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Relations of Parenting and Temperament to Chinese Children's Experience of Negative Life Events, Coping Efficacy, and Externalizing Problems

Qing Zhou,
University of California, Berkeley

Yun Wang,
Beijing Normal University

Xianli Deng,
Beijing Normal University

Nancy Eisenberg,
Arizona State University

Sharlene A. Wolchik, and
Arizona State University

Jenn-Yun Tein
Arizona State University

Abstract

The relations of parenting and temperament (effortful control and anger/frustration) to children's externalizing problems were examined in a 3.8-year longitudinal study of 425 native Chinese children (6 – 9 years) from Beijing. Children's experience of negative life events and coping efficacy were examined as mediators in the parenting and temperament-externalizing relations. Parents reported on their own parenting. Parents and teachers rated temperament. Children reported on negative life events and coping efficacy. Parents, teachers, children, or peers rated children's externalizing problems. Authoritative and authoritarian parenting and anger/frustration uniquely predicted externalizing problems. The relation between authoritarian parenting and externalizing was mediated by children's coping efficacy and negative school events. The results suggest there is some cross-cultural universality in the developmental pathways for externalizing problems.

The development of externalizing problems (i.e., aggression and rule-breaking/delinquent behaviors; Achenbach, 2001) has been related to both parenting and child temperament (Dodge, Coie, & Lynam, 2006). Due to the frequent covariation between parenting and temperament (Sanson & Rothbart, 1995), it is important to study their unique relations to externalizing problems. Moreover, relatively little is known regarding the processes underlying the relations of parenting and temperament to externalizing problems. We addressed these questions by examining the prospective and unique relations of authoritative and authoritarian parenting and temperamental effortful control and anger/frustration to school-age children's externalizing problems in urban China. We further tested whether children's experience of negative life events (NLEs) and coping efficacy (CE) partly mediated the parenting- and

temperament-externalizing relations. This study provided a unique opportunity to examine the cross-cultural generalizability of developmental theories on externalizing problems.

Unique Relations of Parenting and Temperament to Chinese Children's Externalizing Problems

Parenting

In their coercive social learning theory, Patterson and colleagues (Patterson, 1982; Reid, Patterson, & Snyder, 2002) hypothesized that coercive and punitive parenting plays a key role in training children's externalizing behaviors. The coercive training process often begins with the parent's aversive intrusion into the child's activities (e.g., scolding or punishing the child for an undesirable behavior), followed by the child's negative reactions (e.g., yelling and complaining) and negative reinforcement of this aversive behavior by parental withdrawal of demands. The theory was supported by longitudinal studies revealing a positive relation between coercive/insensitive parenting and externalizing problems (e.g., National Institute of Child Health and Human Development Early Childcare Research Network, 2004; Shaw, Gilliom, Ingoldsby, & Nagin, 2003).

Based on Baumrind's (1967, 1996) theory of parenting styles, authoritarian parenting (i.e., high demandingness combined with low responsiveness) is hypothesized to predict greater externalizing problems because (a) the exercise of firm control without warmth interferes with the child's internalization of parental discipline (Grusec & Goodnow, 1994) and (b) the frequent use of harsh discipline evokes the child's heightened negative emotional arousal and impairs emotion regulation (Repetti, Taylor, & Seeman, 2002). In contrast, authoritative parenting (i.e., high demandingness combined with high responsiveness) is expected to predict fewer externalizing problems because (a) high parental warmth/responsiveness promotes children's empathy (Davidov & Grusec, 2006), which in turn reduces externalizing problems (Zhou et al., 2002), and (b) the high parental involvement and behavioral control evident in authoritative parenting deters externalizing problems (Gray & Steinberg, 1999). Empirical support for the positive and negative relations of authoritarian parenting and authoritative parenting, respectively, with children's behavior problems has been documented in research with primarily Euro-American samples (see Steinberg, 2001, for a review).

Temperamental Effortful Control and Anger/Frustration

Effortful control—an aspect of temperamental regulation—reflects “the efficiency of executive attention, including the ability to inhibit a dominant response and/or to activate a subdominant response, to plan, and to detect errors” (Rothbart & Bates, 2006, p. 129). Anger/frustration—an aspect of temperamental reactivity—reflects the negative reactivity associated with the interruption of ongoing tasks or goal blocking (Rothbart, Ahadi, Hershey, & Fisher, 2001). High anger/frustration and low effortful control are theorized as risk factors for externalizing problems because (a) the experience of anger often motivates aggressive behaviors (Berkowitz, 1993), (b) the negative affectivity related to anger/frustration and offensive aggression are associated with a strong neurobiological approach system (Rothbart & Posner, 2006), and (c) children with low effortful control have difficulty regulating attention, physiological and emotional arousal, and behavioral impulses in challenging social interactions (e.g., peer conflicts; Calkins & Fox, 2002; Eisenberg & Morris, 2002; Eisenberg et al., 1993), which may lead to aggression. Consistent with these theories, effortful control has been negatively related to, and anger/frustration has been positively related to, externalizing problems in Euro-American samples (e.g., Calkins & Dedmon, 2000; Eisenberg et al., 2001; Eisenberg, Sadovsky, et al., 2005; Kochanska & Knaack, 2003; Olson, Sameroff, Kerr, Lopez, & Wellman, 2005).

The Unique Effects of Parenting and Temperament

Characteristics of parenting and child temperament tend to covary with each other (Sanson & Rothbart, 1995), which may be due to genetic inheritance (e.g., shared genes between the parent and the child), the bidirectional relations between temperament and parenting (Lengua, 2006; Rothbart & Posner, 2006), and genotype – environment correlation (e.g., O'Connor et al., 1998). Therefore, to further understand the roles of parenting and temperament in externalizing problems, it is important to control for the effect of the other construct and to examine their unique prediction (as depicted in Figure 1). On the one hand, if parenting but not temperament uniquely predicts externalizing, it may suggest that parenting either confounds or mediates the relation between temperament and externalizing (MacKinnon, Krull, & Lockwood, 2000); on the other hand, if parenting and temperament both have unique predictions, both common and distinct pathways may underlie their relations to externalizing problems. A few researchers have found unique relations of parenting and temperament to child adjustment (see Rothbart & Posner, 2006). For example, the combination of high negative emotionality, low fearfulness, and high negative maternal control (as well as the Temperament $\times$ Parenting interaction) predicted high externalizing trajectories from the age of 2 to 6 years (Gilliom & Shaw, 2004). Most researchers studying parenting and temperament have focused on early or middle childhood. Thus, it is unclear whether such relations persist into late childhood or early adolescence. To our knowledge, no researchers have examined the unique and prospective relations of authoritative and authoritarian parenting and temperamental reactivity and regulation to externalizing problems.

Generalizability of the Model to Chinese Families

The majority of research on parenting, temperament, and externalizing has been based on Euro-American children. Thus, it is necessary to test the hypothesized model (Figure 1) with samples from other cultures to examine its cross-cultural generalizability. Some questions have been raised regarding the cross-cultural generalizability of authoritative and authoritarian parenting and their implications for child adjustment. For example, in cultures where the perceived norms for authoritarian parenting (e.g., use of physical discipline) are higher (e.g., African American culture), authoritarian parenting was less strongly related to negative child adjustment than in the Euro-American culture (Deater-Deckard, Dodge, & Sorbring, 2005; Steinberg, 2001), although the overall negative relation of physical discipline to adjustment was evident in multiple cultures (Lansford et al., 2005). Chao (1994, 2001) proposed that authoritative and authoritarian parenting may not fully capture the important features of Chinese parenting and that an indigenous construct such as “guan” or training should be considered. Nonetheless, recent empirical investigations suggest that both the attributes of authoritative (especially warm and responsive) and authoritarian (especially coercive/punitive) parenting and their relations to Chinese children’s adjustment are similar to those found in the Euro-American culture (e.g., Chang, Lansford, Schwartz, & Farver, 2004; Chen, Wang, Chen, & Liu, 2002; Nelson, Hart, Yang, Olsen, & Jin, 2006; Porter et al., 2005; Sorkhabi, 2005; Zhou, Eisenberg, Wang, & Reiser, 2004). Moreover, Chinese parents’ ratings of guan are moderately and positively correlated with warmth (Stewart et al., 1998), suggesting that the indigenous notion of guan might be consistent with authoritative parenting (Nelson et al., 2006). Thus, we expected authoritative parenting to negatively predict, and authoritarian parenting to positively predict, Chinese children’s externalizing problems.

Chinese children with low effortful control and/or high anger/frustration were expected to have higher externalizing problems for several reasons. First, in collective societies like China, the ability to inhibit inappropriate emotions or behaviors to behave in socially appropriate manner (aspects of effortful control) is positively valued (Triandis, 1994). Second, because the open display of self-focused emotions such as anger/frustration is likely to impair interpersonal harmony (Markus & Kitayama, 1991), Chinese children with high anger/frustration may be at

greater risk for maladjustment than those with low anger. Third, due to the emphasis on teachers' imparting information to students in typical Chinese classroom education, attributes such as attentiveness and self-regulation are positively reinforced (Phelps, 2005). Indeed, in two cross-sectional samples (including the first wave of the present study), effortful control was negatively related to, and anger/frustration was positively related to, Chinese children's externalizing problems and low social competence (Eisenberg et al., 2007; Zhou et al., 2004).

Study Aim 1

The first aim of this study was to test the hypothesized model (Figure 1) in which authoritative and authoritarian parenting and temperamental effortful control and anger/frustration prospectively predict externalizing problems in Chinese children. We hypothesized that authoritative parenting and effortful control in middle childhood would negatively predict, and that authoritarian parenting and anger/frustration would positively predict, Chinese children's externalizing problems in late childhood.

Experience of NLEs and CE as Mediators of Parenting- and Temperament-Behavior Problem Associations

The second aim of the study was to examine whether NLEs and CE mediate the relations of parenting and temperament to externalizing problems. NLEs are events that "objectively threaten the physical and/or psychological health or well-being of individuals of a particular age in a particular society" (Grant et al., 2003). The accumulation of NLEs has been positively associated with behavior problems (see Compas, 1987; Grant, Compas, Thurm, McMahon, & Gipson, 2004, for reviews). CE refers to "the global belief that one can deal with the demand made and the emotions aroused by a situation" (Sandler, Tein, Mehta, Wolchik, & Ayers, 2000). CE includes the beliefs that one has dealt well with the stressors in the past and can deal effectively with the stressors in the future (Sandler et al., 2000). Consistent with the hypothesis that higher CE reduces one's negative emotional and behavioral reactions to negative events, CE has been negatively related to youths' behavior problems in U.S. samples (e.g., Cowen, Work, Hightower, & Wyman, 1991; Sandler et al., 2000).

