Parenting behavior and child aggression: Examining bidirectional relations, parental self-efficacy as mediator and parents' adherence to collectivism as moderator

by

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Statement of Originality

I, TAO Si Si, hereby declare that I am the sole author of the thesis and the material presented in this thesis is my original work except those indicated in the acknowledgement. I further declare that I have followed the University's policies and regulations on Academic Honesty, Copyright and Plagiarism in writing the thesis and no material in this thesis has been submitted for a degree in this or other universities.

Abstract

Studies regarding parenting behavior and child aggression have primarily focused on parental influence on children. In this thesis, the bidirectional relations between parenting behavior and child aggression, the mediating role of parental self-efficacy, and the moderating role of parental adherence to values of collectivism in the associations between child aggression and parenting behavior were examined. By using a stratified convenience sampling strategy, 341 children and their parents were recruited from three kindergartens in Guangzhou, China. Longitudinal data were collected at three time points: Time 1 (T1) data were collected in October 2019, Time 2 (T2) data were collected in February 2020, and Time 3 (T3) data were collected in June 2020. At each time point, parents completed a survey reporting demographic information, parenting behavior, spousal parenting behavior, parental self-efficacy, and child aggression (i.e., physical aggression and relational aggression). Parental adherence to collectivism was measured by a survey at T1. Results of this study indicated that (1) the associations between parenting behavior and child aggression were transactional. Specifically, negative parenting behavior at T1 predicted more physical aggression at T2, which in turn increased positive parenting behavior at T3 for mothers but not fathers. Additionally, negative parenting behavior at T1 significantly predicted more child relational aggression at T2, which in turn decreased positive parenting behavior at T3 for both parents. Paternal negative parenting behaviors at T2 predicted reduced child relational aggression at T3. Results also indicated that (2) parental self-efficacy at T2 was not a significant mediator of the relations between child aggression at T1 and parenting behavior at T3 for either parent and (3) parental adherence to collectivism significantly moderated the predicted effects of T1 child relational aggression on T2 negative parenting behavior. For both mothers and fathers, the positive association between child relational aggression and negative parenting behavior was more significant for parents who adhered less to collectivism. This study extends

previous literature through its contributions to theory and practical suggestions. Implications, limitations, and future research directions on this topic are discussed.

Keywords: aggression, parenting behavior, parental self-efficacy, collectivism, early childhood

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List of Abbreviations

PA	Physical aggression
RA	Relational aggression
IV	Independent variable
DV	Dependent variable
PSE	Parental self-efficacy
ADHD	Attention-deficit/hyperactivity disorder
SES	Socioeconomic status
PSDQ	Parenting Styles and Dimensions Questionnaire
PSBS	Preschool Social Behavior Scale
PSOC	Parenting Sense of Competence Scale
FIML	Full Information Maximizing-Likelihood
SEM	Structural equation modeling
RMSEA	Mean square error of approximation

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Chapter 1: Introduction

Aggression is a common problematic behavior in peer relationships during the preschool years (Furniss et al., 2006; Tremblay et al., 2004). Aggressive children have been identified as having a high risk of peer rejection, poor prosocial behavior, and high risk of maladjustment (Card et al., 2008). Because the onset of aggressive behavior is typically in early childhood and because preschoolers are more affected by parental influence than older children (Nelson et al., 2013), the developmental path of child aggression must be investigated to enable early interventions. Among the many predictors identified (e.g., genotype, age, and exposure to violent media), a major predictor of child aggression is parenting. Although the positive association between negative parenting (e.g., verbal hostility) and child aggression is well-documented (e.g., Masud et al., 2019), less is known regarding the reciprocal relations between parenting behavior and child aggression in early childhood, and the role of parental self-efficacy (PSE), and parental adherence to collectivism in the relations between child aggression and parenting behavior. The present study investigated the bidirectional relations between parenting behavior and child aggression in early childhood, and the mediating role of PSE and the moderating role of parental adherence to collectivism in the relations between child aggression and parenting behavior.

1.1. Bidirectional Relations Between Parenting Behavior and Child Aggression

Aggression is a common behavioral problem in early childhood (Coie & Dodge, 1998; Tremblay et al., 2004). Prior studies have identified several forms of aggression (e.g., verbal and social aggression); physical aggression (PA) and relational aggression (RA) are the most common forms of aggression in children before entering formal schooling (e.g., Evans et al., 2019; Lau, 2019). PA refers to harm or threats of harm by physical means, such as hitting, pushing, or kicking (Coie & Dodge, 1998; Crick & Grotpeter, 1995). RA refers to behaviors

that harm others through purposeful manipulation or damage (or threat of damage) to peer relationships, such as exclusion from the playgroup or spreading rumors (Crick et al., 1997; Crick & Grotpeter, 1995). Physically aggressive children are more likely to be violent in adolescence and adulthood because the emotional and social problems caused by early PA may continue throughout life (Broidy et al., 2003). Additionally, physically aggression frequently results in injuries to both perpetrators and victims (Tremblay et al., 2004). Children with RA were reported to have peer problems, poor social skills, and poor school performance due to their undesirable antisocial behavior in peer groups (Moffitt, 2005). These features are likely to cause later maladjustments such as internalizing problems and externalizing behaviors (Farrington, 1991; Jester et al., 2008; Krygsman & Vaillancourt, 2019; Swogger et al., 2011).

Due to the negative effect of aggression on children's development, researchers have investigated the predictors of aggression for interventions preventing its undesirable effects (Côté et al., 2006). Among the identified predictors, parenting has a particularly large influence on the learning and developmental outcomes of preschoolers (Greenberg et al., 2001). Early studies of parenting styles yielded convergent results; a combination of warmth, firm control, and clear standards of conduct was conceptualized as positive parenting (i.e., authoritative parenting), whereas a combination of high control and low responsiveness was characterized as negative parenting (i.e., authoritarian parenting style; Baumrind & Black, 1967). Positive parenting was closely associated with lower levels of child aggression, whereas negative parenting was related to higher levels of aggression (Masud et al., 2019). Children socialized in families with positive parenting strategies (i.e., with parents who were responsive and sensitive to the child's needs and who help the child in overcoming their issues) were less likely to display aggressive behavior (Azimi et al., 2012). By contrast,

children who experienced negative parenting strategies externalized their angry emotions in other contexts, resulting in improper social behaviors such as aggression (Chang et al., 2003).

However, the effects of parenting styles on children may be influenced by the cultural background. Parents from non-Western cultures (e.g., Chinese ethnic groups) may not perceive authoritarian parenting as negative parenting (Keshavarz & Baharudin, 2009). In the Chinese context, some studies have reported that authoritarian parenting was associated with positive child outcomes such as improved academic performance (e.g., Huang & Gove, 2015). This effect may be because, in traditional Chinese culture, parents express love and care through firm control and governance of children (Chao, 1994). Therefore, authoritarian parenting may be perceived as positive by Chinese children and result in positive outcomes. However, these studies were conducted a decade ago. As China has modernized and globalized, many young Chinese parents have adopted Western parenting values such as authoritative parenting (Dor & Cohen-Fridel, 2010). For instance, a recent meta-analysis indicated that Chinese children of authoritarian parents had higher levels of aggression, whereas children of authoritative parents had lower levels of aggression (Lei et al., 2018). These mixed findings invite further exploration of this topic. In this study, the original conceptualization of authoritative parenting as positive parenting and authoritarian parenting as negative parenting was adopted to explore interactions between parenting behavior and child aggression in the Westernized Chinese context.

Although parental influence has been the primary focus of research regarding aggression (e.g., Chang et al., 2003), fewer studies have examined the relationship in reverse; that is, investigating the effects of child behavior on parental behavior. Since Bell's reinterpretation of directionality in parent–child relationships (Bell, 1968), child-driven effects have become a

central factor in many developmental theories that emphasize the dynamic and bidirectional relations between parents and their children (Patterson & Bank, 1989; Sameroff, 1975). Empirical studies on this topic have suggested that when child aggressive behaviors exceed parental expectations or standards, parents may respond with negative reactions such as physical punishment (Gershoff et al., 2012) or psychological control (Albrecht et al., 2007). A recent review article demonstrated that when interacting with a child displaying externalizing behaviors, parents tend to exhibit heightened negative emotions such as irritation (Hale et al., 2016) and criticism (Skripkauskaite et al., 2015) and exhibit reduced positive emotions such as warmth (Harvey & Metcalfe, 2012) and responsiveness (Reitz et al., 2006; Yan et al., 2020).

Parent-driven and child-driven effects both influence the parent–child relationship; therefore, a bidirectional relationship between parenting behavior and child aggression was proposed. However, research regarding these bidirectional relations had mixed findings. Bidirectional relations were found between child and adolescent aggression and several negative parenting behaviors such as harsh maternal discipline (Baydar & Akcinar, 2018), maternal use of aggressive discipline (Sheehan & Watson, 2008), maternal psychological control (Kuppens et al., 2009), and maternal and paternal corporal punishment (Serbin et al., 2015). By contrast, Verhoeven et al. (2010) claimed that the bidirectional model of parenting and aggression was not supported for young children because changes in the externalizing behaviors of children may be more dependent on inherent characteristics such as personality and temperament. If children exhibited more problematic behaviors, analyses failed to find an increase in subsequent maladaptive parenting or vice versa (Besemer et al., 2016). Instead, parent and child behaviors were observed to be highly stable in a longitudinal study. Both parents and children demonstrate substantial stability of their behavior and thus the bidirectional

influences were less frequently identified (Shaffer et al., 2013).

Notably, most studies regarding bidirectional influences have focused only on mothers (Marsiglio et al., 2000). Studies have often measured maternal parenting behavior and have hypothesized that paternal parenting is similar. However, this assumption may be incorrect; evidence demonstrates that mothers and fathers do not necessarily have the same parenting style (Simons & Conger, 2007). Although parenting behavior of both parents was reported in some studies, scores of mothers and fathers were averaged in statistical analyses, ignoring possible differences in maternal and paternal parenting styles (Steinberg et al., 2013). Therefore, this study assessed the influence of both maternal and paternal parenting behavior in a comprehensive family model investigating the development of child aggression.

Additionally, most bidirectional studies have investigated negative parenting behaviors and child aggression and have ignored the effects of positive parenting behavior. Because child externalizing behavior was predictive of lower levels of positive parenting behavior (Harvey & Metcalfe, 2012), including positive parenting behavior is essential for comprehensively understanding the interactions between parenting behavior and child aggression. Because the onset of aggressive behavior is in early childhood and preschoolers are more affected by parental influence than are older children (Tremblay et al., 2004), the primary purpose of this study was to investigate the bidirectional relationships between parenting behavior (positive and negative) and child aggression (i.e., PA and RA) in early childhood.

1.2 Mediating Role of PSE

As described is Section 1.1, the child-driven effects of aggression on parents and parenting behavior have been confirmed by several studies (for a review, see Yan et al., 2020).

However, the process by which child aggression affects parenting behavior is unclear. To understand the underlying mechanisms, a mediation model was used in this study. According to Baron and Kenny (1986), a mediator variable is a variable that mediates the relationship between an independent variable (IV) and a dependent variable (DV). That is, the relationship between an IV and a DV is explained by the mediator variable. For example, parental psychological well-being was observed to mediate the relationship between child aggression and parenting behavior. Defiant, disruptive, and challenging child behavior compounds the stressors associated with parenting. Accordingly, difficult child behavior leads to an increase in parental pressure and depressive symptoms that are predictive of their parenting behaviors (Allen et al., 2010). However, because only a moderate association between parent psychological well-being and parenting behavior was reported (Lovejoy et al., 2000), identification of other mediators that may better explain the mechanisms of child aggression and parenting behavior is necessary.

PSE is defined as parental confidence in ability to successfully raise a child (Bandura, 1982). Parents with high PSE are likely to adopt more positive parenting strategies such as reasoning, whereas parents with low PSE tend to apply more negative parenting strategies such as corporal punishment (Jones & Prinz, 2005). According to Bandura and Adams (1977), PSE develops based on parental experience (i.e., successful or unsuccessful) and physiological and emotional states (e.g., distress). Parents with challenging children (e.g., aggressive children) may have difficulty maintaining high PSE because child unfavorable behaviors are interpreted as unsuccessful experiences by parents and thus cause negative parental emotions such as depression (Chau & Giallo, 2015; Leerkes & Burney, 2007). Accordingly, PSE may be a mediator in the link between child aggression and parenting behavior; higher levels of child aggression may reduce PSE and result in more negative

parenting strategies. To explore the potential mechanisms of the relationship between child aggression and parenting behavior, the second purpose of this study was to examine the mediating role of PSE in the relationship between child aggression and parenting behavior, which has not been investigated in the literature.

