifically, we would expect that peer victimization would be positively associated with problematic withdrawal such as anxious withdrawal because previous research has identified that a transactional cycle may exist such that withdrawal leads to victimization and, in turn, victimization leads to withdrawal (Hanish & Guerra, 2002; Kochenderfer-Ladd, 2003; Rubin et al., 2009). Previous research has identified that these withdrawn children display less socially competent social behavior, often leading to less success in meeting their social goals compared with non-withdrawn peers (see Rubin et al., 2009). This lack of success may also lead to increased likelihood of victimization and subsequent withdrawal. Future research should include other types of outcome variables to determine what characteristics these children have and

what might explain their lack of withdrawal. Including measures of peer rejection, anxious withdrawal, externalizing problems, and social dominance may allow researchers to examine what might be leading to these associations. In addition, inclusion of externalizing problems in future work may lead to more findings for boys' adjustment outcomes (Crick et al., 1999; Ladd & Profilet, 1996). It may be that victimization experiences for young boys may increase risk for developing externalizing problems rather than internalizing problems (Crick et al., 1999; Ladd & Profilet, 1996).

The overall findings provide some support that a bifactor approach to examining the development of peer victimization may be useful. Our model provides a reasonable fit to the data and fit better than a two-factor model. Despite the fit of the model, one physical victimization item did not meet the criteria for acceptable factor loadings on its "pure" factor (i.e., >.30; Tabachnick & Fidell, 2007). This item loads more strongly on the co-occurring factor than on pure physical victimization. Of note, in the current study, some items contain an affective component (i.e., anger or "mad" labels) and others do not. Co-occurrence may capture experiences that have more affectively hostile and reactive responses. Although other items without an affective component do load on co-occurrence, this factor represents a continuum that may incorporate many different expressions of co-occurring peer victimization. In addition, examining the function of aggression and the affect conveyed in the items may be important to delineate and understand the items that may be associated with co-occurring victimization rather than pure factors (Ostrov et al., 2014). Delineating between co-occurring and pure factors is important to better understand how not only frequency but also form may be associated with differential outcomes for young children. A second issue is in regard to the lack of predictive utility for the physical victimization factor. In the current study, physical victimization was not significantly associated with any of the key outcome variables. Future research should consider adding in adjustment outcomes that may be more representative of problems associated with physical victimization (i.e., externalizing problems).

Although this study provides a unique and novel approach with several key strengths, there are limitations that need to be taken into consideration. Our sample was small for multiple group analyses, and this may have reduced our power and ability to find significant gender differences. Future work should examine these models with larger sample sizes to examine the role of gender. In addition, increasing the number of items and including multiple reports to examine the bifactor model will assist with better understanding the co-occurring nature of victimization. Moreover, a limitation in the current study was the inability to examine interobserver agreement for the research assistant reports. Including multiple reporters on key variables of interest in future studies should enhance the psychometric properties of similar assessments of victimization and adjustment. Future research should also use a more diverse sample to help examine generalizability of the current measurement approach and its association with adjustment outcomes in young children. Our study did not have access to Time 1 data for adjustment outcomes. It is possible that adjustment at Time 1 influenced the behaviors at Time 2; furthermore, we were unable to test for developmental changes in our outcomes. Another limitation to our study is the particular adjustment outcomes that were used. It is possible that our measures of adjustment did not adequately assess all the domains of internalizing problems. Inclusion of a full range of depression and anxiety symptomatology could help to elucidate the nuanced processes of peer victimization leading to internalizing problems. As mentioned previously, another limitation is that the adopted asocial adjustment outcome might not completely represent an internalizing adjustment problem. Social withdrawal, broadly defined as being withdrawn from peers or lacking the desire to associate with others, is not necessarily indicative of a problem (Rubin et al., 2009). However, if an individual withdraws from peer interaction due to anxiety or fear, this may be a sign of psychopathology (Bowker, 2014; Rubin et al., 2009). In the current study, our asocial adjustment outcome may best represent social withdrawal and, thus, might not be the ideal measure of internalizing problems. Measures of anxious withdrawal may be more appropriate to assess problematic social withdrawal (Rubin et al., 2009) and may be better to capture motivations of withdrawal as it relates to cognitions and victimization experiences. A final limitation of our study is that we did not examine attributions or other maladaptive outcomes such as externalizing problems. Although our study could not examine the association of co-occurring victimizations with other maladaptive outcomes such as externalizing problems, we believe that future work could help to better elucidate the association between co-occurring and pure forms of victimization with other

adjustment outcomes. In particular, given some documented gender differences in the current study, future work that includes a more broad range of adjustment problems may help us to better understand risks for both boys and girls.