Considering the importance of NLEs and CE in children's adjustment, it is interesting to examine their relations to parenting and temperament. We hypothesized that prior parenting and temperament (distal risk/asset factors) may affect children's subsequent NLEs and CE (proximal risk/asset factors), which in turn relate to externalizing (Figure 2). Specifically, authoritarian parenting was expected to predict low CE because (a) it evokes negative emotions, which interfere with effective coping (Cassidy, 1994; Kobak & Sceery, 1988); (b) it may lead to lower perceived control (Magaro & Weisz, 2006), which is related to lower CE (Manne & Glassman, 2000); and (c) it models ineffective coping (e.g., venting; Power, 2004). In contrast, authoritative parenting was expected to predict high CE because (a) it promotes emotion regulation and effective coping (Saarni, Campos, Camras, & Witherington, 2006) and (b) it may promote learning and enacting of effective coping by providing stability and predictability to the family environment (Kliewer, Sandler, & Wolchik, 1994). In support of these views, Smith et al. (2006) found concurrent positive relations between parental consistency of discipline and support and children's CE in Hispanic and Euro-American children. However, few researchers have examined the prospective relations between parenting and children's CE.

Temperament was also hypothesized to affect how children cope with NLEs (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; Derryberry, Reed, & Pilkenton-Taylor, 2003). Children with high effortful control are expected to have higher CE because they are able to flexibly deploy attention as needed and effectively regulate negative emotions and thus cope more effectively with NLEs. In contrast, children with high anger/frustration are

hypothesized to have lower CE because heightened negative arousals may interfere with the development of higher order cognitive abilities such as planning and problem solving that are essential for constructive coping (Blair, 2002). As evidenced, attention control has been positively related to constructive coping (e.g., problem solving and seeking support) and negatively to acting out/destructive coping, whereas the opposite relations have been found for negative emotionality (anger/frustration and sadness) and coping (Eisenberg, Fabes, & Guthrie, 1997; Eisenberg et al., 1993; Lengua & Long, 2002). However, researchers have not yet examined whether temperament predicts children's subjective evaluation of CE.

In addition, both parenting and temperament are expected to predict children's experience of NLEs, although the mechanisms underlying these associations may be complex. Global parenting styles and temperamental reactivity and regulation may influence the child's daily social environment (e.g., family, parent – child, and peer relationships), which in turn relate to the occurrence of NLEs. Because we are interested in how prior parenting and temperament relate to children's various life domains, we classified the NLEs into conceptually based categories (i.e., family, parent – child, and school negative events) (Grant et al., 2004) and examined their respective relations to parenting/temperament and children's externalizing problems.

Study Aim 2

The second aim of the study was to test CE and NLEs as potential mediators in the relations of parenting and temperament to Chinese children's externalizing problems (Figure 2). We hypothesized that (a) authoritarian parenting and anger/frustration negatively predicts, and authoritative parenting and effortful control positively predicts, children's CE, which in turn negatively relates to externalizing, and (b) NLEs also partly mediates the relations of parenting and temperament to externalizing problems. Because some researchers found that relations among parenting, temperament, coping, and behavior problems differed for boys and girls (e.g., Eisenberg et al., 1993; Eisenberg et al., 1997), we tested whether sex moderated these relations. Due to the increasing variation in family socioeconomic status (SES) in the contemporary Chinese society (Chen, Cen, Li, & He, 2005), we controlled for family SES in the analyses.

Method

Participants

Participants were children and their parents (mostly mothers) and teachers from a two-wave (3.8 years apart) longitudinal study (Zhou et al., 2004). At Wave 1 (W1; summer 2000), 425 first- and second-grade children (55.5% girls, M age = 7.7 years, SD = 0.6, age range = 6.6–9.1 years) were recruited from two public elementary schools in Beijing, China. Of these children, 210 (49%) were first graders and 91% were the only children in the family. The percentages of children from two-parent, extended (including parents and grandparents or other family members), or single-parent families were 75%, 22%, and 3%, respectively. Monthly family income ranged from 200 to 10,000 RMB (currency of People's Republic of China; M = 2,456.3 RMB, SD = 1,454.4 RMB). The currency exchange rate between the U.S. dollar and Chinese RMB was about 1:8.3 at W1. Parental education was reported as 1 = *less than or equal to 9 years (middle school or lower)*, 2 = *10 – 12 years (high school)*, 3 = *13 – 16 years (college)*, and 4 = *more than 16 years (graduate school)*. Mean levels of maternal and paternal education were 2.46 (SD = 0.66) and 2.49 (SD = 0.67; i.e., high school diploma to some college education). The sample included primarily low- to middle-income families based on the demographic statistics of urban Beijing (National Bureau of Statistics of China, 2000).

At Wave 2 (W2; spring 2004), 382 children (52.9% girls, M age = 11.6 years, SD = 0.6, age range = 10.1 – 12.9 years) from this sample were reassessed (retention rate = 89.9%) when

they were in fifth (50%) or sixth grade. The percentages of children from two-parent, extended, or single-parent families were 79.2%, 16.7%, and 4.1%, respectively. Monthly family income was reported as one of the eight levels: (a) less than or equal to 500 RMB (1.1%), (b) 501 – 1,000 RMB (6.1%), (c) 1,001 – 2,000 RMB (19.6%), (d) 2,001 – 4,000 RMB (36.7%), (e) 4,001 – 6,000 RMB (20.2%), (f) 6,001 – 8,000 RMB (8.8%), (g) 8,001 – 10,000 RMB (3.3%), and (h) more than 10,000 RMB (4.1%). Of the mothers, 5% had less than high school education, 34% had only high school diplomas, 57% had college education, and 4% had graduate school education; the respective percentages for fathers were 5%, 38%, 54%, and 3%.

The children who were assessed at both W1 and W2 ($N = 382$) were compared with those assessed at W1 only ($N = 43$) on W1 demographics, temperament, parenting styles, and externalizing problems. Compared to those who were retained, children who only completed W1 assessment came from families with higher maternal and paternal education, family income, and authoritative parenting, $t(df) = 393, 383, 354, \text{ and } 394 = -2.7, -3.3, -2.2, \text{ and } -2.6, ps < .01, .01, .05, \text{ and } .01$. No significant difference was found between the two groups on temperament, authoritarian parenting, or externalizing problems.

Procedures

An introduction letter and a permission form were handed out to the parents of all the first and second graders at W1 ($N = 589$) or fifth and sixth graders at W2 ($N = 387$) at the two schools. At W1, 425 parents (72%) and at W2, 382 parents (99%) provided written consent. The data were collected through questionnaires completed by parents, teachers, and children. The parent questionnaire was to be completed by the child's mother (if possible) or the child's other primary caregiver (e.g., father and grandparent) if the mother was not available or had not lived with the child for more than 50% of the time during the past 6 months. Seventy-eight percent and 82% of the parent questionnaires were completed by mothers at W1 and W2, 16% and 12% by fathers, and 6% and 6% by other caregivers (e.g., grandparents, uncles, or aunts). For each participating child in the class, the head teacher ($Ns = 14$ at both W1 and W2; children had different head teachers at W1 and W2) completed the teacher questionnaires (return rates = 98.9% at W1 and 97.9% at W2). At both waves, questionnaires were group administered to the children by two research assistants after the children completed written assent forms. The parents and teachers were paid for their participation, and the children were given a small gift.

Measures—Measures that had not been used in Chinese samples in previous research (i.e., the measures for NLE and CE) were forward and back translated by Chinese speakers who are fluent in both Chinese and English. Translators received assistance from English-speaking researchers for clarifications regarding difficult-to-translate items. A small ($N = 50$) pilot study was conducted to see whether Chinese parents and children had difficulties understanding and responding to the items; the majority of children and parents in the pilot study did not have any difficulty understanding and completing the questionnaires.

Parenting Styles (W1)—Parents completed two subscales of the Parenting Styles and Dimensions (Robinson, Mandleco, Olsen, & Hart, 1995). The authoritative subscale consisted of four dimensions: (a) warmth/acceptance (9 items, e.g., “I express affection by hugging, kissing, etc...”; α in this study = .76), (b) reasoning/induction (9 items, e.g., “I give child reasons why rules should be obeyed”; $\alpha = .70$), (c) democratic participation (4 items, e.g., “I take into account child's preferences in making plans for the family”; $\alpha = .72$), and (d) easygoing/responsiveness (4 items, e.g., “I am easy going and relaxed with child”; $\alpha = .70$). The authoritarian subscale consisted of four dimensions: (a) nonreasoning/punitive strategies (4 items, e.g., “I punish by taking privileges away from child with little if any explanations”; $\alpha = .61$), (b) corporal punishment (5 items, e.g., “I use physical punishment as a way of disciplining our child” $\alpha = .80$), (c) directiveness (4 items, e.g., “I demand that child does/do

things" $\alpha = .49$), and (d) verbal hostility (4 items, e.g., "I yell or shout when child misbehaves" $\alpha = .72$).

The four subscales of authoritative parenting were positively correlated with each other—the r s ($dfs = 394-401$) ranged from .51 to .63—as were the subscales of authoritarian parenting—the r s ($dfs = 394-400$) ranged from .38 to .61. Thus, composites of authoritative and authoritarian parenting were formed by taking the average of the respective item scores. The α s for the authoritative (24 items) and authoritarian (17 items) subscales were .89 and .82, respectively. Cross-cultural comparative studies using this measure showed an invariant two-factor structure in Chinese and U.S. samples (Wu et al., 2002). Although Baumrind's (1967) typology of parenting styles also includes permissive parenting, permissiveness was not assessed because at the time of W1 study, reliable and valid measures of permissive parenting had not been established in the Chinese cultural context (e.g., Chen, Dong, & Zhou, 1997; McBride-Chang & Chang, 1998; Wu et al., 2002).