1.3 Moderating Role of Parental Adherence to Collectivism

Parenting behaviors should be understood within the specific sociocultural context. The form and function of parenting behaviors are influenced by the value system of the parents with the goal of socializing the child to meet norms emphasized in the parents' culture (Vygotsky, 1978). Most research on aggression has been performed in Western culture (i.e., the United Kingdom and the United States); populations in other cultures have been largely ignored. Research regarding aggression in China has increased rapidly in recent decades, but models of Western studies have been adopted without considering the effects of local cultural values. Although several studies have considered local cultural values (e.g., Huang & Gove, 2015), few have included cultural values as a variable or examined its effects.

According to Chao (1994), Chinese parenting is different from European and American styles due to the influence of traditional values. For example, the value of collectivism is the importance of harmonious interpersonal relationships and requires self-restraint, harmonious behavior, and conformation to social norms (Chen, 2002). Because child aggression is a violation of harmonious interpersonal relationships, parents who endorse collectivism may respond to aggression with specific parenting strategies (e.g., physical control) to control the child's behavioral problems. Because of the lack of studies examining parental adherence to collectivism as a moderator of parental behaviors for responding to child aggression, the third purpose of this study was to address this gap by examining the moderation role of parental

adherence to collectivism in the relationship of child aggression with parenting behavior.

1.4 Research Goals

In summary, although increasing research has investigated child-driven effects on child aggression and parenting behavior, numerous research questions remain: (a) What are the bidirectional relationship between parenting behaviors and child aggression in early childhood? (b) Does PSE mediate the relationship between child aggression and parenting behaviors? (c) Does parental adherence to collectivism moderate the relationship between child aggression and parenting behaviors? The goals of this study were to explore the bidirectional relationship between parenting behaviors and child aggression in early childhood, the mediation role of PSE, and the moderation role of parental adherence to collectivism in relations between child aggression and parenting behavior.

1.5 Thesis Organization

This thesis is presented in seven chapters. Chapter 1 introduces the background, study goals, and research questions of the study and the thesis organization. Chapter 2 introduces the theoretical framework. Chapter 3 reviews relevant literature and includes the definitions of key variables and research gaps of previous studies. In Chapter 4, the methodology of the study is presented. Chapter 5 describes the results of the study, including the results of bidirectional, mediation, and moderation analyses. In Chapter 6, the results of this study are thoroughly and systematically discussed in the context of previous findings. The limitations, future research directions, and implications are also discussed. Chapter 7 summarizes the study and draws a conclusion.

Chapter 2: Theoretical Framework

In this chapter, the existing theories of bidirectionality in parent–child interactions are reviewed. Theories regarding PSE and Chinese parenting are then presented. Following the review of each theory, the research goals are discussed in the context of the theoretical framework.

2.1 Theories of Bidirectional the Relationship Between Parenting Behavior and Child Aggression

Child behavior was suggested to be an outcome of parenting behavior in mainstream family studies (reviewed by Berg-Nielsen et al., 2002). Children with externalizing problems, for example, were observed to have parents with negative parenting behaviors such as rejecting, nagging, criticizing, or accusing (Sulik et al., 2015). However, the gene–environment correlation theory suggests a reverse perspective of parent–child interaction; children may be an active factor in influencing parents and parenting behavior (Plomin et al., 1977; Scarr & McCartney, 1983). According to the theory, human behavior is produced by both genes and the environment. Genes refers to an individual's heritable genetic identity (e.g., temperament), whereas environment refers to the outside environment of a person, including parenting, social networks, and culture. Genes may have a direct effect on behavior, but genetic influences can also be correlated with the environment, thus affecting behavior. The gene–environment correlation process could be evocative or active. In the evocative gene–environment correlation, aggressive children may engage in more parent–child conflict and, as a result, evoke more negative parenting behaviors (Caspi et al., 2002). In the active gene–environment correlation, genes partly determine responses from others and the encountered environment. An illustrative example is child with genetic antisocial behavior evoking parental negativity; this parental negativity acts as a mediator for subsequent antisocial

behavior in the child (Larsson et al., 2008). From this perspective, the relationship between parenting behavior and child aggression is bidirectional—parents and children influence and are influenced by each other.

The bidirectional nature of the parent–child relationship is further explained by the social–cognitive theory proposed by Bandura (2001). The theory explains the development of human behavior with a three-way, dynamic, and reciprocal model in which personal factors (e.g., cognition, emotion, and biological events), behavioral factors (e.g., individual behavior) and environmental factors (i.e., the external environment) interact with each other. In this model, individuals process information from the outside environment, affecting their cognition. Subsequently, individuals act based on this cognition to affect the environment (Bandura, 1999). The major differences between unidirectional and reciprocal models of human behavior are regarding self-influences. In the framework of social learning theory, a self-system includes cognitive structures and subfunctions for perceiving, evaluating, and regulating behavior. Therefore, reciprocal determinism is proposed as a basic analytic principle for analyzing psychosocial phenomena at the interpersonal transaction level (Bandura, 1978). For example, parenting behavior as a behavioral factor determined by the aspects of the individual parent (e.g., education level and prior experience) may influence the environment of their children. Conversely, child aggression as a behavioral factor determined by individual characteristics (e.g., emotional regulation) may affect the parent's cognition and further influence parenting behavior.

The bidirectional perspective highlights not only temporary two-way interactions between children and parents, but also the long-term developmental trajectory of the parent–child relationship. Transactional model theory can facilitate the understanding of the longitudinal

development of bidirectional relations (Sameroff, 2010). According to this theory, individual development is a result of the continuing interactions between an individual and his or her life experiences; the influence of the individual on the experience in one period in turn influences the individual in a subsequent period. A typical example of the transactional model is the coercive cycle proposed by Patterson (2002), contending that the reason for parental failure to control child misbehavior may be partly due to negative parent–child transactions. A negative cycle could begin with child misbehavior; the parent subsequently controls the misbehavior with harsh strategies (e.g., scolding the child). The child subsequently exacerbates the misbehavior. If the parent disengages to control the misbehavior, the parent has learned to give up when the child misbehaves, and the child has learned to exacerbate aversive behavior to respond to parental discipline. The methods of the parent–child interaction for both parties have been mutually changed by a combination of operant and classical conditioning. A coercive cycle is therefore generated by negative reinforcement of the child's challenging behavior, thus increasing the difficulty of parent–child interactions and increasing aversive behaviors over time (Patterson, 2002).

In summary, gene–environment correlation theory suggests that child aggression may evoke specific responses from parents and, in turn, establish an environment that further influences child aggression. Social Cognition theory proposes that interactions between parental behavior and child aggression are bidirectional; parents and children influence and are influenced by each other. In the long term, temporary bidirectional relations may evolve into transactional relations with continuous dynamic interactions between children and parents.

2.2 Theory of Mediation Analyses

According to Bandura (1982), PSE is defined as parental confidence in ability to successfully raise children. Higher PSE was related with more positive and less negative parenting behavior, whereas lower PSE was related to more negative and less positive parenting behavior (Leerkes & Burney, 2007). PSE develops based on self perceptions of performance (e.g., success may increase self-efficacy, whereas failure may reduce self-efficacy) and physiological and emotional states (e.g., positive emotions such as pleasure are more likely to enhance self-efficacy whereas negative emotions reduce it; Bandura & Adams, 1977). PSE may explain the effects of child aggression on parenting behavior because parents with aggressive children may be disappointed with their own parenting ability and fail to maintain high PSE, resulting in more negative and less positive parenting behavior (Chau & Giallo, 2015; Glatz & Buchanan, 2015; Junttila et al., 2015; Leahy-Warren & McCarthy, 2011). One of the main goals of this research was to understand the mechanism of child aggression influencing parental behavior; therefore, PSE was included as a potential mediator in the present study.

According to the theory of Baron and Kenny (1986), a mediator variable is a variable mediating an IV and a DV. In other words, the relation between the IV and DV is explained by the mediator variable. In psychology studies, mediators explain how external stimuli influence the internal psychological process and explain how or why these effects occur. One classical psychological mediation model, the stimulus–organism–response model, explains how a stimulus becomes a response in an organism (Mehrabian & Russell, 1974), suggesting that the relation between an outside stimulus and individual response are mediated by the organism. A stimulus is transmitted, activates an organism, and then a response is generated. A more modern application of the mediation model is the intervention study, in which an

interventional program is designed to change a mediating variable (e.g., parental belief) that is assumed to influence a DV (e.g., parenting behavior; Solish & Perry, 2008). Mediation analysis thus investigates the underlying mechanisms of human behavior causing a psychological status and in dynamic contexts. After confirmation of the true mediation process, more advanced and efficient intervention programs focusing on mediation variables can be designed.

A typical mediation model is a triangular model with three variables: the IV, mediator, and DV. There are two causal paths influencing the DV: the direct effect from the IV to the DV (*path c*) and the direct effect from the mediator to the DV (*path b*). *Path a* refers to the direct effect from the IV to the mediator. A significant mediator meets the following criteria: (a) variation of the IV significantly predicts variation of the mediator (i.e., *path c*); (b) variation of the mediator significantly predicts variation of the DV (i.e., *path b*); and (c) when *path a* and *b* are controlled, the formerly significant relation between the IV and DV becomes nonsignificant. In condition (c), a single dominant mediator is strongly evidenced if *path c* is reduced to zero. If the residual of *path c* is not zero, multiple mediators may exist in the presumed association. As in most fields in psychology, if behavior is caused by multiple factors, then a more feasible approach may be to identify mediators that significantly influence the relations between the IV and DV instead of reducing *path c* to zero. Theoretically, a significant decrease indicates that a proposed mediator is to some extent effective, although it may not be a necessary or sufficient condition for an effect to occur. However, this classical model has received criticism for its low power for detecting the mediation if condition (a) is not met (Hayes, 2009).

2.3 Theories of Cultural Value and Parenting

Parenting is a social behavior that should be interpreted while considering the influence of the sociocultural context. The forms and functions of parenting behavior are influenced by the cultural value system of the parents, which has the goal of socializing children to meet specific cultural norms (Vygotsky, 1978). Because each cultural system has unique social norms, cultural influence should be considered when conducting family studies.

A famous theory advocating cultural influence is ecological systems theory proposed by Bronfenbrenner (1979). The theory explains how the external environment influences both parents and children in an interactive process. In this theory, the environment was divided into five parts: the microsystem, mesosystem, exosystem, macrosystem, and chronosystem. The microsystem is the closest context to child development and involves family, school, community, and peers. The mesosystem is interactions among microsystems such as networks between parents and teachers, children's peers, and family. The exosystem is the association among social networks in which children do not directly participate. For example, parental difficulties at work may influence child emotion at home. The macrosystem is the culture, social norm, and laws of an individual's environment. Common identity, heritage, and values are shared by members of a cultural group. If parents receive a stimulus from the external environment, these values will together influence the cognition and response of the parents (Super & Harkness, 2002).

The macrosystem can be considered to be the outermost layer of the child's environment. The influence of this layer on other layers is a cascading process through connections between the layers. For example, social support may be less available to parents in a culture with the belief that parents are fully responsibility for child care. Furthermore, culture may influence

the context in which parents function. If aggression is a violation of cultural social norms, child aggressive behavior is less likely to be tolerated, affecting parental normative beliefs regarding child aggression (Gelfand et al., 2011). Parents so influenced may make additional efforts to control child aggression. Therefore, the third purpose of this study was to understand the moderation role of parental adherence to collectivism in the relationship between child aggression and parenting behavior.

Chapter 3: Literature Review

In this chapter, the definitions, prevalence, and outcomes of child aggression in the literature are discussed. Subsequently, results regarding the predictors of child aggression on the individual, familial, and community level are presented. Parenting behavior is discussed in detail because of the significant impact of parenting behavior on preschoolers. Following the discussion of predictors, literature regarding child-driven effects are discussed. Next, a definition of PSE is presented and its relationship with parenting behavior and child aggression is discussed. Finally, following a discussion of collectivism and Chinese parenting, limitations of the existing literature and the goals of the current study are presented.

