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RESEARCH ARTICLE

WILEY AGGRESSIVE BEHAVIOR

Prospective associations between peer victimization and social-psychological adjustment problems in early childhood

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The present short-term longitudinal study examined prospective associations between two forms of peer victimization (i.e., physical, relational) and both externalizing and internalizing problems in early childhood. The study assessed 97 children (42 girls; *M* age = 45.22 months, *SD* = 6.99) over the course of one school year with assessments occurring at the end of each semester (approximately 6 months apart). Multiple methods were used to collect data over the course of one school year to test theoretically driven hypotheses. Cross-lagged path analyses were conducted, revealing significant associations between relational victimization and increases in depressive symptoms. On the other hand, relational victimization was also significantly associated with decreases in externalizing problems (e.g., inattention, deception/lying) and increases in prosocial behavior. Physical aggression predicted increases in physical victimization, supporting hypotheses that children displaying physically aggressive behavior are likely to be reactive to negative peer interactions and endure future victimization.

KEYWORDS
early childhood, externalizing, internalizing, relational aggression, relational victimization

1 | INTRODUCTION

Peer victimization is a widely studied area of research due to high prevalence rates (30–60% of individuals endorse being victimized; 6–15% endorse frequent victimization; Card & Hodges, 2008) and consistent associations with psychological maladjustment (e.g., Casper & Card, 2016; Hanish & Guerra, 2002; Leadbeater & Hoglund, 2009). Numerous studies have examined concurrent and prospective associations with internalizing (i.e., depression, anxiety, loneliness) and externalizing (i.e., aggression, delinquency, attention problems) symptoms in middle to late childhood, and adolescence (e.g., Hawker & Boulton, 2000; Reijntjes, Kamphuis, Prinzie, & Telch, 2010; Reijntjes et al., 2011); however, there is growing evidence of bidirectional effects between victimization and these symptoms, yet there is little longitudinal research examining the role of victimization with maladjustment in early childhood. Thus, there has been a call for research focused on longitudinal studies examining victimization and adjustment variables (Card & Hodges, 2008; Casper & Card, 2016) in order to better understand these associations.

Although research has increased tremendously regarding the assessment of peer harassment and associations between social-psychological adjustment variables and peer victimization, meta-analyses examining victimization, and both externalizing and internalizing problems were only able to identify three studies in which participants were under age 5 (Casper & Card, 2016; Reijntjes et al., 2010, 2011). Despite the known harmful effects of peer victimization across development as well as the utility of early identification and intervention, early childhood is often overlooked when examining social development broadly and peer victimization more specifically. Thus, the call for more research to clearly understand the development of the construct from a young age, when victimization is first encountered, is still needed (Card & Hodges, 2008).

Prior research has emphasized the importance of social interactions during this time and highlighted increasingly complex play, and significant associations with different developmental outcomes (Ostrov & Keating, 2004). During early childhood, social relationships are becoming increasingly important as the main forms of learning are occurring within the social context (Sroufe & Rutter, 1984). However, disruption of developmental tasks, due to difficulty achieving social competence and exclusion from social relationships (i.e., relational victimization), likely places children on maladaptive trajectories from an early age. Of note, past research has shown that peer victimization exists in early childhood and is significantly related to a number of different adjustment outcomes including internalizing problems (Crick, Casas, & Ku, 1999), loneliness and avoidance (Kochenderfer & Ladd,

1996), and externalizing behavior (Hanish & Guerra, 2002), as well as future peer victimization (Ostrov, 2008). Thus, examining the development of negative adjustment outcomes and their associations with both forms of peer victimization in early childhood, especially relational victimization given the social nature of this form of harassment, are novel study aims.

2 | THEORETICAL MODEL

The social failure model, initially proposed by Patterson and Capaldi (1990) provides a framework incorporating both internalizing and externalizing behavior with victimization to explain social-psychological behavior (van Lier et al., 2012). The authors originally predicted that boys engaging in antisocial behavior may have difficulty navigating peer relations. They posit that these negative social experiences predict future depressive symptoms. Previous longitudinal studies support the initial pathways between externalizing problems and victimization. Hanish et al. have consistently found prospective associations between externalizing behavior and victimization (Hanish et al., 2004; Hanish & Guerra, 2002). More recently, Reijntjes et al. (2011) conducted a meta-analysis analyzing prospective associations between victimization and externalizing problems and found significant pathways for both patterns of effect, indicating that the theoretically-based path from externalizing problems to victimization has support, but also that the prospective paths from victimization to externalizing problems are feasible as well (Bradshaw, Waasdorp, & O'Brien, 2013; Reijntjes et al., 2011). Similarly, research has shown that children with attention deficit hyperactivity disorder (ADHD) symptoms are at risk for multiple forms of victimization (e.g., physical, relational), even after controlling for internalizing behavior (Wiener & Mak, 2009). Prosocial behavior has also been conceptualized within the peer relations construct in the social failure model (Penner, Dovidio, Piliavin, & Schroeder, 2005). Prosocial behavior is defined as sharing, helping, and including other children in activities (Penner et al., 2005) and has often been linked to lower levels of victimization leading to the conclusion that limited prosocial behavior may place children at risk for victimization (Card & Hodges, 2008).