Child Temperament (W1)

Effortful control: Parents and teachers rated children's effortful control (from 1 = *extremely untrue of my/this child* to 7 = *extremely true of my/this child*) on two subscales from Rothbart's Child Behavioral Questionnaire (Goldsmith & Rothbart, 1991; Rothbart et al., 2001): (a) the 12-item inhibitory control subscale, which assesses children's ability to regulate his or her behavior (e.g., "Can lower his/her voice when asked to do so") and (b) the 13-item attention-focusing subscale, which assesses children's ability to concentrate on a task when needed (e.g., "When drawing or reading a book, shows strong concentration"). Two items from the teacher-reported attention-focusing scale (i.e., "Has difficulty leaving a project s/he has begun" and "Will ignore others when working on an interesting job") were dropped due to negative item – total correlations. The α s for the inhibitory control and attention-focusing subscales were .64 and .76 for parents' reports and .89 and .94 for teachers' reports.

Consistent with the perspective that inhibitory control and attention focusing are two theoretically and empirically salient components of effortful control (Rothbart & Bates, 2006), the inhibitory control and attention-focusing subscale scores were moderately to highly correlated within reporters in this sample, r s ($dfs = 401$ and 419) = .40 and .82, for parents' and teachers' reports, respectively. Thus, following the procedures typically used in studies with Euro-American samples (e.g., Eisenberg, Zhou, et al., 2005; Olson et al., 2005), an effortful control composite was computed by averaging the items across the two subscales. The α s for the combined 25-item parent report and 23-item teacher report scales were .78 and .95, respectively. A cross-cultural study found considerable similarities in the factor structure of Child Behavior Questionnaire (CBQ) between the U.S. and the Chinese preschool samples (Ahadi, Rothbart, & Ye, 1993; Rothbart et al., 2001).

Anger/frustration: Anger/frustration was assessed with a subscale from the CBQ consisting of 11 items pertaining to the amount of negative effects related to interruption of ongoing tasks or goal blocking (e.g., "Has temper tantrums when s/he doesn't get what s/he wants" α s = .67 and .84 for parents' and teachers' reports).

NLEs (W2)—Children's experience of NLEs in the past 6 months was assessed with the 57-item Negative Life Event Checklist for Chinese School Age Children. This measure was compiled by the authors by selecting and adapting items from several life events checklists developed for children/adolescents in the United States (i.e., Adolescent Perceived Events Scale, Compas, Wagner, Slavin, & Vannatta, 1986; General Negative Life Event Schedule, Sandler, Ramirez, & Reynolds, 1986; Multicultural Events Scale for Adolescents, Gonzales, Tein, Sandler, & Friedman, 2001; Middle School Stressors, Elias, Gara, & Ubriaco, 1985;

Economic Strain subscale from the Responses to Stress Questionnaire, Conner-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000). Items were selected for their content relevance for school-age children in urban China, and slight changes were made to the wording to facilitate the understanding by Chinese children. Also, based on the categories generated from a nationwide open-ended survey of mainland Chinese school-age children's stressful life events (Beijing Youth Daily, 2002), items were developed by the authors to tap stressors unique to Chinese children (e.g., "You saw mom or dad playing 'Majiang' [a popular gambling game in China], or gambling" "Your parents compared you with other children, in order to show your weakness," "You failed in the 'class-leader' election"). Items were grouped into one of the three content areas: (a) the negative family events (18 items, $\alpha = .82$) includes events associated with interparental or family relationship (e.g., "Your parents physically hit each other or hurt each other") or family economic problems (e.g., "Your family didn't have enough money for you to buy things you wanted"), (b) negative parent – child events (e.g., "Your parents failed to follow through on their promise to you" 13 items, $\alpha = .82$), and (c) the negative school events (26 items, $\alpha = .84$) include both academic events (e.g., "You did poorly on an exam or paper") and peer events (e.g., "You had a fight or argument with your close friend"). Children indicated whether each event happened in the past 6 months. The total number of events endorsed was computed for each content area (see Table 1 for the 10 most frequently endorsed negative events).

CE (W2)—Children completed the seven-item Coping Efficacy Scale (Sandler et al., 2000), which assesses their satisfaction with handling problems in the past 6 months (e.g., "Overall, how well do you think that the things you did during the last six months worked to make the situation better?") and anticipated effectiveness in handling problems in the future (e.g., "In the future, how good do you think that you will usually be in handling your problems?"). Children rated the items on a 4-point scale (1 – 4) with higher scores reflecting higher CE ($\alpha = .82$).

Externalizing Problems (W1 and W2)—At W1, parents ($\alpha = .87$) and teachers ($\alpha = .96$) rated children's externalizing problems (from 1 = *never* to 4 = *often*) on the 24-item Child Behavior Checklist (CBC; Lochman & Conduct Problems Prevention Research Cluster, 1995; e.g., "argues," "lies," "aggressive to adults"). Peer nominations of aggressive/disruptive behaviors were obtained using a subscale (seven items, e.g., "Somebody who gets into lots of fights") from the Revised Class Play (Masten, Morison, & Pelligrini, 1985; see also Chen, Rubin, & Sun, 1992). In the classroom, children were provided a form containing the 21 behavioral descriptors and a list of the names of all students in the class. After the research assistant reads each descriptor, children nominated up to three classmates who could best play the role if they were to direct a class play. Nominations of all classmates were used to compute each item score for each child. The item scores were standardized within the class to adjust for differences in the number of nominators. A composite ($\alpha = .92$) was computed by averaging the corresponding item scores.

At W2, parent-, teacher-, and child-reported externalizing problems were assessed with the Child Behavioral Checklist (CBCL; Achenbach, 2001), Teacher Report Form (TRF; Achenbach, 2001), and Behavior Problem Index (BPI; Peterson & Zill, 1986). The CBCL and TRF externalizing scales include two subscales: (a) rule-breaking behaviors (e.g., "Break rules at home, school or elsewhere") and (b) aggressive behaviors (e.g., "Cruelty, bullying, or meanness to others"). The CBCL and TRF scales are appropriate for ages 4 through 18 years and have satisfactory internal consistency ($\alpha s > .80$) and test – retest reliability ($r s > .80$) in large-sample epidemiological studies with Chinese youth aged 6 – 11 years (Leung et al., 2006; Liu et al., 1999, 2000). Leung et al. (2006) found that CBCL/TRF externalizing scales predicted clinical diagnoses of oppositional defiant disorder/conduct disorder in Chinese children in Hong Kong. Using the cut off *t* score of 60 (recommended by Leung et al., 2006),

4.7% (parents' reports) or 5.0% (teachers' reports) of the children in the present sample had clinically significant externalizing problems. The BPI externalizing scale includes 11 items, all of which are represented in the CBCL and TRF externalizing scales. Scale scores for externalizing problems were computed by averaging the *raw* scores across the items; the α s for parents', teachers', and children's reports of externalizing problems were .84, .92, and .76, respectively.

We switched the measures of adult-reported externalizing from the CBC to the CBCL/TRF at W2 because we were interested in conducting a comprehensive assessment of children's behavior functioning (including both externalizing and internalizing problems) for the larger study and thus the CBCL/TRF (which include larger numbers of items) fit better with our goals than the CBC. Because the CBC items were originally developed from the CBCL measure (Lochman & Conduct Problems Prevention Research Cluster, 1995), we identified the CBC items within the CBCL/TRF scales and calculated the CBC scores at W2. The W2 CBC scores were highly correlated with the CBCL/TRF externalizing scores, $r(372) = .96$ for parents' and teachers' reports, $p < .001$, suggesting that switching the measure did not substantially change the construct.

Results

Independent-sample *t* tests were conducted to compare mean differences in W2 variables across child sex and grade, and correlations with family SES were computed (the corresponding results for W1 variables were reported elsewhere; see Zhou et al., 2004). After correlational analyses, structural equation modeling (SEM) was used to test the hypothesized models. First, a preliminary model in which W1 parenting and temperament jointly predict externalizing problems at W2 controlling for W1 externalizing problems was tested (Figure 1). Then, a full model in which W1 parenting and temperament predicted the NLE and CE at W2, which in turn relate to W2 externalizing problems, was tested (Figure 2). The significance of mediated effects was tested using the confidence interval (CI) method outlined by MacKinnon, Lockwood, Hoffman, West, and Sheets (2002). Finally, two-group SEMs (by sex, grade, or family SES) were used to examine whether sex, grade, or family SES moderated the relations among the variables in the models.

Child Sex, Grade, and Family SES Differences in W2 NLEs, CE, and Behavior Problems

As shown in Table 2, boys reported lower CE than girls, $t(360) = -3.15$, $p < .01$. Boys scored higher than girls on parents', teachers', and self-reports of externalizing problems, $t(371, 370, 368) = 4.58, 4.51$, and 4.32 , $p < .01$. With regard to grade differences, fifth graders reported fewer parent – child relationship and school negative events than did sixth graders, $t(368 \text{ and } 368) = -2.03$ and -2.06 , $p < .05$, and fifth graders scored lower on teachers' reports of externalizing problems than sixth graders, $t(370) = -3.09$, $p < .01$.

SES was computed by first averaging W2 maternal and paternal education levels and then averaging the standardized scores for parental education and W2 family income. Thus, the resulting SES index reflected the family's relative status in parental education levels and family income. SES was negatively correlated with parents' reports of externalizing problems, $r(371) = -.25$, $p < .01$, and positively correlated with CE, $r(355) = .16$, $p < .01$.

Correlation Analyses

Zero-order correlations among the W1 and W2 variables were computed for the whole sample and within sex. Fisher's *z* tests were conducted to examine whether a correlation coefficient differed significantly across child sex. Because only 2 out of 123 pairs of correlations tested differed significantly by sex, these may not be reliable; thus, correlations for the whole sample

are presented in Table 3. Significant and positive cross-reporter correlations were found for parents' and teachers' reports of effortful control at W1 and parents', teachers', peers', or children's reports of externalizing problems at W1 and W2. Moreover, significant cross-time and cross-reporter correlations were found on externalizing problems.