3.1 Aggression in Early Childhood

Aggression is defined as behaviors that are intended to hurt, harm, or injure other people (Crick et al., 1997). Historically, research has focused on direct forms of aggression (especially acts of PA); that is, behaviors that harm or threaten harm by physical damage (Crick, 1995; Hyde, 1984). Later studies have considered a wider range of aggressive behaviors, including covert or indirect forms of aggression aimed at damaging social relations (Buss, 1961; Crick & Grotpeter, 1995; Lagerspetz et al., 1988). Various terms have been used to describe these aggressions, including indirect, relational, and social aggression. Feshbach (1969) defined *indirect aggression* as behaviors harming a target by rejection or exclusion. Lagerspetz et al. (1988) redefined *indirect aggression* as "a kind of social structure in order to harm the target person without being personally involved in the attack," such as gossiping or exclusion. A related term, *social aggression*, was defined by Cairns et al. (1989) as "the manipulation of group acceptance through alienation, ostracism, or character defamation." Extending the concepts of *indirect* and *social aggression*, Crick and Grotpeter

(1995) defined RA as “behavior that harms others through purposeful manipulation or damage (or threat of damage) to their peer relationships”. Specifically, RA involves actions such as friendship withdrawal, playgroup exclusion, and peer rejection.

Some of these terms (indirect, social, and relational) are conceptually overlapping but not equivalent (Archer, 2001). Indirect aggression refers to nonconfrontational forms of aggressive behavior, but RA involves all forms of aggressive behavior that are intended to harm relationships whether direct or indirect. Social aggression and RA also differ; social aggression includes RA (e.g., rumor spreading) and PA (e.g., a physical attack intended to harm someone’s self-esteem). Before formal schooling, PA and RA are the most common forms of aggression because other forms of aggression may require more stable friendships or more sophisticated interpersonal skills (Evans et al., 2019). Accordingly, in this thesis, PA and RA were focused on due to both historical precedence (Crick, 1995; Crick & Grotpeter, 1995) and the relevance to studied child developmental period.

Studies have indicated that subtypes of aggression (e.g., PA and RA) are present and salient during all developmental periods, including preschool (for a review, see Crick & Zahn-Waxler, 2003). PA, such as kicking or pushing, is observed in children as young as 2 years, before full development of language and emotion regulation (Alink et al., 2006; Hay, 2005). PA is a method for young children to express themselves after the development of autonomy but when verbal abilities are still insufficient (Campbell, 2002). Subsequently, as children develop social and cognitive skills, RA is observed as a subtler form of aggression among preschoolers (Björkqvist et al., 1992; Murray-Close et al., 2007). Developmentally, RA was observed at earlier ages than other forms of nonphysical aggression because early childhood is the first stage of building interpersonal relationships, but the importance of the larger peer

group and social status have not yet been established (Murry-Close et al., 2016).

3.2 Outcomes of Child Aggression

Numerous studies have investigated the effects of early childhood aggression on child development (e.g., Voulgaridou & Kokkinos, 2015). Outcomes were related to maladjustments for both perpetrators and victims. Identified negative outcomes include externalizing behaviors (e.g., disruptive behavior), internalizing disorders (e.g., depression and anxiety), poor peer relationships, poor teacher–child relationships, reduced academic performance, oppositional defiant disorder, and delinquent behaviors (e.g., stealing) (reviewed by Card et al., 2008).

3.2.1 Outcomes of PA

Longitudinal research has indicated that PA is a common factor for internalization and externalization in children (for reviews, see Coie & Dodge, 1998). From early childhood to adolescence, children with PA were reported to have higher rates of internalizing and externalizing behaviors. Victims of aggressive behavior may report loneliness, depression, and social avoidance due to the physical and psychological harms they have received; aggressors were also observed to have a higher risk of peer isolation and rejection, leading to internalization of problems (Blain-Arcaro & Vaillancourt, 2017; Crick et al., 2006). Developmentally, the association between PA and internalizing behavior was reciprocal; children who exhibit more PA are more likely to experience internalizing problems (e.g., anxiety, social withdraw, sadness, and fear), eliciting more problematic behaviors such as PA (Graham & Juvonen, 1998; Rudolph et al., 2007). Meanwhile, children on the high- and moderate-stable aggression trajectory showed higher levels of externalizing problems, poorer regulation, and inattention when they were pre-adolescents (12 of age), compared with those

on low-stable aggression trajectory (Campbell et al., 2006). Longitudinally, these maladjustments may lead to violent behavior, delinquency, and even criminal behavior in adulthood (Broidy et al., 2003).

The development of social competence and peer relationships affects the negative outcomes of PA (Tseng et al., 2013). Research regarding peer rejection and victimization is based on the hypothesis that developing positive peer relationships is essential for children's socioemotional abilities (Sroufe & Rutter, 1984). Preschoolers who are frequently rejected by peers are likely to lack opportunities to learn and practice prosocial skills (e.g., sharing, caring, and engaging in playgroups). Long term, these children have difficulty engaging because their initial maladaptive behavioral styles (e.g., aggression) may hinder the establishment of positive relationships with peers and the accomplishment of future developmental tasks. Empirical studies have reported more peer problems, poorer social skills, and worse school performance for preschool aggressors than for nonaggressors due to their undesirable behavior in peer groups (Camodeca et al., 2015; Moffitt, 2005). After controlling for the influence of prior aggression, peer rejection elicited by earlier aggressive behavior was still identified as inducing future externalizing behaviors such as aggression and delinquency (Coie et al., 1992; Hymel et al., 1990; Kupersmidt & Patterson, 1991).

Poor academic achievement has also been identified as an outcome for PA perpetrators in later childhood (i.e., primary school). Academic achievement is often measured using test scores in the United States, but may also refer to other indicators of school performance such as teacher ratings of academic ability and direct tests of reading or mathematics performance (Bernburg & Thorlindsson, 1999). Students with higher intelligence were found to have better academic achievement (Steinmayr et al., 2010), and intelligence deficits were closely

related to aggression (Ayduk et al., 2007); these results could explain the inverse association between PA and academic achievement (Savage & Woznlak, 2016).

3.2.2 Outcomes of RA

Recent studies have increasingly investigated outcomes of child RA (Heilbron & Prinstein, 2008). Preschoolers who experience RA as victims have been reported to have a high risk of internalized disorders such as anxiety, depression, distress, loneliness, submissiveness, and social avoidance due to their higher rates of peer rejection and social isolation (Blain-Arcaro & Vaillancourt, 2017; Crick et al., 2006; Crick et al., 1997). These internalizing problems may result in more social and emotional maladjustment later in life, including poor school achievement, teacher–student conflicts, dropping out of school, and unemployment (Murray-Close et al., 2007; Prinstein et al., 2001; Rys & Bear, 1997). During early childhood through adolescence, RA is also related to severe psychopathological symptoms such as attention-deficit/hyperactivity disorder (ADHD; e.g., Zalecki & Hinshaw, 2004), conduct problems, oppositional defiant symptoms (e.g., Keenan et al., 2008), and pathological personality (e.g., Marsee & Frick, 2007).

Despite the aforementioned adverse outcomes, recent studies have indicated that RA may also be related to various adaptive functions for aggressors in certain contexts (e.g., Heilbron & Prinstein, 2008; Mayeux & Cillessen, 2008); this result initially seems to contradict previous findings. For example, RA children may benefit from manipulating peer relationships because they may already have high status in the peer group due to sophisticated social skills (Leff et al., 2010; Puckett et al., 2008). Multimethod and informant studies have indicated both that some RA children were unpopular among peers and that, for some children, RA was positively associated with better friendship quality and perceived popularity

(Banny et al., 2011; Cillessen & Mayeux, 2004; Rose et al., 2004). Although a negative relationship between RA and sociometric popularity (peer reported) has been reported because peers as bystanders may feel RA children less favorable due to their aggressive behaviors (e.g., Crick, 1996; Crick & Grotpeter, 1995; Nelson et al., 2005), positive relations between RA and perceived popularity (self-reported) were also observed due to the child maintaining a high-status position in the friendship hierarchy (Rosier et al., 2000).

The contradictory results for RA and child social competence may be explained by the Resource Control Theory among preschoolers proposed by Hawley (2002, 2003). Specifically, successful access to preferred resources (e.g., toys) in the social group was considered an ability of socially dominant children (Hawley, 1999). Both prosocial and coercive strategies could facilitate achievement of the goal of accessing the resources. Prosocial strategies such as cooperation, reciprocity, and positive alliance are the positive, indirect, and prolonged strategies, whereas coercive strategies such as aggression are the aversive, direct, and immediate strategies. Socially dominant preschool children, by adopting either prosocial strategies or coercive strategies, were found to be more socially competent because they were more commonly looked at by peers (Hawley & Little, 1999), were attractive social partners (Strayer & Trudel, 1984), and were preferred models of imitation (Hawley & Little, 1999).

3.3 Factors Associated with Child Aggression

In addition to studies of trajectory and outcomes, numerous studies have focused on identifying the predictors of aggression, including factors at the individual level (i.e., age, genotype, and gender), community level (i.e., media, video games, neighbors, and school), and family level (parents and siblings).

3.3.1 Individual-level Factors

Longitudinal studies have indicated that the trajectory of aggression changes with age. From infancy to adulthood, the trajectory of aggression has been reported to increase or decrease depending on the types of aggressive behavior examined. For instance, from kindergarten through primary school, levels of RA appear to increase whereas levels of PA tend to decline due to the linguistic and cognitive development of children (Crick et al., 2004). Longitudinal studies have also indicated that the developmental trajectory of PA is heterogenetic (Brame et al., 2001; Broidy et al., 2003; Tremblay et al., 2004). Although PA has been observed to decrease for most children from preschool through primary school, a minority of preschool children had high and stable trajectories for PA (Broidy et al., 2003; Nagin & Tremblay, 1999).

In addition to the influences of age on the aggression trajectory, recent research has also investigated causal links between genotype and child aggression. In these studies, twin and adoption research approaches were used to control either the influence of genotype or family environment. For example, Ge et al. (1996) indicated that psychiatric disorders of biological parents predicted antisocial behaviors of their children even when those children were adopted from other families. These antisocial behaviors then affected the disciplinary practices of the adoptive parents. Therefore, genotype is predictive of children's behavior, and these behaviors could elicit certain reactions from the surrounding environment of children. A further focus of genotype studies is on the heritability of the developmental characteristics that are associated with aggression. For instance, empathy or inhibition inherited from parents may be significant predictors of aggression (Cherny et al., 1994; Davis et al., 1994; Dilalla et al., 1994; Emde et al., 1992; Greenberg et al., 1995). Thus, aggression may be transmitted from parents to children both genetically and behaviorally (Young et al.,

1999).

Gender has been a major topic in research on aggression. Historically, studies have focused on direct forms of aggression such as PA from boys because boys typically exhibit more PA than girls (Hyde, 1984). This result has been explained by testosterone; females are less aggressive than males in most mammalian species (Goymann et al., 2001). In the 1980s and 1990s, research increasingly focused on other types of aggression such as indirect forms of aggression (e.g., RA and social aggression; Björkqvist et al., 1992; Cairns et al., 1989; Crick & Grotpeter, 1995). Although boys and girls are equally verbally aggressive, studies indicated that boys engaged in more PA than girls do and that girls may display more RA than boys do (Björkqvist et al., 1992; Crick, 1997; Österman et al., 1998). One biological explanation of these differences is that girls have less physical strength than boys (Björkqvist, 1994). Hence, physically aggressive behavior to harm others is less frequently adopted by girls. Another explanation is that friendship for girls tends to feature fewer close friends but closer relationships compared with the numerous casual relationships of boys (Maccoby, 1990). Therefore, the consequences of RA may be more salient for girls because friendships are targeted (Crick et al., 1996; Galen & Underwood, 1997).

3.3.2 Community-level Factors

Recent studies have increasingly demonstrated that violent media and video games are closely associated with child aggression. For example, Social Learning Theory indicates that children might observe and imitate a model who acts aggressively in violent media (Bandura, 1978). Further, children may be motivated by violence in video games because the rewards of the game such as higher points could reinforce this kind of behavior for higher status among peers (Bensley & Eenwyk, 2001). Accordingly, a strong correlation between violent media or

video games and child aggression was observed in empirical studies. For example, recent quantitative research indicated that frequency of watching violent TV or playing violent video games predicted aggression, even when controlling for mental health status and exposure to real-world violence (Coker et al., 2015). The influence of violent media cannot be ignored even in countries and regions in political turmoil. In Beirut and Lebanon, a quantitative study revealed that exposure to violent media was related to aggressive thoughts and feelings in primary school children and exceeded the influence of exposure to real-world violence (Tarabah et al., 2016). Experimental research has revealed similar effects, suggesting that children who played a violent video game both thought and behaved more aggressively in cognitive tests than those who played an exciting racing game (Arriaga et al., 2015; Gentile et al., 2017). Findings from longitudinal research are consistent with those of experimental and cross-sectional studies, revealing that violent media and video games are important risk factors for child aggression (Huesmann et al., 2003).