In support of the latter portion of the social failure model, Hawker and Boulton (2000) provide an informative meta-analysis highlighting concurrent links between victimization and internalizing problems. There has been much empirical support for the predictive association between victimization and internalizing behavior with researchers proposing theory that posits that children who are victimized are more likely to feel lonely, anxious, or depressed due to their social situation (Graham & Juvonen, 2001; van Lier et al., 2012). In order to better understand these associations, Reijntjes et al. (2010) conducted a meta-analysis regarding victimization and internalizing behavior (e.g., depression, anxiety; Reijntjes et al., 2010), revealing that peer victimization predicted increases in internalizing problems as well as the reverse direction of effects. In support of this finding, Vailliancourt, Brittain, McDougall, and Duku (2013), using a large sample size, analyzed complex cascade models, and found support for internalizing symptoms predicting later peer victimization in middle childhood (Vailliancourt et al., 2013). Thus, previous research and theory supports prospective relations of victimization to internalizing symptoms; however, past findings suggest bidirectional effects (e.g., Hodges & Perry, 1999), indicating the importance of examining cross-lagged models to fully understand the bidirectional effects.

Recently, victimization has been conceptualized as one aspect of poor social skills (labeled "poor peer relations" within the social failure model) and longitudinal models have been examined by van Lier et al. (2012). They examined longitudinal path models with school-aged children to determine associations between externalizing problems, peer victimization, and internalizing problems and found that for these children, there was a pathway from externalizing behavior to increased victimization to increased internalizing behavior over the course of two years. The authors conceptualize a child's perceptions of victimization as a lack of social competence or social success in a hostile social environment (Crick et al., 1999; Gooren, van Lier, Stegge, Terwogt, & Koot, 2011; van Lier et al., 2012). Thus, there are clear theoretical and empirical links between both externalizing and internalizing problems and peer victimization. However, conceptualizations of and research on victimization have rarely delineated the different forms of peer harm and lack an understanding and examination of different forms of victimization in earlier developmental periods (Crick & Bigbee, 1998).

3 | PEER VICTIMIZATION SUBTYPES

Past research highlights the importance of examining physical victimization (Olweus, 1993) as well as relational victimization in order to understand the unique effects of both variables when studying peer victimization (Crick & Bigbee, 1998). Physical victimization has long been defined as the receipt of physical aggression; whereas, relational victimization has been defined as the receipt of relational aggression (i.e., behavior used with the intent to hurt an individual through the removal or threat of removal of the relationship; Crick & Grotpeter, 1996). Crick and Bigbee (1998) found that both relational and physical victimization were associated with poor social-psychological adjustment (i.e., peer rejection, loneliness, emotional distress). Although relational victimization adds uniquely to the prediction of adjustment problems, it is unclear whether there are differential associations between relational and physical victimization and adjustment problems (i.e., depression, anxiety, conduct problems; Card & Hodges, 2008; Casper & Card, 2016). In a recent meta-analysis, Casper and Card (2016) found interesting and unique relations with the forms of victimization and adjustment. Specifically, the authors found that relational victimization was more strongly associated with internalizing difficulties. For externalizing behavior, the results were mixed with more physical forms (i.e., overt) being positively linked with aggressive and other externalizing behavior whereas relational forms of victimization showed significant negative associations with externalizing behavior. When examining relational victimization generally, the majority of work focuses on middle childhood and adolescence; however, this construct can be identified in early childhood and has shown significant association with negative

outcomes. Specifically, Crick et al. (1999) found that relational victimization accounted for unique concurrent variance in social-psychological adjustment problems (e.g., internalizing problems) in a sample from early childhood. Thus, although the inclusion of relational victimization as early as preschool is often overlooked, understanding associations of victimization, including relational forms, as young as preschool is vital for increased understanding of social relations and adjustment in development (Sroufe & Rutter, 1984).

4 | PRESENT STUDY

The social failure model was originally proposed to examine specific paths to depressive moods when children display antisocial and aggressive behavior in middle childhood (Patterson & Capaldi, 1990); yet it has only been explicitly tested in early childhood once (Gooren et al., 2011). In this study, Gooren et al. (2011) examined the mediating role of peer rejection rather than peer victimization to understand the relation from externalizing problems to internalizing problems. The authors highlighted the social failure model to support their hypotheses that conduct problems can predict depressive symptoms as early as kindergarten and found direct and indirect associations from conduct problems to depression through peer rejection, one aspect of poor peer relations. However, previous work has never captured the subset of children that is often overlooked when examining physical but not relational victimization (Crick & Bigbee, 1998; Dhami, Hoglund, & Leadbeater, 2005). The current study also attempts to fill this gap in the literature by investigating specific associations between externalizing problems and forms of victimization, as well as between forms of victimization and internalizing problems, in order to understand how maladaptive behavior may lead to negative outcomes in children as early as preschool.

The current study has a number of major hypotheses and goals. Given the lack of research on relational victimization and the social failure model, especially in early childhood, the social failure model is used as a basic framework and is primarily concerned with examining the direct effects of externalizing problems on victimization and peer victimization on internalizing problems rather than indirect effects through which maladaptive behavior develops. Basic cross-lagged path models will be used to determine whether the bidirectional effects proposed by van Lier et al. (2012) are supported. Although research has found bidirectionality between victimization and both internalizing and externalizing problems, theory points to differential hypotheses for associations with each (van Lier et al., 2012). As such, our hypothesis was that externalizing problems will predict increases in victimization (see Figure 1a). We also predicted that victimization leads to increases in internalizing problems (see Figure 1b). We examined both patterns of effect within cross-lagged models in order to test alternative effects and interpretations.