In conclusion, the current study provides a novel approach to examining peer victimization through a dimensional model. A bifactor model may be a useful statistical technique to examine peer victimization and associations with problematic outcomes. This model also provides several directions for future researchers. Replication of this study in the same and differing developmental periods with diverse samples would be important. Future work may also examine stability of the hierarchical structure of peer victimization. This model in the future may prove to be useful in understanding the development of psychopathology. In particular, how this model predicts adjustment outcomes over time and across different developmental periods would be important for future work. The current model may be a useful tool for developing early interventions based on its ability to identify unique risk factors in regard to victimization experiences for boys and girls. More specifically, this model may assist future intervention development by providing important information about co-occurring, relational, and physical victimization experiences in the lives of young children. Overall, the findings offer a novel approach that addresses co-occurrence of victimization as an important step to assist in the understanding of victimization experiences and risk for adjustment problems.

Acknowledgments

Preparation of this manuscript was supported by a grant from the National Science Foundation (BCS-1450777) to the second author. We thank Dr. Craig Colder for statistical consultation and feedback on a prior version of the manuscript. We also thank Matthew Scalco, Samuel Meisel, and Trevor Williams for statistical consultation. We thank the University at Buffalo Social Development Lab members Kristin Perry, Lauren Mutignani, Amanda Levy, and Emilea Rejman for comments on a prior version of the manuscript. We are grateful to the directors, teachers, parents, and children who participated in this research.

References

Bellmore, A. D., & Cillessen, A. N. H. (2006). Reciprocal influences of victimization, perceived social preference, and self-concept in adolescence. *Self and Identity, 5*, 209–229.

Block, J., Gjerde, P., & Block, J. (1991). Personality antecedents of depressive tendencies in 15-year-olds. *Journal of Personality and Social Psychology, 60*, 726–738.

Boulton, M. J., & Underwood, K. (1992). Bully/victim problems among middle school children. *British Journal of Educational Psychology, 62*, 73–87.

Bowker, J. C. (2014). Prosocial peer treatment and the psychosocial outcomes associated with anxious–withdrawal. *Infant and Child Development, 23*, 314–322.

Bradshaw, C. P., Waasdorp, T. E., & Johnson, S. L. (2015). Overlapping verbal, relational, physical, and electronic forms of bullying in adolescence: Influence of school context. *Journal of Clinical Child and Adolescent Psychology, 44*, 494–508.

Bradshaw, C. P., Waasdorp, T. E., & O'Brennan, L. M. (2013). A latent class approach to examining forms of peer victimization. *Journal of Education Psychology, 105*, 839–849.

Brown, T. A. (2014). *Confirmatory factor analysis for applied research* (2nd ed.). New York: Guilford.

Card, N. A., & Hodges, E. E. (2008). Peer victimization among schoolchildren: Correlations, causes, consequences, and considerations in assessment and intervention. *School Psychology Quarterly, 23*, 451–461.

Casper, D. M., & Card, N. A. (2016). Overt and Relational Victimization: A Meta-Analytic Review of Their Overlap and Associations With Social-Psychological Adjustment. *Child development, 88*, 466–483. http://dx.doi.org/10.1111/cdev.12621.

Colder, C. R., Scalco, M., Trucco, E. M., Read, J. P., Lengua, L. J., Wieczorek, W. F., et al (2013). Prospective associations of internalizing and externalizing problems and their co-occurrence with early adolescent substance use. *Journal of Abnormal Child Psychology, 41*, 667–677.