According to Social Disorganization Theory, neighborhood structural features including socioeconomic disadvantages, residential instability, and ethnic heterogeneity jointly hinder the construction of values and norms in the neighborhood community. These disadvantages in turn increase rates of aggression and crime (Shaw & McKay, 1942). Elliott et al. (1996) considered the detrimental influence of neighborhood disadvantages on risky behaviors of residents, indicating that instability and dissolution of family structures can be caused by poverty and unemployment in the neighborhood community, thus affecting the behavior of residents. In their Five Theoretical Frameworks for neighborhood disadvantage and child behavior, Jencks and Mayer (1990) proposed that disadvantages such as low availability of resources, deviant neighbors and peers, relative deprivation, poor community social organization, and competition for resources may affect child behavior.

Empirical studies have generally supported these theories of neighborhood disadvantage and child mental health status and behaviors (Rudolph et al., 2014; Xue et al., 2007). However, results are mixed (Leventhal & Brooks-Gunn, 2000). For example, a survey study using a national database investigated the relationship between preschooler social behavior and neighborhood socioeconomic status (SES), revealing that externalizing behaviors of children were negatively related to the number of senior and professional employees in the community (Brooks-Gunn et al., 1993). By contrast, another study using data from the National Longitudinal Survey of Youth Child Supplement reported that higher levels of neighborhood disadvantage were associated with lower levels of externalizing behavior (e.g., vandalizing public property) among children (Chase-Lansdale & Gordon, 1996). More recent studies have reported no significant relation between neighborhood disadvantage and child aggression (especially PA) when controlling for individual factors (e.g., age, gender, and family background; Hart & Marmorstein, 2009; Maimon & Browning, 2010; Obeidallah et al., 2004).

In addition to the neighborhood environment, school is also important community for children. Research has demonstrated that child aggression is heavily influenced by social context, and in particular by day-to-day interactions with classmates and teachers (e.g., MacDonald & Swart, 2004; Thornberg, 2015). Schools with positive and caring climates were observed to have students with lower levels of aggression (Gregory et al., 2010). At the individual level, studies have reported negative associations between perceived school climate and child aggression for both aggressors (Barboza et al., 2009; Gendron et al., 2011; Raskauskas et al., 2010; Turner et al., 2014; White et al., 2014) and targets of aggression (Gage et al., 2014; Raskauskas et al., 2010; Turner et al., 2014; White et al., 2014). As the rule-makers and gatekeepers of classes, teachers were found to have either reinforced or

reduced aggression at the end of a semester compared with the beginning of a semester (Peets & Kikas, 2017). For example, ignoring student aggression may reinforce aggressive behavior, whereas preventing student aggression may suggest that aggressive behavior is not accepted and will not be rewarded (Olweus, 1993).

3.3.3 Family-level Factors

Family-level factors of aggression include siblings, parents, and parenting behaviors. For siblings, experiences of PA and RA in the family are not rare (Perlman & Ross, 1997). The majority of sibling aggression is mild in nature (Boudouris et al., 1982; Tucker et al., 2013), but approximately 4% of children reported being targeted by sibling aggression, including being injured by kicking, beating, or punching in altercations (Tucker et al., 2013). Compared with other forms of aggression, sibling aggression occurs more frequently (Finkelhor et al., 2005). Repeated sibling aggression was identified as a feature of sibling bullying; sibling bullying was closely associated with internalizing disorders (e.g., high scores for depression and loneliness tests; Duncan, 1999) and externalizing behavioral problems (e.g., peer aggression; Finkelhor et al., 2006). Numerous studies have supported that victims of sibling aggression may have maladjustment in late adolescence and early adulthood (Bullock et al., 2002; Kim et al., 2007; Stocker et al., 2002). Children who reported sibling bullying over the past decades had worse psychological status than children who did not have these experiences (Tucker et al., 2013).

Although various factors of aggression have been identified in the literature, parents and parenting behavior have a particularly strong influence on the learning and developmental outcomes of young children (Greenberg et al., 2001). Parenting is defined as parental attempts to socialize their children (Baumrind & Black, 1967). Characteristics of both parents

(e.g., education level and mental health) and parental behavior were closely associated with child aggression. For parental characteristics, longitudinal studies revealed that boys with chronic PA (i.e., from 6 to 15 years old) from families with low SES more often had caregivers with low education levels who started childbearing early compared with low PA boys (Nagin & Tremblay, 2001). Similar parental characteristics (i.e., low education levels and early childbearing) were associated with high and stable PA trajectories before formal schooling (Tremblay et al., 2004). For parenting behavior, positive strategies such as warmth, reasoning and support of child autonomy were associated with low aggression, whereas negative strategies such as physical control, verbal hostility, and punitive actions were associated with high aggression (for a review, see Masud et al., 2019).

The effects of parenting behavior on child aggression can be explained by two theories: Attachment theory and emotion regulation theory. Attachment theory proposes that early child interactions with major caregivers are the basis for the development of their internal working models of the social world (Bowlby, 1979). If the child is treated responsively and sensitively in the early years, a secure attachment relationship is likely to develop between the child and the caregiver. By contrast, if the caregiver is insensitive and unresponsive to the child's needs, the child may fail to develop this secure attachment relationship (Ainsworth & Wall, 1978). Caregiver insensitivity and rejection in a child's early years may result in child insecurity and uncertainty in later interpersonal relationships. Consequently, insecurely attached children maybe lack self-confidence when interacting with others, possibly leading to peer rejection and isolation (Sroufe et al., 2005). For instance, a cross-sectional study revealed that insecurely attached children had more negative emotions when initiating conversations with others and reacting to conversations initiated by others, and were less popular and more aggressive according to peer and teacher reports compared with securely

attached peers (Sroufe et al., 2005). This deficit in social competence may explain why these children tend to use aggression and be the targets of aggression.

Although the importance of parental sensitivity and responsiveness has been identified, other parenting behaviors such as parental warmth, harsh parenting, and psychological control may also affect children. For instance, a metareview indicated that parental warmth and affection were typically positively associated with child independence, positive self-esteem, positive self-adequacy, emotional responsiveness, emotional stability, and positive worldview, and were negatively associated with hostility aggression (Khaleque, 2013). Parental psychological control was closely related with child RA; the strategy of psychological control (e.g., love withdraw) is similar to RA, and the child may learn to use this strategy in peer interactions (Soenens et al., 2008). Moreover, psychological control can lead to insecurity in children, which elicits insecure modes of interpersonal communication in later life. To compensate for feelings of insecurity, children may use RA to manipulate peer relations (Soenens et al., 2008). Insecure attachment was also confirmed to be a predictor of externalizing problems including PA and RA (Fearon et al., 2010).

Emotion regulation theory also identifies predictors of child emotional regulation in early ages and in the later development of social behavior (e.g., aggression). In early life, parents and parenting behavior are critical for the development of child emotional regulation skills. Regulating emotion is a dyadic process in the first year, but becomes an individual process during early childhood (Huffman, 1997). Parents who are sensitive and responsive to children's emotional needs can help children regulate their emotions by using emotional talk to prevent the child from losing emotional control and to help the child gradually obtain the skills of regulating his or her own emotions. However, if the caregiver fails to offer sufficient

emotional instruction and support (e.g., by ignoring the child's emotions or suppressing negative emotions), the development of emotional regulation may be impeded (e.g., Crockenberg et al., 2007). Failure to regulate emotions may then hamper child emotional and social development (Alink et al., 2009). Aggressive children responded to provocative social cues (e.g., someone taking away the child's candy) with more anger and distress compared with nonaggressive children, suggesting that there is an association between emotional regulation (e.g., anger) and aggressive behavior (Roberton et al., 2012). When provoked, children with poor emotional regulation may be easily irritated and are more likely to use aggression to express their negative emotions.

The assumption that child aggression may be related to the negative interpretation of social cues is consistent with these theories; a key dimension of communication is the understanding of the intent of others (Crick & Dodge, 1994). A study revealed that PA children often (negatively) interpret ambiguous social cues and thus are easily provoked by others, resulting in an aggressive response (Dodge, 1980). This effect explains not only PA but also RA. For example, when encountering ambiguous relational cues, RA children demonstrated more hostile attributional biases when compared with non-RA children (Crick et al., 2002). During the process of learning to interpret social cues, parents may directly or indirectly "teach" their children to interpret cues with an aggressive or friendly attitude, influencing subsequent child behavior. For example, when confronting peer rejection, parents can positively reinforce child attitudes by explicitly expressing that others are too shy to play with the child, or parents can negatively influence child attitudes by telling the child to reject that peer in the future. Prior studies have revealed that maternal attributions of intention are associated with those of her child (Nelson et al., 2008), and that hostile attributions of children are predicted by aversive parenting (Nelson & Coyne, 2009).

Early studies regarding parent–child interactions explored the influence of parenting styles on child outcomes such as self-competence, self-control, and aggressive behavior (Baumrind & Black, 1967). Positive parenting was conceptualized as including strategies such as high warmth, firm control, and clear standards of conduct. The term authoritative parenting was later used to describe this positive parenting, and was defined as parents with high warmth and are responsive to child demands. Authoritative parents usually have well-defined rules for children and encourage compliance, but they are also affectionate and use reasoning to explain why the rules should be obeyed. Positive parenting, featuring mutually contingent, warm, sensitive, and responsive interactions with the child has been well-documented to increase child social competence, resulting in better peer relationships, less aggressive behavior, and less delinquency (Baumrind & Black, 1967; Eisenberg et al., 2005; Leidy et al., 2010).

In contrast to authoritative parenting, authoritarian parenting (also described as negative parenting) is characterized by high parental control and low responsiveness toward the child (Baumrind & Black, 1967). Authoritarian parents prioritize child obedience and strict discipline. These parents have low warmth and refuse to use reasoning to explain rules. Their control strategies are harsh and their rules are absolute. Authoritarian parenting has been reported to be related to child maladjustment, such as internalizing disorders (e.g., social withdrawal) and externalizing behaviors (e.g., verbal bullying and defiance) (Baumrind & Black, 1967; Coie & Dodge, 1998).

Research strongly supports the association between negative parenting and aggressive behavior. For example, parental control (both psychological and behavioral) is believed to elicit aggressive behavior by arousing anger (e.g., Mills & Rubin, 1998; Nelson et al., 2006).

Parental nonresponsiveness, by contrast, is related to child depression and hostile emotions, leading to aggression for most gender and personality-type groups (Akse et al., 2004; Kotch et al., 2008). In addition to these direct effects, negative parenting as a model for children cannot be ignored. Consistent with social learning theory, the associations between parenting behavior and child aggression may be due to reinforcement and modeling (Bandura, 1973). Children receiving corporal punishment from parents (e.g., spanking) may learn aggressive behaviors by observing parents (Barnow et al., 2001). Moreover, children socialized in an aggressive family may view aggression as an appropriate strategy, increasing the probability of the child developing aggressive behavior (Farrington et al., 2001). Notably, the modeling effect is not simply the child copying the actions of a parent (Bandura, 1989). For example, children may learn that hostile and punitive actions are appropriate in interpersonal relationships. Therefore, these children may adopt other negative strategies (e.g., RA and PA, depending on context) in their peer interactions.

Findings regarding the relationship between authoritarian parenting and PA are in general convergent, but results regarding authoritarian parenting and RA are varied, and include some weak or null findings. For example, RA in preschoolers was predicted by authoritarian parenting styles, coercion, and negative maternal affect (Brown & Shine, 2007; Casas et al., 2006; Hart et al., 1998). Maternal hostility in parent–child interactions and their harsh parenting (e.g., coercive acts and negative emotional expressions) were related to child RA in peer relationships (e.g., Vaillancourt et al., 2007). Other studies have demonstrated a nonsignificant relationship between authoritarian parenting and child RA as reported by teachers (Underwood et al., 2008). Generally speaking, negative or harsh parenting has been observed to result in the development of child RA. However, the mediators and moderators explaining these varied findings are unclear.

In summary, parents and parenting behavior are important predictors of child aggression. Positive parenting strategies such as warmth, reasoning, and support for child autonomy were related with low aggression, whereas negative parenting strategies such as physical control, verbal hostility, and punitive actions were related to high aggression (for a review, see Masud et al., 2019). Children insecurely attached to caregivers may develop an inner working model with the belief that he or she is not loved by others. Consequently, such children are at risk of interpreting social cues negatively and engaging in aggressive behavior. Emotional regulation is key for children to control aggressive impulses. Therefore, parenting behavior was included as a major variable for investigating the development of child aggression in this study.