Within the current study, both relational and physical victimization will be included in the models in order to test differential associations with social-psychological adjustment problems. Given previous research on the associations between externalizing problems and both relational and physical forms of victimization, differential associations are difficult to predict. Although previous work has demonstrated a unique, opposite associations between these variables (i.e., externalizing behavior is negatively associated with relational victimization and positively associated with physical victimization: Casper & Card, 2016), there

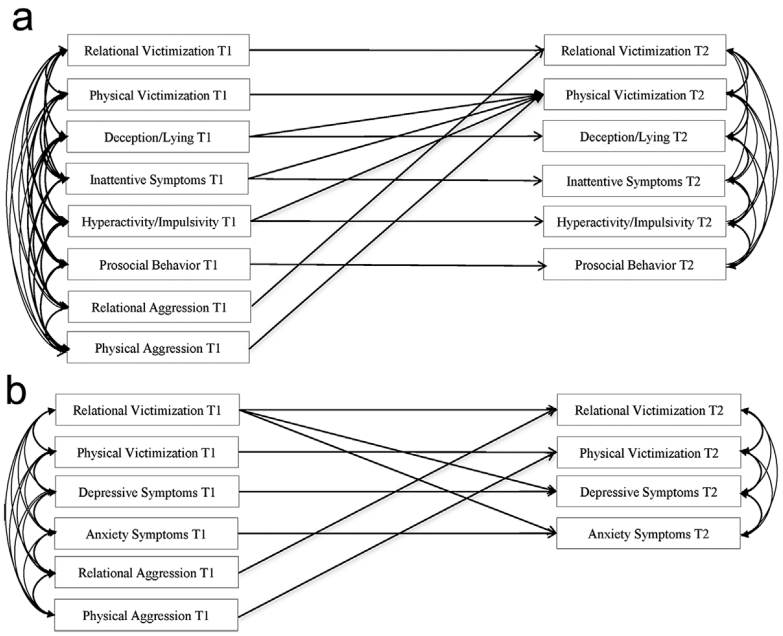

FIGURE 1 (a) Illustration of predicted cross-lagged longitudinal model regarding victimization and externalizing problems. (b) Illustration of predicted cross-lagged longitudinal model regarding victimization and internalizing problems. T1, Time 1; T2, Time 2. Prosocial behavior and gender were also covariates within the models

was limited examination of early childhood as a distinct time period. Thus, we predicted that externalizing problems (i.e., inattention, hyperactivity/impulsivity, and deception/lying) will lead to peer victimization (i.e., relational and physical victimization: see Figure 1a).

We also predicted that relational victimization would lead to increased internalizing behavior (e.g., depressive symptoms, anxiety) above physical victimization. In an impressive longitudinal study examining anxiety development and maintenance, Bosquet and Egeland (2006) predicted differential associations with different (but overlapping) outcome variables, and examined unique associations with a pure anxiety measure compared with other maladaptive symptom clusters. Bosquet and Egeland (2006) found that anxiety uniquely predicted depressive symptoms in adolescence, suggesting the importance of examining the unique contributing aspects of related constructs (e.g., anxiety, depression, conduct problems) rather than studying these together as internalizing problems (Bosquet & Egeland, 2006). There is also precedent for examining externalizing behavior separately. Previous work has shown differential associations between peer victimization and both inattentive and hyperactive symptoms. Specifically, hyperactivity has shown strong associations with victimization in childhood (Redmond, 2011). Similarly, deception has been linked to different forms of aggression (Ostrov, 2006). Thus, specific symptoms (e.g., depressive, anxiety, impulsivity) might show differences in relation to the form of victimization. Thus they will be examined individually rather than in terms of the broader concepts of internalizing and externalizing problems. We predict that relational victimization will have unique associations with internalizing variables (e.g., depression, anxiety; Hawker & Boulton, 2000) when physical victimization is in the model (see Figure 1b).

Physical and relational victimization are significantly correlated with their respective forms of perpetration (Crick et al., 1999; Ostrov, 2008), emphasizing the necessity of including both forms of aggression within our model (see Figure 1a,b). Given previous associations with victimization, and the social nature of the behavior, prosocial behavior was included in the study for exploratory purposes (Penner et al., 2005). Previous work has shown gender differences when examining forms of victimization in childhood. Specifically, boys have been found to be more physically victimized whereas girls may be more relationally victimized (Crick et al., 1999; Hanish et al., 2004). As such, gender was controlled in all models.

5 | METHOD

5.1 | Participants

Participants in the current study were recruited from four NAEYC accredited child care centers (six classrooms) in the northeastern US. On average, teachers had been employed at their school for 4.72 years (*SD* = 4.07) and endorsed knowing the children within the study for approximately 9.90 months (*SD* = 8.23) before completing the first round of assessments. Consent forms were sent home with all families within each classroom at the beginning of the school year and those with completed consent forms (80% consent rate) participated in the study. Two cohorts recruited in consecutive years yielded 97 participants (42 girls) who were 45.52 months old on average (*SD* = 6.99). The methodology, schools, and teachers across cohorts were identical. The sample was primarily middle class, according to Hollingshead (1975) occupational codes, and relatively diverse ethnically: 5.2% were African-American/Black, 12.4% were Asian/Pacific Islander/Indian, 58.8% were Caucasian/White, 2% were Hispanic/Latino, 12.4% were multiracial, 1% were Native American, and 8.2% were from other ethnic backgrounds or unknown. Attrition was low within the study with 85% of participants continuing participation during time 2. Children who left the study were those families who moved away (for further details on the sample, see Godleski, Kamper, Ostrov, Hart, & Blakely-McClure, 2015)[1].