Cross-time correlations were found between W1 parenting or temperament and W2 externalizing problems. Authoritative parenting was negatively correlated with, and authoritarian parenting was positively correlated with, externalizing problems (parents', children's, and/or teachers' reports). Effortful control (parents' and teachers' reports) was negatively correlated with, and anger/frustration was positively correlated with, parents', children's, and/or teachers' reports of externalizing problems. Moreover, cross-time correlations were found between parenting or temperament and CE: Authoritative parenting and effortful control (parents' and teachers' reports) were positively correlated with, whereas authoritarian parenting and anger/frustration were negatively correlated with, CE. A few cross-time relations were found between parenting or temperament and NLE: Authoritarian parenting was positively correlated with, whereas effortful control (parents' and teachers' reports) was negatively correlated with, school and/or parent – child negative events; effortful control (teachers' reports) was also negatively correlated with family negative events. At W2, the three categories of NLEs were negatively correlated with CE and positively correlated with externalizing problems (parents' and children's reports); CE was negatively correlated with externalizing problems (all reporters).

SEM

Before conducting the SEM analyses, the variables were screened for normality and outliers. Four variables had high skewness (absolute value ≥ 2) and/or kurtosis (≥ 7) using the cutoffs suggested by West, Finch, and Curran (1995): W1 peer nomination of aggression, W2 family negative events, and W2 parents' and teacher's reports of externalizing problems (all were positively skewed). It is not uncommon for symptomatology variables to be positively skewed in school-based samples. Because of the presence of nonnormal variables in the models, we conducted the SEM analyses using the MLR estimator of Mplus 4.0, which provides the standard errors and chi-square statistics for data with nonnormal outcomes (the robust statistics; see Muthen & Muthen, 1998–2006). In addition, Cook's distance was used to screen the data for outliers, and no outliers were found using the cutoff of 1 (Cook, 1977; Stevens, 1984). Given that the data were clustered within school classrooms (this is especially relevant for teachers' reports, as each of the 14 teachers at each wave completed the questionnaires for all the participating students in his/her class), the standard errors of parameter estimates and the chi-square test of model fit were computed using a special feature in Mplus 4.0 (Muthen & Muthen, 1998–2006), which takes into account nonindependence of observation. In this approach, parameters are estimated by maximizing a weighted log-likelihood function and standard errors are computed using a sandwich estimator. In addition, in Mplus maximum likelihood estimation, missing data due to attrition are allowed but the missing values are not imputed; rather, the method uses all information that is available to estimate the model using full information maximum likelihood (Muthen & Muthen, 1998–2006).

The Preliminary Model—In this model (Figure 1), W1 parenting (authoritative and authoritarian parenting) and child temperament (effortful control and anger/frustration) were hypothesized to jointly predict W2 externalizing problems controlling for W1 externalizing problems. For constructs assessed through multiple-informant reports (i.e., W1 effortful control and W1 externalizing problems), a latent factor measurement model was specified (the loading of 1 indicator for a given latent factor was fixed to 1 for model identification). As suggested by Cole and Maxwell (2003), the measurement errors of the same measures from the same reporter (e.g., parents' reports of authoritarian parenting and their reports of effortful

control at W1, parents' reports of anger/frustration and their reports of externalizing problems at W1) were allowed to correlate if doing so significantly improved the overall model fit. The preliminary model using parents' reports of anger/frustration fit the data well, $\chi^2(df = 33, N = 425) = 65.8, p < .001$, comparative fit index (CFI) = .95, root mean square error of approximation (RMSEA) = .048, and standardized root mean square residual (SRMR) = .051. Hu and Bentler (1999) recommended the values close to .95 for CFI, .08 for SRMR, and .06 for RMSEA as cutoff criteria for a relatively good fit between the hypothesized model and the observed data. As reported in Figure 3, ratings from different reporters loaded significantly and positively on the latent factors for W1 effortful control, W1 externalizing problems, and W2 externalizing problems, suggesting significant agreement across different reporters on these constructs. W1 externalizing problems were positively related to W2 externalizing problems, suggesting consistency in externalizing problems from middle to late childhood. W2 SES was negatively related to W2 externalizing problems. As hypothesized, W1 authoritative parenting negatively predicted W2 externalizing problems controlling for W1 authoritarian parenting, temperament, and externalizing problems; W1 authoritarian parenting positively predicted W2 externalizing problems controlling for W1 temperament and externalizing problems. Moreover, W1 anger/frustration (parent report) positively predicted W2 externalizing controlling for W1 parenting and externalizing. However, W1 effortful control did not uniquely predict W2 externalizing problems.

The preliminary model using teachers' reports of anger/frustration fit with the data adequately, $\chi^2(df = 39, N = 425) = 88.1, p < .001$, CFI = .92, RMSEA = .054, SRMR = .058. The same pattern of results was found as in the model using parents' reports of anger/frustration, with the exception that teachers' reports of anger/frustration at W1 did not uniquely predict W2 externalizing problems.

Full Model—The full model (Figure 2) was specified by adding the W2 negative events and CE as possible mediators between W1 parenting or temperament and W2 externalizing problems. Because W1 effortful control did not have unique prediction to W2 externalizing in either preliminary model, it was dropped from the full model for parsimony. W1 authoritative and authoritarian parenting and anger/frustration were hypothesized to predict W2 negative family, school, and parent – child events and CE. The NLEs and CE, in turn, were hypothesized to predict W2 externalizing problems controlling for other predictors. The error terms of W2 negative events and CE were allowed to be correlated with each other. The effect of W2 SES was controlled on W2 constructs. The full model using parents' reports of anger/frustration fit the data well (Figure 4), $\chi^2(df = 45, N = 425) = 81.24, p < .001$, CFI = .95, RMSEA = .044, SRMR = .052. As predicted, controlling for W1 authoritative parenting and temperament, W1 authoritarian parenting negatively predicted W2 CE and positively predicted W2 negative school events. Controlling for W1 parenting, anger/frustration, externalizing problems, and W2 SES, W2 negative school and parent–child events related positively, and CE related negatively, to W2 externalizing problems. In addition, W1 anger/frustration and authoritarian parenting had positive direct paths, and authoritative parenting had a negative direct path, to W2 externalizing problems. W2 SES negatively related to W2 externalizing problems.

The full model using teachers' reports of anger/frustration also fit the data well, $\chi^2(df = 44, N = 425) = 96.7, p < .001$, CFI = .93, RMSEA = .053, SRMR = .054. The same pattern of results was found as in the model using parents' reports of anger/frustration, with the exception that teachers' reports of anger/frustration at W1 did not have a direct path on W2 externalizing problems controlling for other predictors.

In summary, the preceding results suggested that W1 authoritarian parenting negatively predicted W2 CE (controlling for W1 anger/frustration), which in turn was negatively related to W2 externalizing problems (controlling for other predictors). Moreover, W1 authoritarian

parenting positively predicted negative school events, which in turn was positively related to W2 externalizing.

To examine the hypothesis that W2 CE and school negative events mediate the links between W1 authoritarian parenting and W2 externalizing, the significance of mediated effects (in Figure 4) was tested using the CI method, which accommodates the non-normal distribution of the mediated effect (MacKinnon, Lockwood, & Williams, 2004; MacKinnon et al., 2002; Meeker, Cornwell, & Aroian, 1981). The CI of the mediated effect is calculated based on the distribution of the product of two normal random variables. If zero is not in the 95% interval of CI, the mediation effect is significant. In addition, the proportion of the total effect of W1 predictor (e.g., authoritarian parenting) on W2 outcome that was mediated by W2 mediator (e.g., CE) was calculated using the method recommended by MacKinnon, Warsi, and Dwyer (1995). The results suggested that W2 CE significantly mediated the relation between W1 authoritarian parenting and W2 externalizing problems; the CI for mediated effect = (.0002, .0137), $p = .05$, and 17% of the total effect of authoritarian parenting on externalizing problems was mediated. Moreover, W2 school negative events significantly mediated the link between W1 authoritarian parenting and W2 externalizing; CI = (.0001, .0118), $p = .05$, and 15% of the total effect was mediated.

Power Analysis—Using the procedures of MacCallum, Browne, and Sugawara (1996), we estimated the power for testing the fit of the SEM models based on the RMSEA index of model fit, in which power is affected by the null RMSEA and alternative RMSEA values, sample size, and degree of freedom. We estimated the power for a test of close fit, with the null value of RMSEA specified as .05 and alternative value specified as .08. With our sample size of 425, the power is estimated to be .93 for the preliminary model and .98 for the full model.

Moderation by Child Sex, Grade, or Family SES—For both the preliminary and the full models tested, moderation by child sex, grade, and SES (low- vs. high-SES groups classified based on a median split on the continuous SES variable) was examined using two-group SEMs. In each two-group SEM, the hypothesized model was simultaneously tested within the two groups (e.g., boys and girls, fifth and sixth graders, or from low- and high-SES families). A constrained two-group model was tested, in which both the loadings of the observed variables in the measurement models and the coefficients of the directional path in the structural models were constrained to be invariant across groups. If the constrained model fits the data adequately, it suggests that both the loadings and the path coefficients are invariant across groups. If the constrained model fits the data poorly, modification indexes are used to identify the invariance constraint that, if removed, would result in a two-group model that better represents the data (an indication of moderation).

When parents' reports of anger/frustration were used, the two-group models by child sex with the loadings and the path coefficients constrained to be invariant across groups fit the data adequately, $\chi^2(df = 72, Ns = 189 \text{ boys and } 236 \text{ girls}) = 111.9, p < .002$, CFI = .95, RMSEA = .051, SRMR = .069 for the preliminary model, and $\chi^2(df = 106, Ns = 189 \text{ boys and } 236 \text{ girls}) = 150.7, p < .003$, CFI = .95, RMSEA = .045, SRMR = .062 for full model. Similarly, the two-group invariant models by grade (fifth vs. sixth graders) fit the data adequately, $\chi^2(df = 72, Ns = 192 \text{ fifth graders and } 190 \text{ sixth graders}) = 115.6, p < .001$, CFI = .95, RMSEA = .056, SRMR = .068 for the preliminary model and $\chi^2(df = 108, Ns = 192 \text{ fifth graders and } 190 \text{ sixth graders}) = 157.5, p < .002$, CFI = .95, RMSEA = .049, SRMR = .064 for full model. The two-group invariant models by SES (low vs. high SES) also fit the data adequately, $\chi^2(df = 72, Ns = 177 \text{ children from lower SES families and } 197 \text{ children from higher SES families}) = 98.0, p = .05$, CFI = .97, RMSEA = .044, SRMR = .068 for the preliminary model and $\chi^2(df = 104, Ns = 175 \text{ low-SES and } 199 \text{ high SES families}) = 157.4, p < .001$, CFI = .95, RMSEA = .052, SRMR = .066 for full model. Therefore, child sex, grade, and SES did not moderate the relations between

the observed variables and the latent factors nor did these variables moderate the paths included in the preliminary and full models. Similarly, moderation by sex, grade, or SES was not found in the models using teachers' reports of anger/frustration.