3.4 Bidirectional Relations Between Parenting Behavior and Child Aggression

Many studies have investigated parent-driven influences on child aggression, but some researchers have also considered this link in reverse by exploring the effects of child aggression on parents. Since Bell's reinterpretation of directionality in parent–child relationships (Bell, 1968), child-driven effects are a major tenet of many developmental theories emphasizing the dynamic and transactional relations between parents and their children (Kupersmidt & Patterson, 1991; Sameroff, 2010). According to these theoretical models, not only do child-driven effects induce moment-to-moment changes in parents, but, critically, these changes in the child's external environment in turn influence the child's behavior over time (Dix, 1991).

Child-driven effects at different developmental stages may have different causes, and the effect sizes may differ based on the child's gender. From infancy to toddlerhood, parents are the absolute authority for shaping the child's environment and development. As children

enter school, their cognitive functions, language abilities, and motor skills develop dramatically. These changes increase the child abilities to influence their surroundings and their own development (Cox et al., 2010). Child-driven effects may become more salient as adolescents become more emotionally and behaviorally independent (Small et al., 1988). Behavioral genetics suggests that the influence of children on their surroundings increases over time due to the physical and psychological development of the child. In many cultures, girls are expected to overcontrol negative emotions and have fewer behavioral problems than boys (Maccoby, 1987). Hence, when girls have behavioral problems, they are more likely to internalize problems, hindering emotional adjustment in subsequent life (Loeber & Keenan, 1994). Moreover, behavioral problems in girls may be more conspicuous than those in boys, eliciting more responsive strategies from parents (Ansari & Crosnoe, 2016).

An illustrative theory of the child-driven effect is the coercion theory proposed by Patterson and Bank (1989). Patterson and Bank identified the effects of child aggression on parents, and suggested that child aggressive behavior elicits negative parental responses such as hostility or withdrawal. This theory is supported by empirical studies. For example, longitudinal studies suggest that child aggressive behavior predicts increased psychological control from parents due to increased parental willingness to intervene (He et al., 2019; Wang et al., 2007). Aggressive children often have poor communication with and poor responsiveness toward parents, and therefore aggression predicted parental intrusiveness and criticism of children (Urbain-Gauthier & Wendland, 2017). Adopted children whose birth parents were diagnosed with psychopathology had higher risk of experiencing harsh and inconsistent parenting compared with other adopted children (Ge et al., 1996). Over time, child aggressive behavior may cause negative emotions in parents over time and accordingly elicit negative parenting strategies (Mathis & Bierman, 2015). Although previous study has

revealed that parents can use nonnegative strategies to cope with challenging child behaviors (e.g., Rodriguez, 2016), the coercion theory is widely applied to explain parent–child interactions. A recent meta-analysis integrating research from 1,435 studies reported that child externalizing behaviors (including aggression) typically predicted declines in authoritative parenting and increases in authoritarian parenting (Pinquart, 2017).

As the child-driven and parent-driven effects were both identified, a bidirectional relationship between parenting behavior and child aggression was proposed. Research of the bidirectional relations revealed mixed findings. On the one hand, bidirectional relationships were identified between child aggression and several negative parenting behaviors, such as harsh maternal discipline (Baydar & Akcinar, 2018), mothers' use of the aggressive discipline (Sheehan, 2008), maternal psychological control (Kuppens et al., 2009), and maternal and paternal corporal punishment (Serbin et al., 2015). On the other hand, Verhoeven et al. (2010) claimed that a reciprocal model of parenting and aggression was not supported among preschoolers, because changes of externalizing behavior in this stage may be caused by the intrinsic characteristics of children, such as temperament. Analyses failed to support the assumption that when children display higher levels of problem behaviors, their parents show an increase in maladaptive parenting over a short period (i.e., 6 months) or vice versa (Besemer et al., 2016). Rather, parenting and child behavior were revealed to be highly stable, suggesting that the bidirectional influences were less prominent (Shaffer et al., 2013).

In summary, although bidirectional relations in parent–child dyads were first proposed decades ago, few studies have explored the influence of child aggression on parents (reviewed by Paschall & Mastergeorge, 2015). Among studies investigating this bidirectional relationship, the majority are regarding effects in childhood and adolescence (e.g., Sheehan &

Watson, 2008) and have mixed findings. Bidirectional effects in early childhood remain unclear. Because early childhood is a key period in development of aggression, interventions in aggressive behavior may best be performed during this period when behavioral patterns are most easily modified (Tremblay, 2006). Therefore, the longitudinal bidirectional relationship between child aggression and parenting behavior was investigated in this study.

3.5 PSE as a Mediator

The term "self-efficacy" describes an individual's belief in their ability to successfully perform a given task; it can be used to appraise how an individual may behave in a task and individual persistence in confronting obstacles and aversive experiences (Bandura & Adams, 1977). When meeting challenges and stress, coping behavior is initiated and influenced by perceived self-efficacy, which determines time and effort used to achieve goals (Bandura, 1999). People with high self-efficacy perceive difficulties as challenges to be overcome rather than barriers to be avoided and are therefore willing to expend more effort to reach goals. By contrast, people with low self-efficacy give up more quickly because they are not confident in their abilities and thus reduce their effort (Bandura, 1999).

PSE is defined as parent's confidence in their ability to successfully raise children (Bandura, 1982). According to Ardelt and Eccles's (2001) conceptual model, parents with high PSE tend to use positive parenting strategies (e.g., reasoning), whereas those with low PSE tend to use negative parenting strategies (e.g., rejection). This effect may be because self-efficacy determines how people cope with challenges and tasks (Bandura, 1999). Therefore, this mechanism suggests that high PSE parents adopt positive parenting strategies (e.g., reasoning) that require more effort and have slower results than negative practices (e.g., spanking) (Jones & Prinz, 2005). The mechanism is supported by empirical studies. For

example, both cross-sectional and longitudinal studies have revealed that high maternal PSE is positively associated with sensitivity, responsiveness, and warmth toward children (Dumka et al., 2010; Izzo et al., 2000; Pagorek-Eshel & Dekel, 2015; Teti & Gelfand, 1991). By contrast, low PSE was observed to increase the likelihood of dysfunctional parenting, including laxness and over-reactivity (e.g., Sanders & Woolley, 2005).

To date, two important reviews of PSE have been performed (Coleman & Karraker, 1998; Jones & Prinz, 2005). Coleman and Karraker (1998) proposed the definition of PSE, summarized research findings, and discussed the influence of PSE on parents and parenting behaviors. They also summarized eight measures of PSE and demonstrated their reliability and validity. As the first review of this topic, the study prompted research investigating the influence of PSE on parents and children. Jones and Prinz (2005) performed an updated review of PSE, suggesting that PSE is associated with parenting competence, parenting satisfaction, parenting behavior, child psychological well-being, child behavioral outcomes, and child adjustment. Both reviews have supported the relationship of high PSE with adaptive, stimulating, and nurturing child-rearing environments. Accordingly, interventions increasing PSE were developed to improve child-rearing environments. Reviews of PSE-related interventions have demonstrated that programs intended to improve PSE resulted in positive effects for the parent–child interaction persisting for at least 12 months (Guimond et al., 2008; Tucker et al., 1998; Wittkowski et al., 2017).

A more recent review conducted by Albanese et al., (2019) summarized the relationship between PSE and child well-being. Specifically, the influence of PSE was revealed to affect numerous outcomes of parent–child interaction, including stable home routines (Aldoney Ramirez, 2015), open communication (Bandura et al., 2011), positive interactions (Taylor,

2006), home involvement (Leivent, 2007), and superior construction of family roles (Yamamoto et al., 2006). PSE was also positively correlated with paternal involvement in both Western (e.g., the United States; Trahan, 2018) and Eastern (e.g., Hong Kong; Kwok et al., 2013; Kwok & Li, 2015) cultures.

Individual self-efficacy is developed based on four sources: (1) self perceptions of performance (e.g., success may increase self-efficacy, whereas failure may reduce self-efficacy); (2) observations of the performances of others; (3) received social persuasion (e.g., praise may increase PSE, whereas criticism may reduce it); and (4) emotional and mental states (e.g., positive emotions such as pleasure are likely to increase self-efficacy whereas negative emotions reduce it; Bandura & Adams, 1977). Therefore, based on the first and fourth sources, parents with challenging children (e.g., aggressive children) may have difficulty maintaining high PSE because unfavorable child behaviors are interpreted as failure and result in negative emotions (Chau & Giallo, 2015; Glatz & Buchanan, 2015; Junttila et al., 2015; Leahy-Warren & McCarthy, 2011; Leerkes & Burney, 2007). By contrast, parents with favorable parent–child interactions might have higher PSE due to observing the success of the child (Ardelt & Eccles, 2001). However, few studies have examined the effects of child behavior on PSE. Teti and Gelfand (1991) reported that maternal perceptions of infant temperament predicted maternal PSE. Mothers who perceived infants as more difficult had correspondingly lower PSE. Another longitudinal study conducted from childhood to adolescence suggested that child externalizing behaviors resulted in decreased PSE (Slagt et al., 2012).

Links between child behavior and PSE and between PSE and parenting behavior have both been identified; therefore, PSE is proposed as a mediator in the parent–child interaction. For

example, compared with parents of non-ADHD children, parents of children with ADHD reported lower PSE and, consequently, lower marital satisfaction. This result may be because rearing an ADHD child is stressful and difficult for parents, reducing PSE and further influencing marital satisfaction (Ben-Naim et al., 2019). PSE is also a mediator for the relationship between child temperament and parental involvement; children with easier temperaments have parents with higher levels of PSE, eliciting greater parental involvement (Giallo et al., 2013). Externalizing behavior of children was related to lower PSE, inducing differential parental treatment and more parental control from both parents (Meunier et al., 2011, 2012). Notably, most relevant studies have focused on externalizing behavior in adolescents (e.g., McDonald et al., 2016); the effects in early childhood remain unclear. Because child-driven effects of aggression on parents have also been identified for preschoolers (Yan et al., 2020), the second purpose of this study was to explore the mediation role of PSE in the relationship between child aggression and parenting behavior.

3.6 Parental Adherence to Collectivism as a Moderator

According to ecological systems theory, an individual's beliefs and perceptions regarding life experiences are influenced by the individual's culture. For example, in cultures emphasizing collectivism, individual behaviors that conform to social obligation and interdependence may be positively appraised, whereas behaviors that violate these values may be negatively appraised (Chen & French, 2008). Therefore, the effects of cultural value must be considered when examining parent–child interactions.

An empirical study supported theories regarding the cultural differences in child aggression (Cohen et al., 1996). For example, African-American children have been observed to be more aggressive than White children (David & Kistner, 2000; Österman et al., 1998), and Asian-

Americans (e.g., of Indian ancestry) were found to have the lowest aggression level among adolescents in the United States (Jang, 2002). In Israel, girls of Eastern origin were significantly more aggressive than their Western peers (Landau et al., 2002). However, reverse findings have also been reported. A study conducted by Prinstein et al. (2001) revealed no ethnic differences in direct and indirect aggression among White, Hispanic, African-American, and other mixed ethnicity adolescents. Therefore, literature on ethnic differences in aggression has mixed findings.

These mixed findings may be explained by variations in the meaning and functions of aggression across cultures and contexts. For example, members of cultures with collectivistic or interdependent orientations (e.g., Japan and China) prioritize interrelationships with others and groups (Markus & Kitayama, 1991). Therefore, cultural differences in social–cognitive processes influencing the formation of the self may be particularly important to the etiology of aggression and the relative influences of these behaviors on social and emotional adjustment problems (e.g., peer isolation and rejection). A recent cross-cultural study revealed that, regardless of gender, Japanese children who were relationally aggressive or relationally victimized by peers had more depressive symptoms than American children subject to similar behaviors (Kawabata et al., 2010). Both RA and PA were positively associated with social–psychological adjustment problems in Western samples (e.g., the United States) and Eastern samples (e.g., Japan), but positive associations between RA and social–psychological adjustment problems were greater for the Eastern sample (Rothbaum et al., 2000). This result suggests that aggression and victimization may be more detrimental to children's social and emotional adjustment in interdependent cultures than in independent cultures placing less emphasis on close interpersonal relationships with peers.