5.2 | Measures

5.2.1 | Teacher ratings of peer victimization

In order to assess peer victimization, teachers completed the Preschool Victimization Measure—Teacher Report—Revised (PPVM-TR-R, Ostrov, 2008), based on the original measure developed by Crick et al. (1999). This revised measure consists of twelve items assessing relational and physical forms of victimization and receiving prosocial behavior (although items measuring the latter were not used). Specifically, four items measured relational victimization (e.g., "This child gets told 'you aren't my friend/buddy' if they do not comply with a playmate's request") and four items measured physical victimization (e.g., "This child gets hit, kicked, or pinched by peers"). The specific details and psychometric properties of this revised measure have been previously reported (see Godleski et al., 2015). This victimization measures assesses how frequently children are victimized on a scale ranging from 1 ("never or almost never") to 5 ("always or almost always true"). For the current study, the averaged items showed acceptable reliability with Cronbach's α's for physical and relational victimization at time 1 (0.87 and 0.89) and at time 2 (0.82 and 0.87), respectively.

5.2.2 | Teacher ratings of aggressive behavior

Relational and physical aggression items were included within the analyses using the Preschool Social Behavior Scale—Teacher Form (PSBS-TF; Crick, Casas, & Mosher, 1997). The scale includes six items that measure relational aggression (e.g., "This child tells others not to play with or be a peer's friend") and six that measure physical aggression (e.g., "This child pushes or shoves other children"). Items were assessed on the aforementioned five-point scale (see above) and averaged to create scales for physical aggression and relational aggression. Past research has shown good internal consistency (αs > 0.87) as well as significant correlations between teacher and observer reports of relational and physical aggression (*r*s = 0.32 and 0.41, $p < .01$; Ostrov, 2008). In the current study, relational and

physical aggression were also reliable at both time 1 (Cronbach's αs = .93 and 0.8, respectively) and time 2 (αs = .94 and .92).

5.2.3 | Observer ratings

Observations of aggressive behavior and victimization were conducted throughout the course of the study. Specifically, each child was observed for eight 10-min sessions during each 8-week data collection period. Observation sessions took place in the classroom, gym, and on the playground and were conducted during periods of free-play or student-directed activity, allowing for observers to watch these children playing naturally rather than guided by teachers. Although each individual child was only observed each semester for 80 min over the course of 8 weeks, observers spent approximately 9 hr per week in classrooms conducting observations. On average, classrooms had two assigned well-trained undergraduate and graduate student observers conducting the sessions which allowed for more familiarity with the children (for more information see Ostrov & Keating, 2004). Although often time within classrooms or on the playground was spent conducting individual observations, the extensive time that observers spend in the school allows for general observations of participating children.

Observers then completed questionnaires after completing all school-based observations (for justification of these procedures see Murray-Close & Ostrov, 2009). Observers only completed an assessment if they felt that they had spent substantial time observing the specific child and had a well-developed view of the child. Observer ratings were used for adjustment variables rather than using teacher informants in order to avoid shared method variance. Prior research has shown high concordance between naturalistic observations and observer ratings as well as moderate associations between teacher and observer reports when assessing social-psychological adjustment constructs (e.g., Godleski et al., 2015; Ostrov, Murray-Close, Godleski, & Hart, 2013). In the current study, similar findings were shown with significant correlations between naturalistic observation, observer ratings, and teacher reports of both physical and relational aggression (*r*s ranged from .30 to .60, $p < .01$) across both time points. Teacher and observer report also showed significant associations between victimization subtypes (*r*s ranged from .23 to .54). To lessen their burden, not all measures that observers completed were given to teachers (i.e., teachers did not complete deception and ADHD measures but did complete aggression, victimization, and anxiety measures); however on the measure of anxiety that both completed, there was significant agreement across informants (*r*s =.38 and .32 for time 1 and 2, respectively). Previous work has also demonstrated significant associations between teacher and observer reports of deception and other externalizing behavior (Murray-Close & Ostrov, 2009; Ostrov et al., 2008) providing further evidence for the use of observer ratings.

5.2.4 | Observer ratings of ADHD symptoms

Select scales from the Disruptive Behavior Disorder Rating Scale (DBD; Pelham, Evans, Gnagy, & Greenslade, 1992) were completed by observers to assess inattention and hyperactivity. The measure originally included 37 items assessing disruptive behavior; however, only items regarding ADHD were included in the current study. This abbreviated measure had nine items measuring inattentive symptoms (e.g., "is often easily distracted by extraneous stimuli") and nine items measuring hyperactivity/impulsivity (e.g., "often interrupts or intrudes on others"). Items were assessed on a four-point scale ranging from "not at all" to "very much" and within each scale were averaged and both subscales were reliable at time 1 (Cronbach's αs = .94 and .88 for inattention and hyperactivity/impulsivity) and time 2 (Cronbach's αs =.94 and .92). Inattention and hyperactivity/impulsivity were significantly correlated with observer ratings of hyperactivity/distractibility on the Child Behavior Scale (CBS) (see below; *r*s = 0.57 and 0.71, $p < .001$ respectively at time 1, and 0.73 and 0.72, $p < .001$ at time 2; Ladd & Profilet, 1996).

5.2.5 | Observer ratings of deception/lying

The Children's False Statement—Teacher Form (CFS-TF; Ostrov, 2006) was used to assess deception and lying. This measure included seven items assessing levels of deception/lying (e.g., "This child makes false statements to make her/himself look good"). Items were measured on a five-point scale ranging from 1 ("never or almost never true") to 5 ("always or almost always true") and averaged to create a deception/lying scale. The measure has shown past reliability and validity (e.g., Cronbach's α = .92; Ostrov, 2006) and demonstrated good reliability at both time 1 (α = .96) and time 2 (α = .97). Moreover, previous research has also shown significant correlations between observer and teacher reports of deception/lying (Ostrov, 2006).