Discussion

As one of the first longitudinal studies on parenting, temperament, and Chinese children's behavior problems (e.g., Chen, Liu, & Li, 2000; Chen et al., 2002), this study extended the previous research with this population (which was mostly cross-sectional and/or did not simultaneously include both parenting and temperament as predictors of adjustment, e.g., Chen et al., 2002; Eisenberg et al., 2007; Nelson et al., 2006; Porter et al., 2005). The most important findings are the prospective and unique relations of authoritative and authoritarian parenting and temperamental anger/frustration to Chinese children's externalizing problems, which provided evidence for the generalization of socialization and temperament models for externalizing problems to the Chinese culture. Some evidence was also obtained regarding children's experience of NLEs and CE as mediators in the parenting-externalizing problems' relations.

The Prospective and Unique Relations of Parenting Styles and Temperament to Chinese Children's Behavior Problems

Parenting—Consistent with our hypotheses, Chinese children whose parents were high on authoritative parenting in middle childhood displayed fewer externalizing problems than their peers 4 years later, whereas those whose parents were high on authoritarian parenting displayed more externalizing problems. These effects were found after controlling for baseline externalizing problems, effortful control and anger/frustration, and family SES. Therefore, at least part of the variation in externalizing problems associated with parenting was independent of temperament, a finding that provides stronger support for the influence of parenting on externalizing than cross-sectional or longitudinal models that do not control for temperament. Moreover, correlations between earlier parenting and later externalizing were found across different reporters and settings (e.g., school vs. home, especially for the relation between authoritarian parenting and externalizing), although the magnitudes of the cross-time and cross-reporter correlations were in the small to medium range. These findings are consistent with the coercive social learning theory (Patterson, 1982; Reid et al., 2002) regarding the role of coercive/aversive parenting in developing, maintaining, and exacerbating children's externalizing problems. The findings also support Baumrind's (1967, 1996) theory on the benefits of authoritative parenting and the negative impact of authoritarian parenting on children's psychosocial development. In contrast to the authoritarian/coercive parenting, authoritative parenting is balanced in the degree of warmth/acceptance and demandingness, which controls externalizing behaviors without the "side-effect" of evoking negative reactions (Baumrind, 1996).

The longitudinal results are generally consistent with the existing findings from Euro-American samples (e.g., Shaw, 2003; Steinberg, 2001), suggesting that there is some cross-cultural universality in the adaptive functions of authoritarian and authoritative parenting. However, this does not contradict the theory/research that suggests the existence of cross-cultural differences in the meanings of authoritative and authoritarian parenting (e.g., Chao, 1994, 2001; Deater-Deckard et al., 2005). First, because our measure of authoritarian parenting taps more the aversive/harsh form of demandingness (e.g., corporal punishment and verbal hostility) than the less aversive/harsh form of demandingness (e.g., strictness/supervision), the findings suggest that the negative impact of harsh parenting on children's adjustment is similar in the Chinese culture as in the Euro-American culture. Indeed, researchers who found a weaker or nonsignificant negative relation between authoritarian parenting and child adjustment

(compared with authoritative parenting) in Chinese/Chinese American samples tended to use measures that tap strictness/supervision (e.g., Chao, 2001). Second, our measure of authoritative parenting taps components such as warmth, responsiveness, and use of reasoning and induction, which may have more similarities in their adaptive functions between the Chinese and the Euro-American cultures than other components of authoritative parenting (e.g., psychological autonomy granting). Third, cross-cultural differences in the parenting – child adjustment relations may manifest not only as differences in the direction/pattern of relations (e.g., authoritarian parenting and child adjustment were negatively related in Euro-American culture but not in African American culture; Deater-Deckard et al., 2005) but also as differences in the strength of relations (e.g., physical discipline is *more strongly* related to negative child outcomes in cultures where the perceived norm/mean for physical discipline is lower; Lansford et al., 2005). The within-culture nature of the present study could not provide a direct comparison of the strength of the relations among constructs to those in another culture. An important direction for future research would involve such comparisons.

Temperament—Anger/frustration (parents' reports) prospectively and uniquely predicted higher externalizing problems, and the magnitude of the cross-time and cross-reporter correlations between anger/frustration (parents' reports) and externalizing problems were found to be in the small to medium range. Consistent with Chinese cultural values regarding the expression of anger/frustration (Markus & Kitayama, 1991) and encouragement of emotional and behavioral control/regulation in Chinese schools (Phelps, 2005), high temperamental susceptibility to anger showed a persistent positive relation to externalizing. The results are similar to those with Euro-American samples (e.g., Eisenberg et al., 2001; Eisenberg, Shepard, Fabes, Murphy, & Guthrie, 1998; Zahn-Waxler, Cole, Richardson, & Friedman, 1994) and extended the cross-sectional findings on Chinese children (Eisenberg et al., 2007; Zhou et al., 2004).

Some cross-cultural differences were found in the relation between parents' and teachers' reports of anger/frustration and their links to externalizing problems. Although parents' and teachers' ratings of anger/frustration were moderately and positively correlated in Euro-American samples (e.g., Eisenberg et al., 2001), they were unrelated in this Chinese sample (Zhou et al., 2004). Moreover, parents' reports of anger/frustration were unrelated to teachers' and peers' reports of social functioning at W1 (Zhou et al., 2004). This result was somewhat replicated in the W1 – W2 longitudinal analyses: Parents' reports of anger/frustration were prospectively related to parents' and children's but not teachers' reports of externalizing 4 years later. Together, these results support the interpretations by Zhou et al. (2004) that due to differences in anger/frustration display rules at home versus at school in the Chinese culture, Chinese children may express anger/frustration differently in these two settings. Accordingly, parents' and teachers' observation of anger may reflect different aspects of temperament. Although teachers' reports of anger at W1 were correlated with parents', (a different group of) teachers', and children's reports of externalizing problems 4 years later, it did not uniquely predict externalizing. This may be due to the fact that teachers' reports of anger had higher correlations with (and thus greater overlap) indicators of effortful control than parents' reports of anger. Because of the greater emphasis on the control of anger at school than at home, the Chinese children who display greater anger/frustration at school may also tend to be rated as underregulated.

Although W1 effortful control was negatively correlated with W2 externalizing, it did not uniquely predict externalizing problems. Thus, the effects of effortful control on externalizing seemed to overlap with the effects of parenting or anger/frustration. A few researchers have found unique effects of effortful control on toddlers' and preschoolers' behavior problems controlling for parenting (Eisenberg, Zhou, et al., 2005; Gartstein & Fagot, 2003; Olson et al., 2005), although Lengua and Kovacs (2005) failed to find unique effect of self-regulation on

children's behavior problems controlling for parenting and other temperament dimensions. It is possible that as children age, parenting and effortful control or effortful control and anger become increasingly correlated, making it more difficult to identify their unique relations to externalizing problems.

NLEs and CE as Mediators of the Parenting- and Temperament-Externalizing Relations

Another important contribution of the study is the testing of potential mechanisms in the links between parenting or temperament and externalizing. In our models, authoritarian parenting negatively predicted CE, which in turn was negatively related to externalizing, and partly mediated the authoritarian parenting – externalizing relation. Because parenting and CE were reported by different reporters, it is unlikely that the parenting – CE relation was purely due to shared method effects. This result is consistent with the theory that authoritarian/coercive parenting evokes negative emotions (Cassidy, 1994; Kobak & Sceery, 1988), which in turn promotes ineffective coping. Moreover, authoritarian parenting may impair children's CE through its negative effect on perceived control (Magaro & Weisz, 2006) or through parental modeling of ineffective coping (Power, 2004). Only 17% of the relation between authoritarian parenting and externalizing was mediated by CE, and authoritarian parenting continued to have a direct relation to externalizing after controlling for CE, suggesting that other processes may mediate the cross-time association between parenting and externalizing (e.g., empathy; Zhou et al., 2002).

The results are also consistent with the hypothesis that children's experience of school-related negative events partly mediated the relation between authoritarian parenting and externalizing problems. Multiple processes might be involved in the cross-time link between authoritarian parenting and school-related negative events: (a) children from families high on authoritarian parenting may have lower academic and peer competence than others (Chen et al., 1997; Steinberg, 2001) and thus experience more academic and peer stressors and (b) parents high on authoritarianism may have higher and often unrealistic expectations for children's academic and peer success, which leads children to perceive greater school-related stressors (Crystal et al., 1994). Future research needs to examine the specific pathways underlying the authoritarian parenting – school negative events associations.

In contrast, although authoritative parenting was positively correlated with CE, it did not have a unique effect on CE, suggesting that the positive relation between authoritative parenting and CE may be mostly due to shared (but reversed) variance with authoritarian parenting. Moreover, authoritative parenting was unrelated to NLEs, suggesting that authoritarian parenting had little direct impact on exposure to negative events. Yet, the unique effect of authoritative parenting on externalizing persisted after negative events and CE were included in the model. Thus, the association between authoritative parenting and externalizing may be mediated through other processes (e.g., children's dispositional optimism, Jackson, Pratt, Hunsberger, & Pancer, 2005). Similarly, CE and NLEs did not mediate the link between temperamental anger/frustration (parents' reports) and externalizing. Anger/frustration might have more a direct relation to externalizing than authoritarian parenting; alternatively, other processes might mediate the anger/frustration – externalizing association (e.g., emotion attribution and empathy; Schultz, Izard, & Bear, 2004).