Crick, N. R., & Bigbee, M. A. (1998). Relational and overt forms of peer victimization: A multi-informant approach. *Journal of Consulting and Clinical Psychology, 66*, 337–347.

Crick, N. R., Casas, J. F., & Ku, H. (1999). Relational and physical forms of peer victimization in preschool. *Developmental Psychology, 35*, 376–385.

Crick, N. R., Casas, J. F., & Mosher, M. (1997). Relational and overt aggression in preschool. *Developmental Psychology, 33*, 579–587.

Crick, N. R., & Grotpeter, J. K. (1996). Children's treatment by peers: Victims of relational and overt aggression. *Development and Psychopathology, 8*, 367–380.

Crick, N. R., & Zahn-Waxler, C. (2003). The development of psychopathology in females and males: Current progress and future challenges. *Developmental Psychopathology, 15*, 719–742.

Cullerton-Sen, C., & Crick, N. R. (2005). Understanding the effects of physical and relational victimization: The utility of multiple perspectives in predicting social–emotional adjustment. *School Psychology Review, 34*, 147–160.
Fite, P. J., Colder, C. R., & Pelham, W. E. Jr., (2006). A factor analytic approach to distinguish pure and co-occurring dimensions of proactive and reactive aggression. *Journal of Clinical Child and Adolescent Psychology, 35*, 578–582.
Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science, 18*, 233–239. http://dx.doi.org/10.1111/j.1467-9280.2007.01882.x.
Garner, P. W., & Lemerise, E. A. (2007). The roles of behavioral adjustment and conceptions of peers and emotions in preschool children's peer victimization. *Development and Psychopathology, 19*, 57–71.
Godleski, S. A., Kamper, K. E., Ostrov, J. M., Hart, E. J., & Blakely-McClure, S. J. (2015). Peer victimization and peer rejection during early childhood. *Journal of Clinical Child and Adolescent Psychology, 44*, 380–392.
Hanish, L. D., & Guerra, N. G. (2002). A longitudinal analysis of patterns of adjustment following peer victimization. *Development and Psychopathology, 14*, 69–89.
Hawker, D. J., & Boulton, M. J. (2000). Twenty years' research on peer victimization and psychosocial maladjustment: A meta-analytic review of cross-sectional studies. *Journal of Child Psychology and Psychiatry, 41*, 441–455.
Hollingshead, A. A. (1975). *Four-factor index of social status. Unpublished manuscript* (3rd ed.). New Haven, CT: Yale University.
Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55.
Kamper-DeMarco, K. E., & Ostrov, J. M. (2017). Prospective associations between peer victimization and social–psychological adjustment problems in early childhood. *Aggressive behavior*. Advance online publication. http://dx.doi.org/10.1002/ab.21705.
Kawabata, Y., Crick, N. R., & Hamaguchi, Y. (2013). The association of relational and physical victimization with hostile attribution bias, emotional distress, and depressive symptoms: A cross-cultural study. *Asian Journal of Social Psychology, 16*, 260–270.
Keiley, M. K., Lofthouse, N., Bates, J. E., Dodge, K. A., & Pettit, G. S. (2003). Differential risks of covarying and pure components in mother and teacher reports of externalizing and internalizing behavior across ages 5 to 14. *Journal of Abnormal Child Psychology, 31*, 267–283.
Kline, R. B. (2010). *Principles and practice of structural equation modeling* (3rd ed.). New York: Guilford.
Kochenderfer-Ladd, B. J. (2003). Identification of aggressive and asocial victims and the stability of their peer victimization. *Merrill-Palmer Quarterly, 49*, 401–425.
Kochenderfer, B. J., & Ladd, G. W. (1996a). Peer victimization: Cause or consequence of children's school adjustment difficulties? *Child Development, 67*, 1305–1317.
Kochenderfer, B. J., & Ladd, G. W. (1996b). Peer victimization: Manifestations and relations to school adjustment in kindergarten. *Journal of School Psychology, 34*, 267–283.