5.2.6 | Observer ratings of prosocial behavior

Prosocial behavior was taken from the aforementioned PSBS-TF (see above; Crick et al., 1997). The subscale has four items of prosocial behavior (e.g., "this child is good at sharing and taking turns"). The measure showed appropriate internal consistency (αs = 0.86 and 0.88 for time 1 and 2) and these ratings were significantly correlated with teacher report of prosocial behavior (*r*s = .29 and .39, $p < .001$, for time 1 and 2).

5.2.7 | Observer ratings of depressive symptoms

In order to create a depression variable, items were drawn from two correlated measures. The depressed affect scale from the PSBS-TF (Crick et al., 1997) has three items addressing depressed affect such as "this child looks sad," "this child doesn't have much fun," and "this child smiles at other kids" (reverse-coded). Past research has shown good reliability for this subscale (Cronbach's α = 0.87; Crick et al., 1997). In order to assess loneliness, items from Cassidy and Asher (1992) Loneliness and Social Dissatisfaction scale were used. The original self-report measure demonstrated reliability and validity in a sample of kindergarten children; however, given the younger ages of the participants within the current study, the revised measure had observers rate children on four items (e.g., "Does child have friends at school?", "Does this child have kids to play with at school?", "Does this child have fun at school?") on a scale from 0 ("no") to 2 ("yes, many")

which were then reverse coded. Given the high correlation among depressed affect and loneliness (r = .66 at time 1), the three items assessing depressed affect and the four reverse coded items of loneliness were standardized and averaged to create a composite score of depressive symptoms. The composite showed good internal reliability (Cronbach αs = .90 and .89 for time 1 and 2). Although previous literature has supported a composite due to high correlation and overlap between symptoms of loneliness and depression (e.g., Ostrov & Godleski, 2013), further validity was found through significant correlations with teacher report of depressed affect (rs = .21 and 0.34, p < .05, respectively, at time 1 and 2). As highlighted in Ostrov and Godleski (2013), when examined in older samples, the measure "has been shown to discriminate between those children who are rejected by their peers and those who are not, and predicts future anxiety, aggression, and social withdrawn behavior" (p. 807, Ostrov & Godleski).

5.2.8 | Observer ratings of anxiety

The Child Behavior Scale (Ladd & Profilet, 1996) was completed by observers. The anxious/fearful scale consisted of four items, averaged, measuring symptoms of anxiety (e.g., "is worried," "fearful or afraid"). The CBS uses a three-point scale ranging from 1 ("doesn't apply") to 3 ("certainly applies") and showed adequate reliability within the current study (Cronbach's αs = 0.84 and 0.68, at time 1 and 2). As would be expected given theory regarding internalizing problems, anxiety was significantly correlated with observer ratings of depressive symptoms at both time points (rs = .52 and 0.54, p < .001).

5.3 | Procedure

Study procedures were all approved by the university Institutional Review Board. Parental consent forms were distributed through schools. Teachers also provided written consent prior to completing teacher packets. The study began approximately 8 weeks after school began to allow for children to form relationships with their peers and teachers. Time 2 observations resumed 3.5 months after time 1 concluded with observer and teacher report provided 6 months after time 1. Teachers received an honorarium ($10–20) after completing the assessment packets at each time point. Once all assessment measures were finalized, newsletters were distributed to convey the results.

6 | RESULTS

6.1 | Descriptive statistics

The means and standard deviations from all variables within the current study can be found in Table 1. Descriptive statistics indicated that skew (−0.31–2.45) and kurtosis (−0.80–6.32) were within acceptable ranges (Kline, 2010). Inter-correlations were examined within the two separate cross-lagged path models (see Figure 1a,b). Correlations for the first path model confirmed previous findings with significant associations between the forms (e.g., relational and physical) of both peer victimization (r = .49) and aggression (r = .42), yet also indicate the need to examine them separately (see Table 1; Crick & Grotpeter, 1996). Similarly, depressive symptoms, anxiety, deception/lying, inattention, and hyperactivity/impulsivity showed moderately stable correlations. Stability was also found for both victimization measures (rs = .54 and 0.52, p < .001, respectively for relational and physical forms). Significant concurrent associations were found between forms of aggression and victimization (rs = .69 for relational, .69 for physical, p < .001). Prospective associations were also found such that relational aggression at time 1 was associated with relational victimization at time 2 (r = .41, p < .001) and physical aggression at time 1 was associated with time 2 physical victimization (r = .57, p < .001).

6.2 | Missing data

Of those 97 participants within the current study, 82 (85%) participants had complete data at both time 1 and 2. Attrition analyses were conducted and indicated no significant differences between those participants who remained within the study and those who did not. Given the amount of missing data, maximum likelihood estimation procedures were used allowing for all participants to be included.

6.3 | Cross-lagged path analysis

In order to address the key hypotheses, two separate cross-lagged path analyses were run using maximum likelihood estimation in Mplus 5.21 (Muthén & Muthén, 1998–2009). The first path model examined the associations between relational and physical victimization, prosocial behavior, and externalizing behavior (e.g., inattention, hyperactivity/impulsivity, deception/lying) controlling for physical and relational aggression and gender at time 1 (see Figure 1a). The second cross-lagged model examined the prospective association between relational and physical victimization, prosocial behavior, and internalizing variables (e.g., depressive symptoms and anxiety), controlling for physical and relational aggression and gender at time 1 (see Figure 1b). Covariances among exogenous variables and among endogenous variables were freely estimated. The standardized root mean square residual (SRMR), and comparative-fit index (CFI) were used to evaluate model fit (Hu & Benter, 1999; Tabachnick & Fidell, 2007). SRMR below 0.08 and CFI above 0.95 were considered indicators of good model fit (Hu & Benter, 1999; Kline, 2010).