To our knowledge, this is also one of the first studies investigating Chinese preadolescents' experience of NLEs, although a few researchers have studied Chinese adolescents' or young adults' experience of NLEs (e.g., Dmitrieva, Chen, Greenberger, & Gil-Rivas, 2004; Greenberger, Chen, Tally, & Dong, 2000; Tao, Dong, Pratt, Hunsberger, & Pancer, 2000). NLEs provide a unique window for studying children's daily-living contexts. We found that negative school events and parent-child events were among the most frequently endorsed negative events by urban Chinese children and both were positively associated with

externalizing problems. With the rapid rise in social competition for employment opportunities in major cities in China as a result of the economic reform (Chen et al., 2005), college education has become increasingly important for a successful career. Chinese children, from an early age, recognize the importance of academic performance and excellence in school-related activities and are under significant pressure to excel in academic tasks and school activities (Phelps, 2005). Thus, it is not surprising that children in this sample endorsed more school-related negative events than other negative events. The relatively high frequency of parent – child negative events is consistent with the high proportion of only children (> 90%) in this sample. Due to the lack of siblings in only-child families, parent – child interactions constitute a major part of children's experiences at home; thus, parent – child negative events may play an especially important role in the only child's adjustment.

Limitations and Conclusions

This study has several limitations. First, because there was no time interval between the assessment of negative events or CE and externalizing, the direction of the relations between them could not be tested (e.g., it is possible that the negative events or CE-externalizing relations are bidirectional). Although the cause and effect cannot be ascertained with correlational data, one can make somewhat stronger assumptions regarding causality if a variable predicts an outcome over time while controlling for its baseline level. Second, because prior levels of life events and CE were not assessed and controlled, the mediation model might have overestimated the paths from parenting or temperament to these constructs. Cole and Maxwell (2003) suggested that the optimal design for testing mediation is to assess the predictor (e.g., parenting and temperament), the mediator (e.g., negative events and CE), and the outcome (e.g., externalizing) across at least three time points. Thus, because only two waves of data are available in the present study, the mediational findings are less robust than the findings on the prospective relations of parenting and temperament to externalizing problems. Third, because the study involved only Chinese children, cross-cultural similarities and differences were not explicitly examined. Fourth, because the present sample consists of Chinese children primarily from working- to middle-class families in a highly industrialized metropolitan area, the results may not generalize to Chinese children in less developed rural areas (Zhang & Fuligni, 2006). In addition, because the study was based on a school-based sample with a low prevalence rate of clinically significant externalizing problems, the findings may not generalize to clinical populations in China. Despite these limitations, the study provided important insights into the socialization and temperamental risk factors and the underlying mechanisms for the development of externalizing problems in Chinese children and suggested that some cross-cultural universality exists in the developmental pathways to childhood externalizing problems.

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References

- Achenbach, TM. The manual for the ASEBA school-age forms & profiles. Burlington, VT: Research Center for Children, Youth, & Families; 2001.
- Ahadi SA, Rothbart MK, Ye R. Children's temperament in the US and China: Similarities and differences. *European Journal of Personality* 1993;7:359–377.

- Baumrind D. Child care practices anteceding three patterns of preschool behavior. *Genetic Psychology Monographs* 1967;75:43–88. [PubMed: 6032134]
- Baumrind D. Parenting: The discipline controversy revisited. *Family Relations* 1996;45:405–414.
- Beijing Youth Daily. The twenty-eight stressors of elementary school children. 2002 May 30. p. A2
- Berkowitz, L. *Aggression: Its causes, consequences, and control*. New York: McGraw-Hill; 1993.
- Blair C. School readiness: Integrating cognition and emotion in a neurobiological conceptualization of children's functioning at school entry. *American Psychologist* 2002;57:111–127. [PubMed: 11899554]
- Calkins SD, Dedmon SE. Physiological and behavioral regulation in two-year-old children with aggressive/destructive behavior problems. *Journal of Abnormal Child Psychology* 2000;28:103–118. [PubMed: 10834764]
- Calkins SD, Fox NA. Self-regulatory processes in early personality development: A multilevel approach to the study of childhood social withdrawal and aggression. *Development and Psychopathology* 2002;14:477–498. [PubMed: 12349870]
- Cassidy J. Emotion regulation: Influences of attachment relationships. *Monographs of the Society for Research in Child Development* 1994;59:228–283. [PubMed: 7984163]
- Chang L, Lansford JE, Schwartz D, Farver JM. Marital quality, maternal depressed affect, harsh parenting, and child externalizing in Hong Kong Chinese families. *International Journal of Behavioral Development* 2004;28:311–318.
- Chao RK. Beyond parental control and authoritarian parenting style: Understanding Chinese parenting through the cultural notion of training. *Child Development* 1994;65:1111–1119. [PubMed: 7956468]
- Chao RK. Extending research on the consequences of parenting style for Chinese Americans and European Americans. *Child Development* 2001;72:1832–1843. [PubMed: 11768148]
- Chen X, Cen G, Li D, He Y. Social functioning and adjustment in Chinese children: The imprint of historical time. *Child Development* 2005;76:182–195. [PubMed: 15693766]
- Chen X, Dong Q, Zhou H. Authoritative and authoritarian parenting practices and social and school performance in Chinese children. *International Journal of Behavioral Development* 1997;21:855–873.
- Chen X, Liu M, Li D. Parental warmth, control, and indulgence and their relations to adjustment in Chinese children: A longitudinal study. *Journal of Family Psychology* 2000;14:401–419. [PubMed: 11025932]
- Chen X, Rubin KH, Sun Y. Social reputation and peer relationships in Chinese and Canadian children: A cross-cultural study. *Child Development* 1992;63:1336–1343.
- Chen X, Wang L, Chen H, Liu M. Non-compliance and child-rearing attitudes as predictors of aggressive behavior: A longitudinal study in Chinese children. *International Journal of Behavioral Development* 2002;26:225–233.
- Cole DA, Maxwell SE. Testing mediational models with longitudinal data: Questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology* 2003;112:558–577. [PubMed: 14674869]
- Compas BE. Stress and life events during childhood and adolescence. *Clinical Psychology Review* 1987;7:275–302.
- Compas BE, Connor-Smith JK, Saltzman H, Thomsen AH, Wadsworth ME. Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. *Psychological Bulletin* 2001;127:87–127. [PubMed: 11271757]
- Compas BE, Wagner BM, Slavin LA, Vannatta K. A prospective study of life events, social support, and psychological symptomatology during the transition from high school to college. *American Journal of Community Psychology* 1986;14:241–257. [PubMed: 3739977]
- Conner-Smith JK, Compas BE, Wadsworth ME, Thomsen AH, Saltzman H. Responses to stress in adolescence: Measurement of coping and involuntary stress responses. *Journal of Counseling and Clinical Psychology* 2000;68:976–992.
- Cook RD. Detection of influential observation in linear regression. *Technometrics* 1977;19:15–19.
- Cowen EL, Work WC, Hightower AD, Wyman PA. Toward the development of a measure of perceived self-efficacy in children. *Journal of Clinical Child Psychology* 1991;20:169–178.

- Crystal DS, Chen C, Fuligni AJ, Stevenson HW, Hsu C-C, Ko H-J, et al. Psychological maladjustment and academic achievement: A cross-cultural study of Japanese, Chinese, and American high school students. *Child Development* 1994;65:738–753. [PubMed: 8045164]
- Davidov M, Grusec JE. Untangling the links of parental responsiveness to distress and warmth to child outcomes. *Child Development* 2006;77:44–58. [PubMed: 16460524]
- Deater-Deckard, K.; Dodge, KA.; Sorbring, E. Cultural differences in the effects of physical punishment. In: Rutter, M.; Tienda, M., editors. *Ethnicity and causal mechanisms*. New York: Cambridge University Press; 2005. p. 204–226.
- Derryberry D, Reed MA, Pilkenton-Taylor C. Temperament and coping: Advantages of an individual differences perspective. *Development and Psychopathology* 2003;15:1049–1066. [PubMed: 14984137]
- Dmitrieva J, Chen C, Greenberger E, Gil-Rivas V. Family relationships and adolescent psychosocial outcomes: Converging findings from Eastern and Western cultures. *Journal of Research on Adolescence* 2004;14:425–447.
- Dodge, KA.; Coie, JD.; Lynam, D. *Aggression and antisocial behavior in youth*. Hoboken, NJ: Wiley; 2006.
- Eisenberg N, Cumberland A, Spinrad TL, Fabes RA, Shepard SA, Reiser M, et al. The relations of regulation and emotionality to children's externalizing and internalizing problem behavior. *Child Development* 2001;72:1112–1134. [PubMed: 11480937]
- Eisenberg N, Fabes RA, Bernzweig J, Karbon M, Poulin R, Hanish L. The relations of emotionality and regulation to preschoolers' social skills and sociometric status. *Child Development* 1993;64:1418–1438. [PubMed: 8222881]
- Eisenberg, N.; Fabes, RA.; Guthrie, IK. Coping with stress: The roles of regulation and development. In: Wolchik, SA.; Sandler, IN., editors. *Handbook of children's coping: Linking theory and intervention*. New York: Plenum Press; 1997. p. 41–70.
- Eisenberg N, Ma Y, Chang L, Zhou Q, Aiken L, West S. Relations of effortful control, reactive undercontrol, and anger to Chinese children's adjustment. *Development and Psychopathology* 2007;19:385–409. [PubMed: 17459176]
- Eisenberg, N.; Morris, AS. Children's emotion-related regulation. In: Kail, RV., editor. *Advances in child development and behavior*. Vol. 30. San Diego, CA: Academic Press; 2002. p. 189–229.
- Eisenberg N, Sadovsky A, Spinrad TL, Fabes RA, Losoya SH, Valiente C, et al. The relations of problem behavior status to children's negative emotionality, effortful control, and impulsivity: Concurrent relations and prediction of change. *Developmental Psychology* 2005;41:193–211. [PubMed: 15656749]
- Eisenberg N, Shepard SA, Fabes RA, Murphy BC, Guthrie IK. Shyness and children's emotionality, regulation, and coping: Contemporaneous, longitudinal, and across-context relations. *Child Development* 1998;69:767–790. [PubMed: 9680684]
- Eisenberg N, Zhou Q, Spinrad TL, Valiente C, Fabes RA, Liew JC. Relations among positive parenting, children's effortful control, and externalizing problems: A three-wave longitudinal study. *Child Development* 2005;76:1055–1071. [PubMed: 16150002]
- Elias MJ, Gara M, Ubriaco M. Sources of stress and support in children's transition to middle school: An empirical analysis. *Journal of Clinical Child Psychology* 1985;14:112–118.
- Gartstein MA, Fagot BI. Parental depression, parenting and family adjustment, and child effortful control: Explaining externalizing behaviors for preschool children. *Journal of Applied Developmental Psychology* 2003;24:143–177.
- Gilliom M, Shaw DS. Codevelopment of externalizing and internalizing problems in early childhood. *Development and Psychopathology* 2004;16:313–333. [PubMed: 15487598]
- Goldsmith, HH.; Rothbart, MK. Contemporary instruments for assessing early temperament by questionnaire and in the laboratory. In: Angleitner, A.; Strelau, J., editors. *Explorations in temperament*. New York: Plenum Press; 1991. p. 249–272.
- Gonzales NA, Tein J-Y, Sandler IN, Friedman RJ. On the limits of coping: Interaction between stress and coping for inner-city adolescents. *Journal of Adolescent Research* 2001;16:372–395.