Krueger, R. F., Markon, K. E., Patrick, C. J., Benning, S. D., & Kramer, M. D. (2007). Linking antisocial behavior, substance use, and personality: An integrative quantitative model of the adult externalizing spectrum. *Journal of Abnormal Psychology, 116*, 645–666.
Ladd, G. W., & Profilet, S. M. (1996). The child behavior scale: A teacher-report measure of young children's aggressive, withdrawn, and prosocial behaviors. *Developmental Psychology, 32*, 1008–1024.
Malti, T., Perren, S., & Buchmann, M. (2010). Children's peer victimization, empathy, and emotional symptoms. *Child Psychiatry and Human Development, 41*, 98–113.
Markon, K. E., Chmielewski, M., & Miller, C. J. (2011). The reliability and validity of discrete and continuous measures of psychopathology: A quantitative review. *Psychological Bulletin, 137*, 856–879.
Martel, M. M., Roberts, B., Gremillion, M., von Eye, A., & Nigg, J. T. (2011). External validation of bifactor model of ADHD: Explaining heterogeneity in psychiatric comorbidity, cognitive control, and personality trait profiles within DSM-IV ADHD. *Journal of Abnormal Child Psychology, 39*, 1111–1123.
McDougall, P., & Vaillancourt, T. (2015). Long-term adult outcomes of peer victimization in childhood and adolescence: Pathways to adjustment and maladjustment. *American Psychologist, 70*, 300–310.
Murray-Close, D., Ostrov, J. M., & Crick, N. R. (2007). A short-term longitudinal study of growth of relational aggression during middle childhood: Associations with gender, friendship intimacy, and internalizing problems. *Development and Psychopathology, 19*, 187–203.
Muthén, L. K., & Muthén, B. O. (1998–2014). *Mplus user's guide* (6th ed.). Los Angeles: Muthén & Muthén.
Nelson, D. A., Robinson, C. C., Hart, C. H., Albano, A. D., & Marshall, S. J. (2010). Peer interactions among Italian preschoolers: Peer–status linkages with physical and relational aggression and victimization. *Social Development, 19*, 698–720.
Nelson, D. A., Yang, C., Coyne, S. M., Olsen, J. A., & Hart, C. H. (2013). Parental psychological control dimensions: Connections with Russian preschoolers' physical and relational aggression. *Journal of Applied Developmental Psychology, 34*, 1–8.
Nylund, K., Bellmore, A., Nishina, A., & Graham, S. (2007). Subtypes, severity, and structural stability of peer victimization: What does latent class analysis say? *Child Development, 79*, 1706–1722.
Olweus, D. (1993). Victimization by peers: Antecedents and long-term outcomes. In K. H. Rubin & J. B. Asendorpf (Eds.), *Social withdrawal, inhibition, and shyness in childhood* (pp. 315–341). New York: Psychology Press.
Ostrov, J. M. (2008). Forms of aggression and peer victimization during early childhood: A short-term longitudinal study. *Journal of Abnormal Child Psychology, 36*, 311–322.
Ostrov, J. M. (2010). Prospective associations between peer victimization and aggression. *Child Development, 81*, 1670–1677.
Ostrov, J. M., & Godleski, S. A. (2013). Relational aggression, victimization, and adjustment during middle childhood. *Development and Psychopathology, 25*, 801–815.
Ostrov, J. M., & Godleski, S. A. (2010). Toward an integrated gender-linked model of aggression subtypes in early and middle childhood. *Psychological Review, 117*, 233–242.
Ostrov, J. M., Godleski, S. A., Kamper-DeMarco, K. E., Blakely-McClure, S. J., & Celenza, L. (2015). Replication and extension of the Early Childhood Friendship Project: Effects on physical and relational bullying. *School Psychology Review, 44*, 445–463.
Ostrov, J. M., Kamper, K. E., Hart, E. J., Godleski, S. A., & Blakely-McClure, S. J. (2014). A gender-balanced approach to the study of peer victimization and aggression subtypes in early childhood. *Development and Psychopathology, 26*, 575–587.