The first model (see Figure 2) provided a good fit to the data (χ^2 [12] = 6.76, p = 0.87, CFI = 1.00, SRMR = 0.027). There was stability across all study variables except physical victimization. Within the model, physical aggression at time 1 predicted increases in physical victimization (b = 0.30, p < .01). There was a significant correlation in our original analyses between time 1 and 2 physical victimization (r = .52, p < .01). In the path model, physical aggression appears to account for increases in physical victimization across time. When examining externalizing problems, relational victimization was associated with decreases in deception/lying (b = −1.98, p < .05), whereas relational aggression was significantly associated with increases in deception/lying (b = 2.40, p < .05) suggesting that children who are relationally victimized show decreases in deception/lying but relationally aggressive behavior increases the rate of deception/lying. As

TABLE 1 Correlations among victimization, aggression, and social-psychological adjustment variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.
1. T1 RVICT	X																	
2. T1 PVICT	.49**	X																
3. TI RAGG	.69**	.31**	X															
4. T1 PAGG	.49**	.69**	.42**	X														
5. T1 DEP	−.19	−.01	−.25*	−.02	X													
6. T1 ANX	−.20*	−.03	−.26*	−.11	.52**	X												
7. T1 DEC	.37**	.27**	.42**	.37**	−.08	−.04	X											
8. T1 PROS	.21*	−.03	.15	−.13	−.72**	−.28**	−.03	X										
9. T1 INATT	.21*	.28**	.14	.37**	.24*	.13	.36**	−.36**	X									
10. T1 HYP	.20	.26*	.19	.33**	−.17	−.08	.43**	−.18	.63**	X								
11.T2 RVICT	.54**	.43**	.41**	.42**	−.10	−0.14	0.23*	.07	.21	.18	X							
12. T2 PVICT	.34**	.52**	.13	.57**	−.02	.00	.16	−.01	.31**	.16	.43**	X						
13. T2 DEP	−.06	.09	−.10	.04	.50**	.16	−.19	−.34**	.05	−.25*	.17	−.01	X					
14. T2 ANX	−.10	.10	−.23*	.08	.49**	.50**	−.16	−.36**	.15	−.24*	−.03	.09	.54**	X				
15. T2 DEC	.09	.08	.33**	.11	−.04	−.10	.41**	−.06	.13	.17	.16	−.09	.08	−.02	X			
16. T2 PROS	.23*	−.05	−0.01	−.18	−.28*	.01	.02	.47**	−0.21	−.09	−.16	−.07	−.57**	−.32**	−.36**	X		
17. T2 INATT	−.01	.20	.07	.39**	.21	−.10	.10	−.36**	.51**	.37**	.33**	.25*	.30**	.12	.27*	−.59**	X	
18. T2 HYP	.01	.11	.09	.31**	.03	−.17	.05	−.28*	.37**	.46**	.32**	.18	.08	−.05	.33**	−.43**	.74**	X
19. Gender	0.11	−.17	.18	−.25*	−.09	0.05	.20*	.19	−.10	−.09	−.12	−.32**	−.19	−.12	.02	.20	−.28*	−.32**
M	1.52	1.33	1.48	1.39	1.24	1.25	1.52	3.24	1.58	1.69	1.59	1.24	1.09	1.23	1.41	3.56	1.34	1.46
SD	.69	.53	.71	.56	.63	.45	.70	.91	.56	.53	.70	.44	.58	.35	.74	.99	.53	.59
Range	1.00–3.50	1.00–3.25	1.00–3.83	1.00–3.11	0.43–3.14	1.00–3.00	1.00–4.00	1.00–5.00	1.00–3.00	1.00–3.22	1.00–3.75	1.00–2.75	0.43–2.57	1.00–2.50	1.00–3.71	1.25–5.00	1.00–3.22	1.00–3.78

T1, Time 1; T2, Time 2; RVICT, relational victimization; PVICT, physical victimization; RAGG, relational aggression; PAGG, physical aggression; DEP, depression; ANX, anxiety; DEC, deception/lying; PROS, prosocial behavior; INATT, inattention; HYP, hyperactivity-impulsivity.
*$p < 0.05$; ** $p < 0.01$.

expected, physical aggression was associated with increases in hyperactivity/impulsivity ($b = .26$, $p < .05$) and inattentive symptoms ($b = 0.29$, $p < .05$). On the other hand, relational victimization predicted a decrease in inattentive symptoms ($b = -0.22$, $p < .05$). Similarly, relational victimization showed a non-significant negative trend with hyperactivity/impulsivity ($b = -0.17$, $p = .10$). These results indicate that children who are relationally victimized show decreased levels of disruptive behavior (i.e., inattention, hyperactivity/impulsivity). Within this model, there were differential associations with prosocial behavior, such that relational victimization was associated with increased levels of prosocial behavior ($b = 0.61$, $p < .001$), whereas relational aggression was associated with decreased levels of prosocial behavior ($b = -0.30$, $p < .05$).