- Grant KE, Compas BE, Stuhlmacher AF, Thurm AE, McMahon SD, Halpert JA. Stressors and child and adolescent psychopathology: Moving from markers to mechanisms of risk. *Psychological Bulletin* 2003;129:447–466. [PubMed: 12784938]
- Grant KE, Compas BE, Thurm AE, McMahon SD, Gipson PY. Stressors and child and adolescent psychopathology: Measurement issues and prospective effects. *Journal of Clinical Child and Adolescent Psychology* 2004;33:412–425. [PubMed: 15136206]
- Gray MR, Steinberg L. Unpacking authoritative parenting: Reassessing a multidimensional construct. *Journal of Marriage and Family* 1999;61:574–587.
- Greenberger E, Chen C, Tally SR, Dong Q. Family, peer, and individual correlates of depressive symptomatology among U.S. and Chinese adolescents. *Journal of Consulting and Clinical Psychology* 2000;68:209–219. [PubMed: 10780120]
- Grusec JE, Goodnow JJ. Impact of parental discipline methods on the child's internalization of values: A reconceptualization of current points of view. *Developmental Psychology* 1994;30:4–19.
- Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling* 1999;6:1–55.
- Jackson LM, Pratt MW, Hunsberger B, Pancer SM. Optimism as a mediator of the relation between perceived parental authoritativeness and adjustment among adolescents: Finding the sunny side of the street. *Social Development* 2005;14:273–304.
- Kliewer, W.; Sandler, I.; Wolchik, S. Family socialization of threat appraisal and coping: Coaching, modeling, and family context. In: Nestmann, F.; Hurrelmann, K., editors. *Social networks and social support in childhood and adolescence*. New York: Walter de Gruyter; 1994. p. 271–291.
- Kobak RR, Sceery A. Attachment in late adolescence; Working models, affect regulation, and representations of self and others. *Child Development* 1988;59:135–146. [PubMed: 3342708]
- Kochanska G, Knaack A. Effortful control as a personality characteristic of young children: Antecedents, correlates, and consequences. *Journal of Personality* 2003;71:1087–1112. [PubMed: 14633059]
- Lansford JE, Chang L, Dodge KA, Malone PS, Oburu P, Palmérus K, et al. Physical discipline and children's adjustment: Cultural normativeness as a moderator. *Child Development* 2005;76:1234–1246. [PubMed: 16274437]
- Lengua LJ. Growth in temperament and parenting as predictors of adjustment during children's transition to adolescence. *Developmental Psychology* 2006;42:819–832. [PubMed: 16953689]
- Lengua LJ, Kovacs EA. Bidirectional associations between temperament and parenting and the prediction of adjustment problems in middle childhood. *Journal of Applied Developmental Psychology* 2005;26:21–38.
- Lengua LJ, Long AC. The role of emotionality and self-regulation in the appraisal-coping process: Tests of direct and moderating effects. *Journal of Applied Developmental Psychology* 2002;23:471–493.
- Leung PWL, Kwong SL, Tang CP, Ho TP, Hung SF, Lee CC, et al. Test-retest reliability and criterion validity of the Chinese version of CBCL, TRF, and YSR. *Journal of Child Psychology and Psychiatry* 2006;47:970–973. [PubMed: 16930392]
- Liu X, Kurita H, Guo C, Miyake Y, Ze J, Cao H. Risk factors of behavior and emotional problems among Chinese children aged 6 through 11 years. *Journal of the American Academy of Child & Adolescent Psychiatry* 1999;38:708–715. [PubMed: 10361789]
- Liu X, Kurita H, Guo C, Tachimori H, Ze J, Okawa M. Behavioral and emotional problems in Chinese children: Teacher reports for ages 6 to 11. *Journal of Child Psychology and Psychiatry* 2000;41:253–260. [PubMed: 10750551]
- Lochman E. Conduct Problems Prevention Research Cluster. Screening of child behavior problems for prevention programs at school entry. *Journal of Consulting and Clinical Psychology* 1995;63:549–559. [PubMed: 7673532]
- MacKinnon DP, Krull JL, Lockwood CM. Equivalence of the mediation, confounding and suppression effect. *Prevention Science* 2000;1:173–181. [PubMed: 11523746]
- MacKinnon DP, Lockwood CM, Hoffman JM, West SG, Sheets V. A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods* 2002;7:83–104. [PubMed: 11928892]
- MacKinnon DP, Lockwood CM, Williams J. Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research* 2004;39:99–128.

- MacKinnon DP, Warsi G, Dwyer JH. A simulation study of mediated effect measures. *Multivariate Behavioral Research* 1995;30:41–62.
- Magaro MM, Weisz JR. Perceived control mediates the relation between parental rejection and youth depression. *Journal of Abnormal Child Psychology* 2006;34:867–876. [PubMed: 17066220]
- Manne S, Glassman M. Perceived control, coping efficacy, and avoidance coping as mediators between spousal unsupportive behaviors and psychological distress. *Health Psychology* 2000;19:155–164. [PubMed: 10762099]
- Markus HR, Kitayama S. Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review* 1991;98:224–253.
- Masten A, Morison P, Pelligrini D. A revised class play method of peer assessment. *Child Development* 1985;21:523–533.
- McBride-Chang C, Chang L. Adolescent-parent relations in Hong Kong: Parenting styles, emotional autonomy, and school achievement. *Journal of Genetic Psychology* 1998;159:421–436. [PubMed: 9845973]
- MacCallum RC, Browne MW, Sugawara HM. Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods* 1996;1:130–149.
- Meeker, WQ.; Cornwell, LW.; Aroian, LA. Selected tables in mathematical statistics. Vol. VII: The product of two normally distributed random variables. Providence, RI: American Mathematical Society; 1981.
- Muthen, LK.; Muthen, BO. Mplus: Statistical analyses with latent variables. User's guide. Los Angeles, CA: Muthen & Muthen; 1998–2006.
- National Bureau of Statistics of China. China statistical yearbook 2000. Beijing, China: China Statistics Press; 2000.
- National Institute of Child Health Human Development Early Child Care Research Network. Trajectories of physical aggression from toddlerhood to middle childhood. *Monographs of the Society for Research in Child Development* 2004;69vii-129
- Nelson DA, Hart CH, Yang C, Olsen JA, Jin S. Aversive parenting in China: Associations with child physical and relational aggression. *Child Development* 2006;77:554–572. [PubMed: 16686788]
- O'Connor TG, Deater-Deckard K, Fulker D, Rutter M, Plomin R. Genotype-environment correlations in late childhood and early adolescence: Antisocial behavioral problems and coercive parenting. *Developmental Psychology* 1998;34:970–981. [PubMed: 9779743]
- Olson SL, Sameroff AJ, Kerr DCR, Lopez NL, Wellman HM. Developmental foundations of externalizing problems in young children: The role of effortful control. *Development and Psychopathology* 2005;17:25–45. [PubMed: 15971758]
- Patterson, GR. Coercive family process. Eugene, OR: Castalia; 1982.
- Peterson J, Zill N. Marital disruption, parent-child relationships, and behavior problems in children. *Journal of Marriage and Family* 1986;48:295–307.
- Phelps L. Academic achievement of children in china: The 2002 fulbright experience. *Psychology in the Schools* 2005;42:233–239.
- Porter CL, Hart CH, Yang C, Robinson CC, Olsen SF, Zeng Q, et al. A comparative study of child temperament and parenting in Beijing, China and the western United States. *International Journal of Behavioral Development* 2005;29:541–551.
- Power TG. Stress and coping in childhood: The parents' role. *Parenting: Science and Practice* 2004;4:271–317.
- Reid, JB.; Patterson, GR.; Snyder, J., editors. Antisocial behavior in children and adolescents: A developmental analysis and model for intervention. Washington, DC: American Psychological Association; 2002.
- Repetti RL, Taylor SE, Seeman TE. Risky families: Family social environments and the mental and physical health of offspring. *Psychological Bulletin* 2002;128:330–366. [PubMed: 11931522]
- Robinson CC, Mandleco B, Olsen FS, Hart HC. Authoritative, authoritarian, and permissive parenting practices: Development of a new measure. *Psychological Reports* 1995;77:819–830.