Influences of cultural values are not only observed for child aggression but also for parental responses to aggression because parenting is a social behavior that is influenced by cultural and social norms (Vygotsky, 1978). The culture in which parents are immersed may influence their parental beliefs and perceptions about events, thus determining parenting behavior (Bornstein & Lansford, 2010). For example, maternal endorsement of collectivism (i.e., a cultural value that advocates connectedness and interdependence among individuals; Oyserman et al., 2002) was significantly correlated with authoritarian parenting practices in mothers from collectivist cultures and predicted adolescent aggression (Shuster et al., 2012). However, scholars disagree regarding whether or not parenting behaviors function similarly across cultures (for a review, see Sorkhabi, 2005). Chao (1994) suggested that interpretations of parenting behavior (e.g., control) may be substantially different for Chinese parents and their European or American counterparts due to the influence of cultural values. Although Chinese parents were typically authoritarian, their children had the highest academic achievement. Mothers endorsing Chinese value may attempt to achieve a balance between being high in warmth and responsiveness (i.e., authoritativism) and including relatedness and familism (i.e., authoritarianism) in their parenting (Cheah et al., 2013).

Traditional Chinese values are key for understanding the combined parenting strategy adopted by Chinese parents. For example, Chinese parents may express their care, concern, and love through firm control and governance of the child (Chao, 1994). Unlike the negative meaning of "govern" in the Western context, the term has a positive connotation in China and can be interpreted as "care" or even "love" (Chao, 1994). Therefore, adherence to Chinese values is similar to both authoritarian and authoritative parenting styles because characteristics of both parenting styles (i.e., high warmth and responsiveness versus an emphasis on control) are perceived as positive in traditional Chinese culture (Xu et al., 2005).

Another important Chinese value related to parenting behavior and child outcomes is collectivism. In traditional Chinese culture, the interests of the group are considered superior to those of the individual. Thus, the goal of child socialization for Chinese parents is to develop child behaviors that promote the welfare of the group (Chen et al., 2001). This collective socialization goal often fosters children who are self-restrained and submissive (Chao, 2000). In social life, an important dimension of collective value is maintenance of harmonious interpersonal relationships (Chen, 2002). Typically, Chinese people are encouraged to use subtle methods of handling conflicts and avoid the use of aggression (Chen & Starosts, 1997; Tjosvold et al., 2006). According to Huang (2016), if "genuine" harmony (i.e., holistic and sincerely harmonious) is difficult to achieve, a "surface" harmony should be maintained where conflict exists but is avoided. The "surface harmony" is thus a strategy to hide interpersonal conflicts to increase future opportunities. To achieve harmony, specific social norms should be obeyed by people in five social relationships (i.e., ruler to subjects, father to son, husband to wife, elder to younger, friend to friend) (Hofstede & Bond, 1988). Each level has its own norms of manner, and harmony is achieved if everyone obeys his or her required norms. In general, collectivist cultures value people cooperating peacefully, restraining their own desires and emotions in the group, and being kind and magnanimous (Park & Chesla, 2007).

From this perspective, parents who adhere to collectivism may perceive child aggression as unacceptable because it violates collective values. Although parents' own endorsement of collectivism is not equal to their socialization goals for the child, their adherence to collectivism is likely related to their child-rearing behavior. For example, parents who adhere to Chinese values (e.g., collectivism and harmonious interpersonal relationship) were found to be more likely to use positive parenting in general (e.g., Shuster et al., 2012), because in

this way they could maintain a quality parent-child relationship and reduce child problem behaviors that may be disruptive to interpersonal relationships in both familial and school settings (Shek, 2006). Therefore, parental adherence to collectivism may be a moderator in the relations between child aggression and parenting behavior; that is, parents who adhere more to collectivism would respond to aggression with more controlling intervention strategies. However, the moderating role of parental adherence to cultural values in the relationship between child aggression and parenting behavior has not yet been investigated. Therefore, parental adherence to collectivism was examined as a moderator in the relationship between child aggression and parenting behavior in this study.

3.7 Hypotheses

As stated above, although the effects of parenting behavior on child aggression have been well-documented, few studies have investigated this link in reverse; that is, the effect of preschooler aggression on parenting behavior. Meanwhile, the mechanism of child-driven effects on parents are still unclear. The purpose of this study was to understand the bidirectional relationship between child aggression and parental behavior with PSE as a mediator and parental adherence to collectivism as a moderator.

The hypotheses of this study were as follows:

H_1: There is a bidirectional relationship between child aggression and parenting behavior. Higher levels of negative parenting behavior and lower levels of positive parenting behavior predict higher levels of child aggression. Conversely, higher levels of child aggression predict lower levels of positive parenting behavior and higher levels of negative parenting behavior.

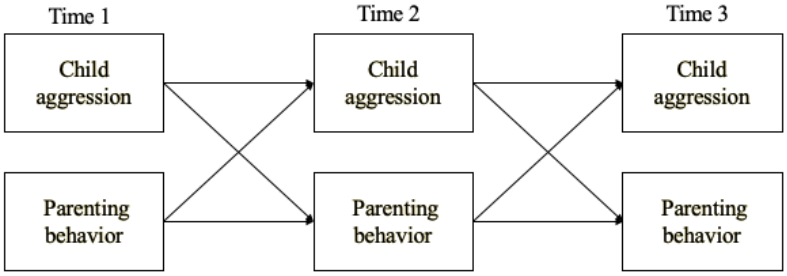
H_2: PSE mediates the effect of child aggression on parenting behavior. Higher child aggression is related to lower PSE, which is further associated with lower positive parenting

and higher negative parenting behaviors.

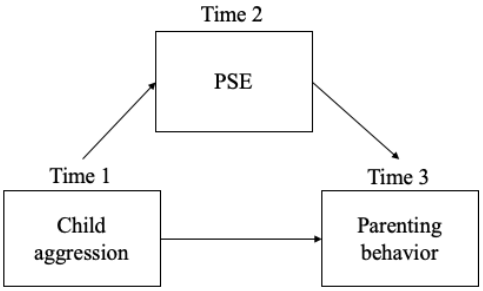
H_3: Parental adherence to collectivism moderates the effects of child aggression on parenting behavior; this effect is more pronounced when parents display greater adherence to collectivism.

The conceptual models were shown below:

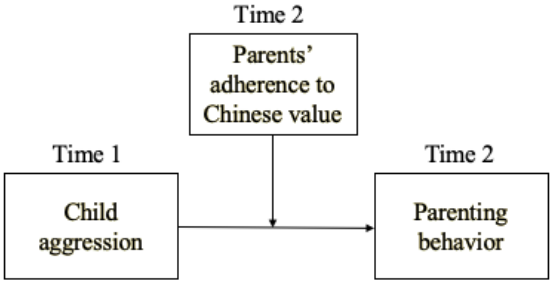
RQ 1: Bidirectional Model



RQ 2: Mediation Model



RQ 3: Moderation Model



Chapter 4 Methodology

4.1 Ethics approval

The study procedures have been approved by the Human Research Ethics Committee (HREC) of the Education University of Hong Kong (approval number: 2018-2019-0222; see Appendix A). Before the study, participants (i.e., children and their parents) were informed about the research procedure through both verbal and written means, as well as the benefits and potential risks. Parents voluntarily signed a written consent prior to participation on behalf of themselves and their child. The purpose of the study was not revealed until participants had finished the whole study.

4.2 Participants

Participants were recruited from three kindergartens in Guangzhou, China. China is a country in East Asia with an old and continuous civilization dating back more than six millennia. China has the largest population in the world (more than 1.4 billion people). There is only one official language, Putonghua, in China and simplified Chinese character is the written form of Modern Standard Chinese and it has been used since 1956. Guangzhou is a Chinese city located in the south of Guangdong Province, with a population of 15 million. Guangzhou has now become a major manufacturing center in southern China and there has been an influx of population from other parts of the country. Its living standard is higher than those in other Chinese cities.

The kindergartens were recruited using stratified and convenience sampling strategies for the purpose of obtaining a more representative sample. Stratified sampling is a probability sampling technique. In order to obtain a representative sample, the whole population will be divided into several numbers of strata, and samples will be selected from these strata

proportionally (Neyman, 1992). According to the average monthly income, eleven administrative districts in Guangzhou were divided into three strata, with high-income strata include Yue Xiu and Tian He districts, middle-income strata include Huang Pu, Hai Zhu and Li Wan districts, and low-income strata include Bai Yun, Pan Yu, Nan Sha, Cong Hua, Zeng Cheng and Hua Du districts (Guangzhou Statistics Department, 2019). In each stratum, a convenient sampling strategy was used to select one kindergarten to participate in the study. The inclusion criteria of kindergarten were: (1) they should be local and registered; (2) Mandarin is the first language in kindergarten. All participating kindergartens provided whole-day programs. Each classroom typically consisted of 20 to 30 students. After received the consent from kindergarten principal, invitation letter was sent to parents of all senior-class children.

A total 682 parents of 341 senior class children consented to participation. Of the students, 173 were boys and 168 were girls. The mean age of children was 60.48 months (SD = .62). Ninety children (26.39%) were recruited from high-income strata, 113 (33.14%) were recruited from middle-income strata and 138 (40.47%) were recruited from low-income strata. For parents, 341 fathers (Mage = 35.69, SD = 4.92) and 341 mothers (Mage = 33.64, SD = 4.29) participated the study. All of the participating parents reported being married, with a median range of monthly household as RMB 10,000 - 15,000. The median education level completed by parents was diploma degree. The detailed information on the participants' demographic background can be found in Table 1.

Table 1

Descriptive statistics for participant characteristics.

Variables	N	Mean	SD	Mode (%)
Child characteristics				
Child age	341	5.044	.624	5 (61%)
Child sex (0 = boy, 1 = girl)	318	.49	.501	0 (50.9%)
Mother characteristics				
Mother age	321	33.286	5.359	33 (12%)
Mother education	318	3.384	.832	3[a] (40.9%)
Mother employment status	318	1.421	.761	1[b] (74.5%)
Father characteristics				
Father age	304	35.574	5.322	35 (11.6%)
Father education	312	3.391	.886	3[c] (37.2%)
Father employment status	309	1.065	.316	1[d] (95.5%)
Family characteristics				
Monthly family income (RMB)	305	20236.594	17756.304	15000 (12.7%)

Note. [ac] Education (1 = Primary or below; 2 = Secondary or Highschool; 3 = Diploma or Associate Degree; 4 = Degree (Bachelor); 5 = Master or above).
[bd] Employment status (1 = Full-time; 2 = Part-time; 3 = Not working; 4 = Retired).

4.3 Procedure

Three kindergartens serving children from diverse socio-economic backgrounds were recruited for the present study. Approximately three months before the study, individual phone calls were made to the principals of selected kindergartens, during which the study was described and asked for permission to recruit participants through the kindergartens. Informed consent was obtained for all kindergartens (see Appendix B). Within each kindergarten, the invitation was sent to parents of all senior-class preschoolers (aged from 5 to 6).

Altogether, 928 parents of 464 senior-class kindergarten students from 16 classrooms in the three kindergartens were invited to participate in the study. Seven-hundred and twelve parents of 356 (76.72%) children responded and of these parents, 682 (73.5%) provided consent for their children's participation. Parents who agreed to participate were required to fill in their family demographic information (e.g., their children's age, gender, parents' age, gender, marriage status, monthly income) at the beginning of the study. The demographic data collected was used as control variables in later statistical analyses. In order to address the bidirectional relations between child aggression and parenting behavior over time, this study adopted a longitudinal quantitative research design with three time-points data collection. Time 1 (T1) data was collected in October 2019, time 2 (T2) in February 2020 and time 3 (T3) in June 2020. The four-month interval was commonly adopted in studies of longitudinal associations between caregiving practice and child behavioral problems (e.g., Narvaez et al., 2013). Meanwhile, considering school transition might lead to high drop rate, the project was thus designed to collect data within one school year. At each timepoint, parents (i.e., mothers and fathers) were asked to complete a survey to report parenting behavior, spouse's parenting behavior, PSE and child aggression. Considering people's cultural value is stable over time, and adherence to collectivism was hypothesized as a moderator, parents' adherence to collectivism was measured at T2 only to reduce the survey length at T1 and T3. The survey took approximately 20 minutes to complete. Kindergarten classroom teachers helped explain the survey procedures and distribution as well as collection. The completed survey was required to return within one week.

4.4 Measurements

Parenting behavior was measured by the Chinese version of the Parenting Styles and Dimensions Questionnaire (PSDQ, Robinson et al., 1995). The Chinese version of PSDQ has

been successfully applied in the previous study and has shown good reliability and validity (Fu et al., 2013). Two subscales from PSDQ were selected to use in the present study: authoritative parenting to assess positive parenting behavior (15 items, e.g., "I express affection by hugging, kissing, etc."), and authoritarian parenting to assess negative parenting behavior (12 items, e.g., "I punish by taking privileges away from child with little of any explanation"). For each item, parents were asked to report how often they perform this behavior by rating the items using a 4-point scale (1 = Strongly disagree to 4 = Strongly agree). The score of each subscale was computed by averaging the items. The variables of parenting behavior were computed by standardizing and averaging parents' self-report and spouse-report parenting behavior. Cronbach's alpha in the present study were .84 (T1), .90 (T2) and .71 (T3) for mothers positive parenting behavior; .83 (T1), .92 (T2) and .88 (T3) for mother negative parenting behavior; .85 (T1), .90 (T2) and .80 (T3) for father positive parenting behavior; .77 (T1), .78 (T2) and .84 (T3) for father negative parenting behavior.