The second model (see Figure 3) showed adequate fit to the longitudinal model ($\chi^2[4] = 13.69$, $p < .01$, CFI = .96, SRMR = .08). The model showed stability for all study variables except physical victimization. Again, physical aggression predicted increases in physical victimization ($b = .31$, $p < .01$). Within this model, relational victimization was significantly associated with increases in depressive symptoms ($b = .26$, $p < .05$) whereas physical aggression was associated with decreases in depressive symptoms ($b = -.23$, $p < .05$). Depressive symptoms were associated with increases in anxiety symptoms ($b = .14$, $p < .05$), whereas relational aggression was associated with decreases in anxiety symptoms ($b = -0.10$, $p < .05$). Relational victimization showed a non-significant trend toward increases in anxiety symptoms as well ($b = .09$, $p = .08$). There were no significant findings regarding prosocial behavior, but it was retained for theoretical reasons and for consistency with the second model.

7 | DISCUSSION

The main goal of the current study was to examine the direct pattern of effects of peer victimization subtypes and social-psychological adjustment in early childhood. In line with the social failure framework, we predicted that externalizing problems (i.e., deception/lying, inattention, hyperactivity) would predict increases in peer victimization. It was also predicted that relational victimization would lead to increased symptoms of internalizing problems (i.e., depression, anxiety) beyond physical victimization. Lastly, in line with previous research, relational victimization was predicted to lead to decreases in prosocial behavior (Ostrov et al., 2004).

All of the variables within the models were stable over time except for physical victimization. Physical aggression predicted increases in physical victimization. This finding supports both current hypotheses and previous theory indicating that children who display physically aggressive behavior are likely to be disliked or react to negative peer interactions that are likely to lead to their future victimization (i.e., sequential social process model of peer harassment; Boivin, Hymel, & Hodges, 2001; Ostrov, 2008). Inconsistent with the social failure theory and our first hypothesis, we found that externalizing behavior did not significantly predict victimization. Rather, relational victimization predicted decreases in externalizing behavior. Specifically, relational victimization was associated with decreases in deception/lying and inattentive symptoms and showed a non-significant trend toward decreased hyperactivity. As previously noted, there is some support for this association with a recent meta-analysis finding significant negative associations between relational victimization and externalizing problems (Casper & Card, 2016). Given that the authors only examined concurrent data, they were unable to speak to the direction of effect of this association or speculate why this association might be found. Taking into account both models, these children experiencing relational victimization may be more depressed, which in turn causes the decrease in deception/lying and hyperactivity observed. That is, these children are less likely to act out against others because of reductions in activity level and social interaction that are associated with depressive symptomatology. This idea is closely related to that of threat sensitivity, with those children who experience internalizing problems often being hypervigilant regarding cues from their environment that reinforce their negative image (Dodge, 1993; Vailliancourt et al., 2013). The present models do not directly test these hypotheses and future work will be needed to examine the specific links and mechanisms associated with these constructs in order to more appropriately test this interpretation. Similarly, these children experiencing victimization displayed decreases in inattentive symptoms. This decrease, in conjunction with the non-significant trend toward higher anxiety, suggests that children who experience relational victimization are becoming more attentive within their environment. It is plausible that relationally victimized children might display hypervigilance in order to avoid future peer harassment. On the other hand, relational aggression predicted increases in deception/lying within the model. This finding is also consistent with previous literature in older samples showing significant associations between initial levels of relational aggression and both deceptive/lying behavior and ADHD symptoms (Keenan, Coyne, & Lahey, 2008; Zalecki & Hinshaw, 2004); however, unlike previous work, no significant associations between physical aggression and deception/lying were found. Physical aggression showed associations with increased hyperactivity and inattentive symptoms, supporting the overlap between symptoms of ADHD and aggressive, and oppositional behavior (e.g., Dodge, Coie, & Lynam, 2006). Within the externalizing model, relational victimization predicted increased prosocial behavior. This finding was unexpected given previous research showing the relation between victimization and decreased prosocial behavior (Kochenderfer & Ladd, 1996) and warrants replication; however, these children may display prosocial behavior submissively as a way to decrease their future involvement in victimization.

In line with hypothesis 2, relational victimization was significantly associated with increases in depressive symptoms and showed a trend toward increased anxiety. It is conceivable that children who are being relationally victimized attribute their victimization to something about themselves, which may lead to increased feelings of depression and anxiety. This is also consistent with attribution theory articulated by Graham and Juvonen (2001), suggesting that a victimized child might question why behavior occurred and attribute victimization to something about themselves that they feel is outside of their control. These children are thought to believe that nothing they can do can

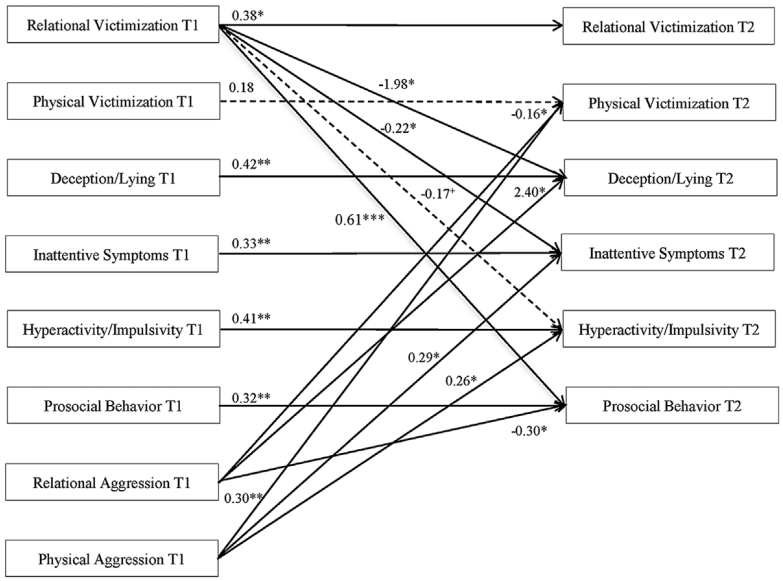

FIGURE 2 Cross-lagged model examining the associations between forms of victimization and externalizing problems. Only significant stability and cross-lagged paths are presented for clarity. Dotted lines represent nonsignificant results. Unstandardized regression coefficients are reported. Although not shown, variables were correlated with gender. T1, Time 1; T2, Time 2; $^{+}p < .10$, $^{*}p < .05$, $^{**}p < .01$