- Rothbart MK, Ahadi SA, Hershey KL, Fisher P. Investigations of temperament at three to seven years: The children's behavior questionnaire. *Child Development* 2001;72:1394–1408. [PubMed: 11699677]
- Rothbart, MK.; Bates, JE. Temperament. In: Damon, W.; Lerner, RM.; Eisenberg, N., editors. *Handbook of child psychology*. Vol. 6th ed.. New York: Wiley; 2006. p. 99-166.(Series Eds.)
- Rothbart, MK.; Posner, MI. Temperament, attention, and developmental psychopathology. In: Cicchetti, D.; Cohen, DJ., editors. *Developmental psychopathology, Vol. 2: Developmental neuroscience*. Vol. 2nd ed.. Hoboken, NJ: Wiley; 2006. p. 465-501.
- Saarni, C.; Campos, JJ.; Camras, LA.; Witherington, D. *Emotional development: Action, communication, and understanding*. Hoboken, NJ: Wiley; 2006.
- Sandler, IN.; Ramirez, R.; Reynolds, KD. Life stress for children of divorce, bereaved, and asthmatic children; Paper presented at the annual meeting of the American Psychological Association; Washington, DC: 1986 Aug.
- Sandler IN, Tein J, Mehta P, Wolchik S, Ayers T. Coping efficacy and psychological problems of children of divorce. *Child Development* 2000;71:1099–1118. [PubMed: 11016569]
- Sanson, AV.; Rothbart, MK. Child temperament and parenting. In: Bornstein, MH., editor. *Handbook of parenting*. Hillsdale, NJ: Erlbaum; 1995. p. 299-321.
- Schultz D, Izard CE, Bear G. Children's emotion processing: Relations to emotionality and aggression. *Development and Psychopathology* 2004;16:371–387. [PubMed: 15487601]
- Shaw DS, Gilliom M, Ingoldsby EM, Nagin DS. Trajectories leading to school-age conduct problems. *Developmental Psychology* 2003;39:189–200. [PubMed: 12661881]
- Smith C, Eisenberg N, Spinrad TL, Chassin L, Morris AS, Kupter A, et al. Children's coping strategies and coping efficacy: Relations to parent socialization, child adjustment, and familial alcoholism. *Development and Psychopathology* 2006;18:445–469. [PubMed: 16600063]
- Sorkhabi N. Applicability of Baumrind's parent typology to collective cultures: Analysis of cultural explanations of parent socialization effects. *International Journal of Behavioral Development* 2005;29:552–563.
- Steinberg L. We know some things: Parent-adolescent relationships in retrospect and prospect. *Journal of Research on Adolescence* 2001;11:1–19.
- Stevens JP. Outliers and influential data points in regression analysis. *Psychological Bulletin* 1984;95:334–344.
- Stewart SM, Rao N, Bond MH, McBride-Chang C, Fielding R, Kennard BD. Chinese dimensions of parenting: Broadening western predictors and outcomes. *International Journal of Psychology* 1998;33:345–358.
- Tao S, Dong Q, Pratt MW, Hunsberger B, Pancer SM. Social support: Relations to coping and adjustment during the transition to university in the People's Republic of China. *Journal of Adolescent Research* 2000;15:123–144.
- Triandis, HC. Major cultural syndromes and emotion. In: Kitayama, S.; Markus, HR., editors. *Emotion and culture: Empirical studies of mutual influence*. Washington, DC: American Psychology Association; 1994. p. 285-306.
- West, SG.; Finch, JF.; Curran, PJ. Structural equation models with nonnormal variables: Problems and remedies. In: Hoyle, RH., editor. *Structural equation modeling: Concepts, issues and applications*. Thousand Oaks, CA: Sage; 1995. p. 56-75.
- Wu P, Robinson CC, Yang C, Hart CH, Olsen SF, Porter CL, et al. Similarities and differences in mothers' parenting of preschoolers in China and the United States. *International Journal of Behavioral Development* 2002;26:481–491.
- Zahn-Waxler C, Cole PM, Richardson DT, Friedman RJ. Social problem solving in disruptive preschool children: Reactions to hypothetical situations of conflict and distress. *Merrill-Palmer Quarterly* 1994;40:98–119.
- Zhang W, Fuligni AJ. Authority, autonomy, and family relationships among adolescents in urban and rural China. *Journal of Research on Adolescence* 2006;16:527–537.
- Zhou Q, Eisenberg N, Losoya SH, Fabes RA, Reiser M, Guthrie IK, et al. The relations of parental warmth and positive expressiveness to children's empathy-related responding and social functioning: A longitudinal study. *Child Development* 2002;73:893–915. [PubMed: 12038559]

Zhou Q, Eisenberg N, Wang Y, Reiser M. Chinese children's effortful control and dispositional anger/frustration: Relations to parenting styles and children's social functioning. *Developmental Psychology* 2004;40:352–366. [PubMed: 15122962]

Figure 1.

The hypothesized preliminary model: The prospective relations of parenting and temperament to externalizing problems.

Note. W1 = Wave 1; W2 = Wave 2; SES = socioeconomic status.

Figure 2.

The hypothesized full model: Negative events and coping efficacy as mediators of the relations of parenting and temperamental effortful control to externalizing problems.

Note. W1 = Wave 1; W2 = Wave 2; SES = socioeconomic status.

Figure 3.

The estimated preliminary model: the prospective relations of parenting and temperament to externalizing problems.

Note. W1 = Wave 1; W2 = Wave 2; SES = socioeconomic status.

* $p < .05$. ** $p < .01$. *** $p < .0001$.

Figure 4.

The estimated full model: negative events and coping efficacy as mediators of the relations of parenting and temperamental effortful control to externalizing problems.

Note. Nonsignificant path coefficients are omitted in the figure. The numbers are standardized loadings or path coefficients. The bolded lines indicate significant mediational paths. W1 = Wave 1; W2 = Wave 2; SES = socioeconomic status.

* $p < .05$. ** $p < .01$. *** $p < .0001$.

Table 1

The 10 Negative Events With the Highest Percentages Endorsed

Content area	Events	% endorsed
School	1. Forgot textbook or brought the wrong textbook	67.1
School	2. Got a bad grade on test/homework	60.5
Parent – child	3. Parent(s) compared you with other kids to show your weakness	59.6
School	4. Teased by peers	53.6
School	5. Too much homework	52.2
School	6. Had a fight/argument with a close friend	49.2
Parent – child	7. Parent(s) criticized/punished you	48.7
School	8. Misunderstood by a close friend	47.8
School	9. Got a bad grade in midterm or final exams	47.8
Parent – child	10. Parent(s) nagged at you	47.5

Table 2
The Means and Standard Deviation for W1 and W2 Variables for the Full Sample and by Child Sex and Grade

Variables	For the full sample			By child sex				By child grade			
	N	M	SD	Boys (Ns = 156–186)		Girls (Ns = 200–234)		Fifth graders (Ns = 171–11)		Sixth graders (Ns = 181–208)	
				M	SD	M	SD	M	SD	M	SD
Authoritative W1 (P)	396	3.76	0.52	3.72	0.51	3.78	0.53	3.78	0.54	3.74	0.50
Authoritarian W1 (P)	399	2.30	0.46	2.34	0.51	2.26	0.42	2.28	0.48	2.32	0.45
Effortful control W1 (P)	402	4.65	0.65	4.54*	0.60	4.73*	0.69	4.58	0.62	4.71	0.68
Effortful control W1 (T)	419	4.89	1.07	4.48*	1.08	5.21*	0.94	4.78*	0.92	5.00*	1.19
Anger/frustration W1 (P)	401	4.15	0.83	4.13	0.76	4.16	0.88	4.18	0.80	4.11	0.86
Anger/frustration W1 (T)	419	3.46	0.99	3.68*	0.97	3.28*	0.98	3.51	0.88	3.41	1.09
Externalizing problem W1 (P)	401	2.07	0.38	2.13*	0.37	2.02*	0.38	2.09	0.39	2.05	0.37
Externalizing problem W1 (T)	420	1.66	0.56	1.88*	0.58	1.48*	0.47	1.81*	0.55	1.50*	0.52
Externalizing problem W1 (PE)	382	-0.04	0.78	0.28*	1.01	-0.29*	0.33	0.00	0.88	-0.07	0.68
Family events W2 (C)	370	2.83	3.12	2.95	3.01	2.73	3.21	2.68	2.68	2.97	3.50
P-C events W2 (C)	370	4.46	3.43	4.62	3.40	4.34	3.46	4.09	3.51	4.82	3.32
School events W2 (C)	370	8.11	5.08	8.63	5.33	7.69	4.84	7.57	4.78	8.64	5.31
Coping efficacy W2 (C)	362	2.99	0.58	2.89*	0.64	3.08*	0.50	3.02	0.63	2.96	0.52
Externalizing problem W2 (P)	373	0.12	0.14	0.16*	0.17	0.09*	0.11	0.13	0.15	0.11	0.13
Externalizing problem W2 (T)	372	0.09	0.16	0.13*	0.19	0.06*	0.12	0.06*	0.14	0.11*	0.18
Externalizing problem W2 (C)	370	0.32	0.27	0.38*	0.30	0.26*	0.23	0.31	0.27	0.32	0.27

Note. C = child report; P = parent report; PE = peer report; T = teacher report; W1 = Wave 1; W2 = Wave 2.

* $p < .05$.

Table 3

Correlations Among Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. AUV (W1-P)	—														
2. AUT (W1-P)	-.18***	—													
3. EC (W1-P)	.30***	-.36***	—												
4. EC (W1-T)	.08	-.19***	.35***	—											
5. ANG (W1-P)	-.06	.22***	-.29***	-.07	—										
6. ANG (W1-T)	-.05	.08	-.17**	-.60***	.08	—									
7. EXT (W1-P)	-.11*	-.37***	-.43***	-.26***	.40***	.21***	—								
8. EXT (W1-T)	-.02	.12*	-.20***	-.58***	.02	.59***	.22***	—							
9. EXT (W1-PE)	-.07	.04	-.11*	-.46***	-.03	.26***	.11*	.43***	—						
10. FAM EVT (W2-C)	-.08	.03	-.07	-.15**	.07	.08	.06	.06	.12*	—					
11. SCH EVT (W2-C)	-.05	.11*	-.13*	-.21***	-.01	.09	.08	.06	.15**	.63***	—				
12. PC EVT (W2-C)	-.08	.11*	-.14**	-.09	.05	.05	.08	.03	.13*	.55***	.64***	—			
13. EFF (W2-C)	.12*	-.19***	.16**	.13*	-.12*	-.04	-.09	.00	-.08	-.20***	-.22***	-.26***	—		
14. EXT (W2-P)	-.22***	.26***	-.23***	-.39***	.17**	.27***	.29***	.32***	.26***	.20***	.25***	.25***	.22***	—	
15. EXT (W2-T)	-.06	.16**	-.10	-.39***	.02	.38***	.14**	.34***	.42***	.09	.09	.06	-.12*	.29***	—
16. EXT (W2-C)	-.13*	.14*	-.16**	-.27***	.13*	.18**	.21***	.21***	.25***	.23***	.38***	.38***	-.23***	.46***	.17**

Note. ANG = anger/frustration; AUT = authoritarian parenting; AUV = authoritative parenting; C = child report; EC = effortful control; EFF = coping efficacy; EXT = externalizing problems; FAM EVT = negative family events; P = parent report; PC EVT = negative parent - child events; PE = peer nomination; SCH EVT = negative school events; T = teacher report; W1 = Wave 1; W2 = Wave 2.

*
 $p < .05$.

**
 $p < .01$.

 $p < .001$.