Children's aggressive level was rated by parents using the Chinese version of the Preschool Social Behavior Scale (PSBS), which was developed by Crick et al., (1997) to measure children's physical and relational aggression. The Chinese version of PSBS has been successfully used in the Chinese population and has shown good validity and reliability (Li, 2007). Parents (both mothers and fathers) were required to finish 19 items 5-point Likert scale (ranging from "never" or "almost never" to "always" or "almost always") independently to measure the physical aggressive behavior (e.g., "hits, kicks, or verbally threatens others") and relational aggressive behavior (e.g., "tells others not to play with or to be a peer's friend") of their child. The variables of child aggression were computed by standardizing and averaging mother-report and father-report child aggression. Cronbach's alpha in the present study were .91 (T1), .90 (T2) and .95 (T3).

Parental self-efficacy (PSE) was assessed by the Chinese version of the Parenting Sense of Competence Scale (PSOC) (Johnston & Mash, 1989). It has been adopted in Chinese samples and has shown good validity and reliability (Ngai et al., 2007). Only the 8-item Efficacy subscale (PSOC-E) was used (e.g., "being a parent is manageable, and any problems are easily solved"). Parents rated their efficacy in a six-point Likert scale from "1" refers to "strongly disagree" to "6" refers to "strongly agree." The score of PSE was computed by summing up the point of items. Higher scores represent strong efficacy. Cronbach's alpha in the present study were .81 (T1), .87 (T2) and .87 (T3) for mothers and .80 (T1), .87 (T2) and .87 (T3) for fathers.

Parents' endorsement of collectivism was evaluated by using the Collectivism Socialization Goals (R. K. Chao, 2000). It was developed to assess collectivist beliefs in social life. Parents rated 5 items on a 5 Likert scale ranging from 1 (not important at all) to 5 (very important). The sample item is "When in a group, I want my child to be cooperative with people". The score was generated by summing up the point of items. The Chinese version was generated by back translation. Specifically, one research assistant translated the items from English to Chinese and another research assistant back translated it to English. A psychologist was invited to check the consistency of the original version and the back-translated English version. Cronbach's alpha in the present study was .94 for both mothers and fathers.

4.5 Data analytic strategies

Data analysis was conducted using SPSS AMOS, version 23 (Arbuckle, 2017). For the variables of parenting behavior (i.e., positive and negative) and child aggression (i.e., PA and RA), mothers' and fathers' reports were standardized and averaged to obtain a parent-report score used in later analysis, for the purpose of avoiding single-informant bias. As fathers are

actively involved in the family (Lamb 2000) and could provide reliable reports on child behaviors (Treutler & Epkins, 2003), as well as mothers' report and fathers' report were significantly correlated among all the combined variables (all $r > .50$, $p < .001$), a combined parents' report was therefore adopted. Missing data were handled by using the Full Information Maximizing-Likelihood (FIML) method. Preliminary analyses were conducted to determine the normality and pattern of attrition. Descriptive statistics (on raw data), reliability of the measurement (on combined parent-report data) and correlation analysis (on combined parent-report data) were conducted for all measured variables.

A structural equation modeling (SEM) approach with a series of cross-lagged models was used to test the bidirectional relations between parenting behavior and child aggression, separated by mothers and fathers. In the tested models, bidirectional relations were tested by comparing the following four SEM models: (1) a stability model without any cross-lagged structural paths (M1), (2) a model with structural paths from prior parenting to later child aggression (M2), (3) a model with structural paths from prior child aggression to later parenting (M3), and (4) a model with both cross-lagged structural paths representing reciprocal effects (M4). The paths were only estimated between adjacent time points for reasons of statistical power. An example of four models for mothers was shown in Fig. 1. The effects of parenting behavior on child aggression would be supported if M2 had a better fit to the data than M1; the effects of child aggression on parenting behavior would be supported if M3 better accounted for the data than M1; and the reciprocal effects between parenting behavior and child aggression would be supported if M4 had the best fit to the data among the four models. Model fit was determined by several indices: the chi-square (χ^2) value and degrees of freedom (df), comparative fit index (CFI), and root mean square error of approximation (RMSEA). An acceptable model fit was indicated by the chi-square/df < 3.0,

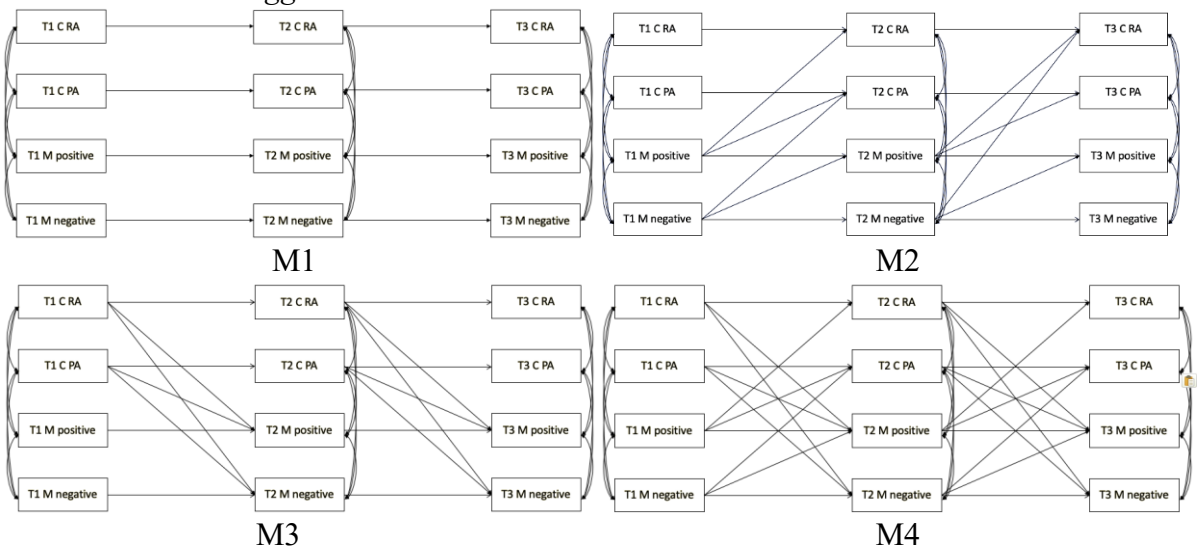
the CFI > .95 and RMSEA < .08 (Hooper et al., 2008; MacCallum et al., 1996).

To test the potential mediating effects, a longitudinal analysis was applied using SEM models, separated by mothers and fathers. In these models, T1 child aggression (i.e., RA and PA) was set as the IVs, T2 PSE was set as the mediator and T3 parenting behavior (i.e., positive and negative parenting) was set as the DVs. Fig. 2 showed an example of the tested meditation model for mothers and fathers. As child age, gender and mother education are both identified as important predictors of child aggression and parenting behavior (Tremblay et al., 2004) and have been widely controlled in the previous study of aggression (e.g., Lau, 2019), these variables are controlled in the analyses. Bootstrapping technique (N = 10,000) and 95% confidence intervals (CI) were used to judge the significance of the mediation. The mediation effect is determined by the 95% CI excludes zero (Hayes, 2009).

The moderating effect of collectivism on the relations between child aggression and parenting behavior was evaluated by SEM models, separated by mothers and fathers. T1 child aggression (i.e., RA and PA), T2 parents' adherence to collectivism and the interaction between child aggression and parents' adherence to collectivism were set as the IVs, predicting T2 parenting behaviors (i.e., positive and negative parenting). Child age, gender and mother education were set as controlled variables. The moderation effect is determined by the significant level of the interactional terms less than .05. Fig. 3 showed an example of the tested moderation model for mothers and fathers. To avoid multicollinearity, all IVs constituting interaction terms were centered (Aiken, 1991).

Fig. 1

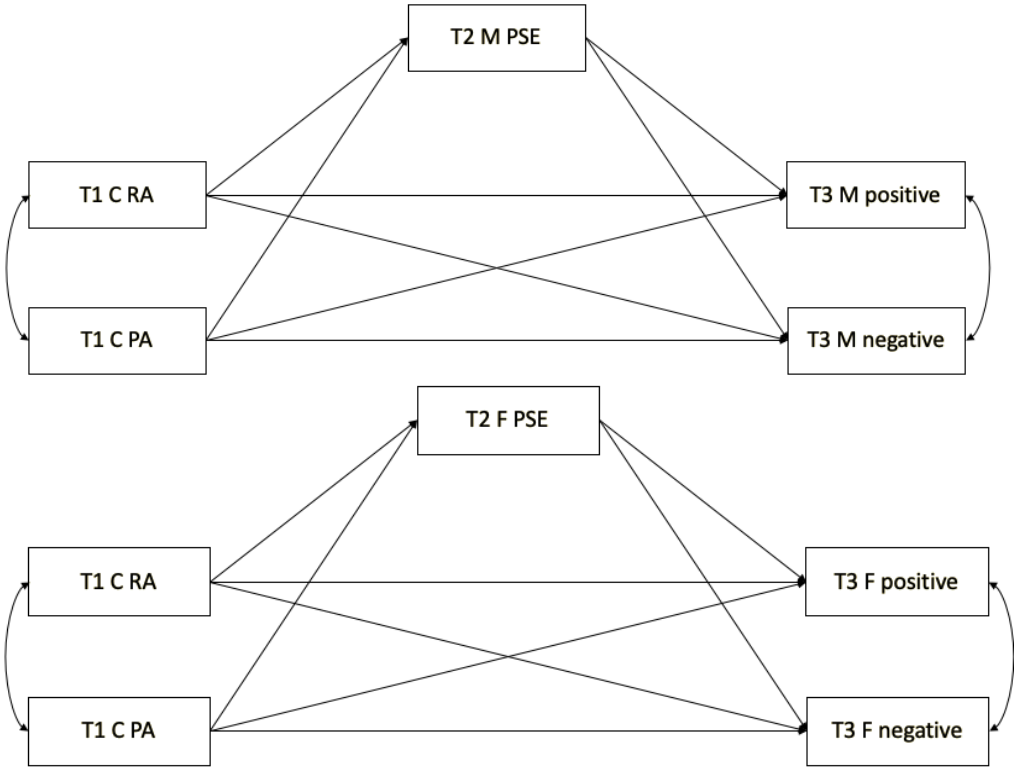
Tested models for the evaluation of the bidirectional effects between mother parenting behavior and child aggression



Note. C RA = child relational aggression; C PA = child physical aggression; M positive = mother positive parenting behavior; M negative = mother negative parenting behavior.

Fig. 2

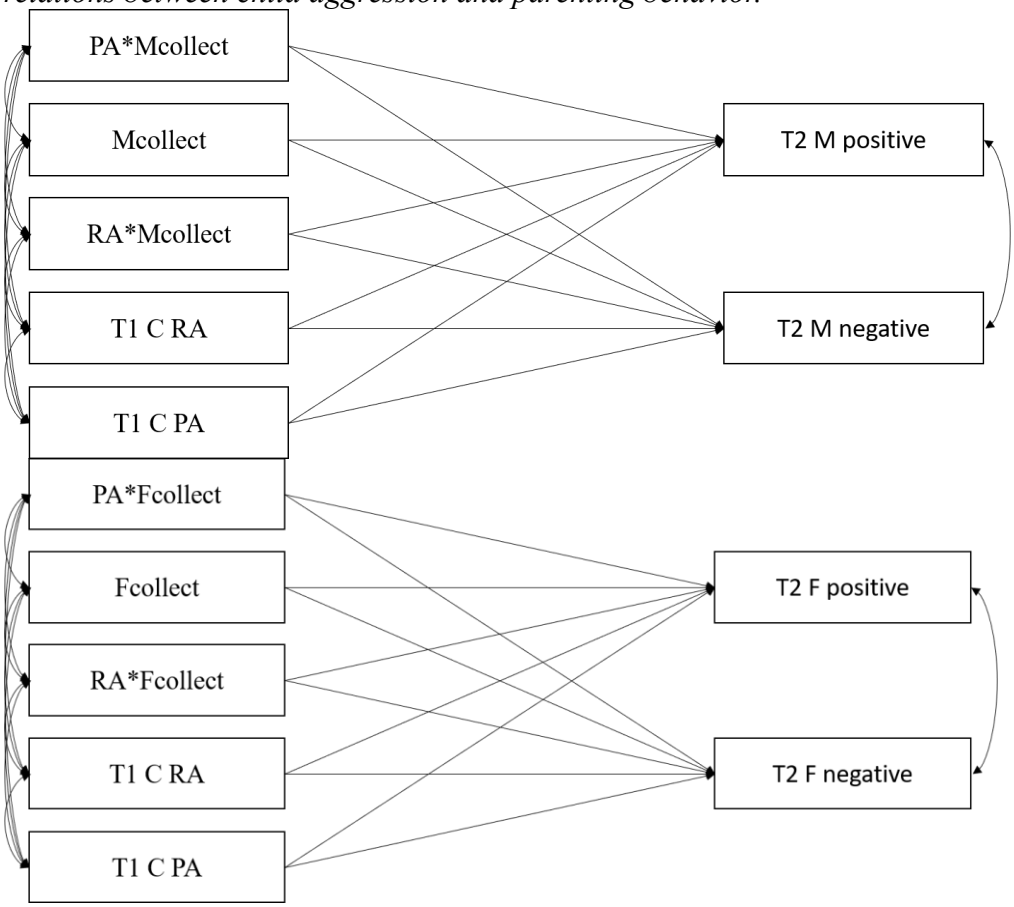
Tested models for the mediation effects of PSE in the relations between child aggression and parenting behavior.