prevent their victimization, leading to negative self-appraisals and increased levels of depression and anxiety. Thus, future research examining mediators between victimization and internalizing symptoms, such as negative self-appraisals, might uncover mechanisms through which different victimization subtypes lead to depression and anxiety.

Overall, there was some support for the direct effects outlined within the social failure framework (Patterson, Reid, & Dishion, 1998; van Lier et al., 2012). In line with hypothesis 1, physically aggressive behavior was associated with increased physical victimization showing support of the initial pathway from externalizing behavior to poor peer relations. In our second model, supporting hypothesis 2, relational victimization predicted increased depressive symptoms (and trended toward increased anxiety), again supporting the social failure model such that poor peer relations are associated with internalizing problems. Although the models were examined separately and did indicate some findings that were not predicted within the current framework, there was some support of the model. This support highlights the importance for including relational forms of aggressive behavior and negative peer interactions when trying to understand symptoms of psychopathology (e.g., depressive symptoms) and social development overall (e.g., Rose, Swenson, & Waller, 2004). Within the current models, relational victimization predicted internalizing and externalizing symptoms beyond that of physical victimization (or aggression). These results emphasize the role that the disruption in interpersonal relationships may play in the development of depressive symptoms, which is consistent with interpersonal stress models of depression (Rudolph et al., 2000).

7.1 | Limitations and future directions

Although the current short-term longitudinal analysis used multiple informants/methods and sophisticated cross-lag path analyses to support novel findings, there were several limitations that should be noted. First, given the number of variables used and the complexity of the analyses, we had a small sample size to test our findings.

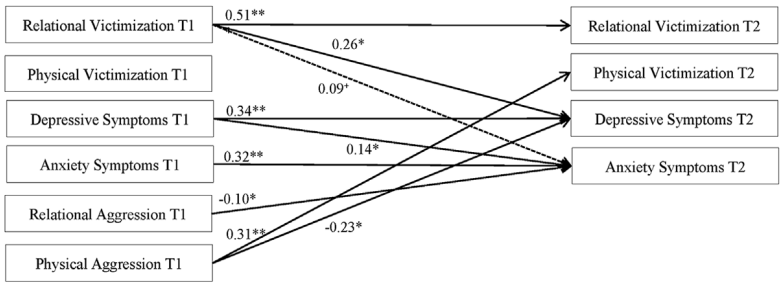

FIGURE 3 Cross-lagged model examining associations between forms of victimization and internalizing problems. Only significant stability and cross-lagged paths are presented for clarity. Dotted lines represent nonsignificant results. Unstandardized regression coefficients are reported. Although not shown, variables were correlated with gender, prosocial behavior and physical victimization at both time points. T1, Time 1; T2, Time 2; $+p < .10$, $^{*}p < .05$, $^{**}p < .01$

There is some support for SEM use when sample size is around 100 participants, as the number of "improper solutions" are negligible (Hoyle & Gottfreson, 2015). However, power is still a concern unless N is greater than 200 (Hoyle & Gottfreson, 2015). Thus, the small sample size and reduced statistical power constrained our ability to include all of the variables (i.e., both externalizing and internalizing) into one path analysis model and likely contributed to some of the null findings; however, previous research have used a similar sample size with meaningful findings (Godleski et al., 2015; Ostrov et al., 2013). Given the overlap between internalizing and externalizing problems in past work (Capaldi, 1992) it will be beneficial to include all the constructs in one model. This would also allow for a more parsimonious evaluation of the social failure model. Second, although the current study examined associations longitudinally, the period of time between measurements was short. Future research should examine these associations over longer periods of time with more time points in order to understand how victimization and maladjustment are related across multiple developmental periods. Observer ratings are not commonly used to assess psychopathology in young children. These findings should be replicated with teacher or parent report to bolster the use of this methodology. Similarly, the use of a larger sample size with multiple waves is warranted in order to test both direct and indirect effects. Lastly, the sample in the current study was taken from high quality, similar childcare centers which, although likely reduces confounding variables, reduces generalizability. Thus, it may be important to understand the effect of a less structured and lower quality childcare center on the development of these associations.

8 | CONCLUSION

The findings from the current study indicate that children who experience relational victimization showed increased depressive symptoms above and beyond physical victimization. These findings provide partial support to the social failure model in early childhood. Although physical aggression predicted physical victimization, it was relational victimization that predicted increased depressive symptoms. We found that relational aggression predicted opposite findings from relational victimization, showing significant associations with increased externalizing behavior (i.e., deception/lying) and decreased prosocial behavior. These findings might highlight unique differences in adjustment outcomes for children who are displaying rather than receiving relational aggression.

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ENDNOTE

[1] Prior publications with this sample addressed substantively different research questions and included unique outcome variables.

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