Ostrov, J. M., & Keating, C. F. (2004). Gender differences in preschool aggression during free play and structured interactions: An observational study. *Social Development, 13*, 255–277.
Ostrov, J. M., Murray-Close, D., Godleski, S. A., & Hart, E. J. (2013). Prospective associations between forms and functions of aggression and social and affective processes during early childhood. *Journal of Experimental Child Psychology, 116*, 19–36.
Ostrov, J. M., Ries, E. E., Stauffacher, K., Godleski, S. A., & Mullins, A. D. (2008). Relational aggression, physical aggression, and deception during early childhood: A multimethod, multi-informant short-term longitudinal study. *Journal of Clinical Child and Adolescent Psychology, 37*, 664–675.
Ostrov, J. M., Woods, K. E., Jansen, E. A., Casas, J. F., & Crick, N. R. (2004). An observational study of delivered and received aggression and social psychological adjustment in preschool: "This white crayon doesn't work". *Early Childhood Research Quarterly, 19*, 355–371.
Phelps, C. E. (2001). Children's responses to overt and relational aggression. *Journal of Clinical Child & Adolescent Psychology, 30*, 240–252.
Prinstein, M., Boergers, J., & Vernberg, E. (2001). Overt and relational aggression in adolescents: Social–psychological adjustment of aggression and victims. *Journal of Clinical Child Psychology, 30*, 479–491.
Putallaz, M., Grimes, C. L., Foster, K. J., Kupersmidt, J. B., Coie, J. D., & Dearing, K. (2007). Overt and relational aggression and victimization: Multiple perspectives within the school setting. *Journal of School Psychology, 45*, 523–547.
Reijntjes, A., Kamphuis, J. H., Prinzie, P., Boelen, P. A., Van der Schoot, M., & Telch, M. J. (2011). Prospective linkages between peer victimization and externalizing problems in children: A meta-analysis. *Aggressive behavior, 37*, 215–222. http://dx.doi.org/10.1002/ab.20374.
Rose, A. J., & Rudolph, K. D. (2006). A review of sex differences in peer relationship processes: Potential trade-offs for the emotional and behavioral development of girls and boys. *Psychological Bulletin, 132*, 98–131.
Rubin, K. H., Coplan, R. J., & Bowker, J. C. (2009). Social withdrawal and shyness in childhood and adolescence. *Annual Review of Psychology, 60*, 141–171.
Rudolph, K. D., Troop-Gordon, W., & Flynn, M. (2009). Relational victimization predicts children's social-cognitive and self-regulatory responses in a challenging peer context. *Developmental Psychology, 45*, 1444–1454.
Schreiber, J. B., Stage, F. K., King, J., Nora, A., & Barlow, E. A. (2006). Reporting structural equation modeling and confirmatory factor analysis results: A Review. *The Journal of Educational Research, 99*, 323–337. http://dx.doi.org/10.3200/JOER.99.6.323-338.
Schwartz, D., Dodge, K., Pettit, G., & Bates, J. (1997). The early socialization of aggressive victims of bullying. *Child Development, 68*, 665–675.
Sroufe, L. A., & Rutter, M. (1984). The domain of developmental psychopathology. *Child Development, 55*, 17–29.
Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston: Pearson Education.
Tackett, J. L., Daoud, S. B., De Bolle, M., & Burt, S. A. (2013). Is relational aggression part of the externalizing spectrum? A bifactor model of youth antisocial behavior. *Aggressive Behavior, 39*, 149–159.
Troop-Gordon, W., & Ladd, G. W. (2005). Trajectories of peer victimization and perceptions of the self and schoolmates: Precursors to internalizing and externalizing problems. *Child Development, 76*, 1072–1091.
van der Ploeg, R., Steglich, C., Salmivalli, C., & Veenstra, R. (2015). The intensity of victimization: Associations with children's psychosocial well-being and social standing in the classroom. *PLoS ONE, 10*(10), e141490.
Wolf, E. J., Harrington, K. M., Clark, S. L., & Miller, M. W. (2013). Sample size requirements for structural equation models: An evaluation of power, bias, and solution propriety. *Educational and Psychological Measurement, 73*, 913–934.