Note. C RA = child relational aggression; C PA = child physical aggression; M positive = mother positive parenting behavior; M negative = mother negative parenting behavior; M PSE = mother parental self-efficacy.

Fig. 3

Tested models for the moderation effects of mother's adherence to collectivism in the relations between child aggression and parenting behavior.



Note. C RA = child relational aggression; C PA = child physical aggression; M positive = mother positive parenting behavior; M negative = mother negative parenting behavior; Mcollect = mother's adherence to collectivism.

Chapter 5 Results

5.1 Preliminary analysis

About 16% to 37% of the items measured had missing data. The result of Little's MCAR test showed that the missing pattern was not completely random, $\chi^2 = 60.408$, $p < .001$. More missing data appeared at T2 than at T1, and at T3 than at T2. This is unsurprising given that 21 participants did not complete the second wave of the survey, and another 34 participants did not complete the third wave of the survey. Table 1 presents the descriptive statistics for participant characteristics. Table 2 shows the means (M) and standard deviations (SD) of the measured variables at each time point. For all the measured variables, skewness was less than 3, and kurtosis was less than 8, indicating that the non-normality of the data was not a problem (Kline, 2015). Table 3, 4 and 5 shows the Pearson correlations among variables involved in the bidirectional model, mediation model and moderation model, respectively.

Table 2

Means and standard deviations of measured variables at each time point.

	T1		T2		T3	
Variables	Mean	SD	Mean	SD	Mean	SD
RA (mother report)	14.87	4.67	16.63	5.02	17.21	4.01
RA (father report)	15.26	5.45	17.31	5.79	18.45	5.64
PA (mother report)	11.55	4.68	13.39	6.35	12.45	4.63
PA (father report)	11.95	4.62	14.16	6.57	14.14	6.90
Mother positive parenting	10.45	1.16	10.32	1.41	11.19	1.02
Mother negative parenting	5.33	1.55	5.53	1.79	4.43	1.38
Father positive parenting	10.25	1.17	10.23	1.62	10.85	1.38
Father negative parenting	5.55	1.48	5.50	1.87	4.8745	1.69
Mother efficacy			33.53	6.75		
Father efficacy			33.75	6.88		
Mother adherence to collectivism			22.22	4.62		
Father adherence to collectivism			21.57	3.99		

Note. RA = relational aggression, PA = physical aggression.

As shown in Table 3, child RA and PA showed high stability in the three time points. Mother parenting behavior (i.e., positive and negative) and father parenting behavior (i.e., positive and negative) were also highly stable over time. T1 child RA and PA were negatively associated with parents' (i.e., mothers and fathers) positive parenting and positively associated with parents' negative parenting at all time points. T2 child RA and PA were positively associated with parents' negative parenting at all time points, and negatively associated with parents' positive parenting at T1. At T2, child RA was not significantly correlated with T2 father positive parenting behavior and at T3, both child RA and PA were not significantly correlated with parents' positive parenting behavior. T3 child RA and PA were negatively associated with T3 parents' positive parenting behavior and positively associated with T3 parents' negative parenting behavior. T3 child RA and PA were only significantly correlated with T1 and T2 parents' negative parenting behavior.

Table 4 and Table 5 showed the correlation among variables in the mediation and moderation model. As shown in Table 4, T1 child RA and PA were positively associated with T3 parents' negative parenting behavior and negatively associated with T3 parents' positive parenting behavior. Mother efficacy was significantly correlated with father efficacy but not significantly correlated with T1 child RA and PA or T3 parenting behavior. In Table 5, T1 child RA and PA were positively associated with T3 parents' negative parenting behavior and negatively associated with T3 parents' positive parenting behavior. T1 child RA and PA were also significantly correlated with T2 parents' report of adherence to collectivism, except that T1 child PA was not significantly correlated with mother collectivism. Mother collectivism was not correlated with T3 parenting behavior, while father collectivism was significantly correlated with father positive parenting behavior.

Table 3

Pair-wise correlations among all variables in cross-lag model.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Time 1																		
1. RA	-																	
2. PA	.60**	-																
3. M positive	-.23**	-.30**	-															
4. M negative	.30**	.31**	-.53**	-														
5. F positive	-.23**	-.31**	.71**	-.43**	-													
6. F negative	.49**	.41**	-.43**	.69**	-.59**	-												
Time 2																		
7. RA	.34**	.18**	-.14*	.33**	-.09	.29**	-											
8. PA	.30**	.33**	-.20**	.38**	-.16*	.35**	.81**	-										
9. M positive	-.18*	-.20**	.41**	-.23**	.36**	-.30**	-.12*	-.26**	-									
10. M negative	.30**	.18*	-.21**	.52**	-.15*	.51**	.53**	.58**	-.29**	-								
11. F positive	-.14*	-.23**	.41**	-.26**	.41**	-.37**	-.08	-.24**	.68**	-.23**	-							
12. F negative	.25**	.15*	-.20*	.47**	-.24**	.61**	.50**	.59**	-.24**	.80**	-.31**	-						
Time 3																		
13. RA	.23**	.20*	-.09	.12	-.11	.06	.16*	.17*	-.11	.09	-.05	.01	-					
14. PA	.20**	.47**	-.08	.19*	-.15#	.25**	.15*	.30**	-.16*	.28**	-.05	.17*	.53**	-				
15. M positive	-.17*	-.16*	.38**	-.18*	.37**	-.23*	-.09	-.03	.21*	-.05	.09	.03	-.29**	-.35**	-			
16. M negative	.28**	.27**	-.21*	.38**	-.17*	.40**	.26**	.32**	-.20*	.39**	-.14#	.31**	.35**	.42**	-.35**	-		
17. F positive	-.20*	-.28**	.31**	-.14#	.37**	-.22*	-.14#	-.13#	.15*	-.16*	.09	-.09	-.29**	-.32**	.61**	-.33**	-	
18. F negative	.32**	.35**	-.08	.22*	-.19*	.36**	.21*	.33**	-.18*	.34**	-.09	.36**	.41**	.46**	-.25**	.64**	-.35**	-

Note. # $p < .10$; * $p < .05$; ** $p < .01$. RA = relational aggression, PA = physical aggression, M = mother, F = father, positive = positive parenting, negative = negative parenting.

Table 4

Pair-wise correlations among all variables in mediation model.

Variables	1	2	3	4	5	6	7	8
Time 1								
1. RA	-							
2. PA	.60**	-						
Time 2								
3. M efficacy	-.03	-.09	-					
4. F efficacy	.02	-.04	.48**	-				
Time 3								
5. M positive	-.17*	-.16*	.03	.01	-			
6. M negative	.28**	.27**	-.10	-.04	-.35**	-		
7. F positive	-.20*	-.28**	.06	-.01	.61**	-.32**	-	
8. F negative	.32**	.35**	-.04	-.11	-.25**	.64**	-.35**	-

Note. $^{\#}$ $p < .10$; * $p < .05$; ** $p < .01$. RA = relational aggression, PA = physical aggression, M = mother, F = father, positive = positive parenting, negative = negative parenting.

Table 5

Pair-wise correlations among all variables in moderation model.

Variables	1	2	3	4	5	6	7	8
Time 1								
1. RA	-							
2. PA	.60**	-						
Time 2								
3. M collectivism	-.19**	-.12	-					
4. F collectivism	-.25**	-.20**	.498**	-				
Time 3								
5. M positive	-.17*	-.16*	.08	.08	-			
6. M negative	.28**	.27**	-.10	-.15#	-.35**	-		
7. F positive	-.20*	-.28**	.14#	.23**	.61**	-.32**	-	
8. F negative	.32**	.35**	-.05	-.14#	-.25**	.64**	-.35**	-

Note. # $p < .10$; * $p < .05$; ** $p < .01$. RA = relational aggression, PA = physical aggression, M = mother, F = father, positive = positive parenting, negative = negative parenting.

5.2 Bidirectional relations between parenting behavior and child aggression

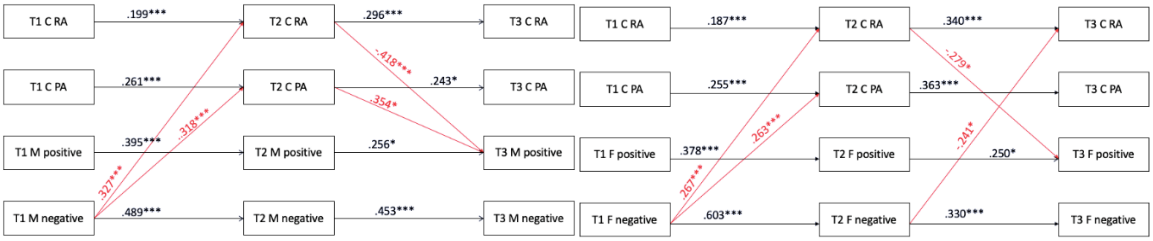
The bidirectional relations between parenting behavior and child aggression were estimated by comparing the four models listed in Fig. 1: M1 (stability model), M2 (parent-driven model), M3 (child-driven model) and M4 (bidirectional model). Table 6 shows the tested models' difference in fits ($\triangle\chi^2$) separated by mothers and fathers. Child age and maternal education have been controlled in the analysis of the SEMs. As shown in Table 6, the chi-square changes between M1 and M2 and between M1 and M3 were both significant, suggesting that M2 and M3 had a better fit to the data than M1. No comparison was made between M2 and M3 because they were not nested models. The chi-square changes between M1 and M4, between M2 and M4 and between M3 and M4 were all significant, indicating that M4 (i.e., the reciprocal model) had the best fit to the data among the four models. Table 6 also showed that all models had an acceptable fit to the data. Therefore, M4 was chosen as the final model.

Fig. 4 presents the final model (M4) for mothers and fathers with completely standardized path coefficients. Child RA and mother negative parenting behavior showed high stability within the three-time points. Child PA and mother positive parenting behavior was highly stable from T1 to T2, but moderate stable from T2 to T3. In the father model, child RA, PA and father negative parenting behavior were highly stable within three-time points. Father positive parenting behavior was highly stable from T1 to T2 but moderately stable from T2 to T3. After controlling for the stability of each construct, we found that in mother model, T1 negative parenting behavior significantly predicted more T2 child aggression ($\beta = .327$, $p < .001$ for RA and $\beta = .318$, $p < .001$ for PA). T2 child RA subsequently predicted less positive parenting at T3 ($\beta = -.418$, $p < .001$) while T2 PA subsequently predicted more positive parenting at T3 ($\beta = .354$, $p < .001$). Regarding to father model, T1 negative

parenting behavior significantly predicted more T2 child aggression (β = .267, $p < .001$ for RA and β = .263, $p < .001$ for PA) as well, and T2 child RA subsequently predicted less T3 father positive parenting behavior (β = -.279, $p = .006$). Meanwhile, T2 fathers negative parenting behavior significantly predicted less T3 child RA (β = -.241, $p = .002$).

Fig. 4

The final model (M4) with a completely standardized solution.



Note. Insignificant paths were omitted. C RA = child relational aggression; C PA = child physical aggression; M positive = mother positive parenting behavior; M negative = mother negative parenting behavior; * $p < .05$; *** $p < .001$. All the covariance were examined but not displayed.

Table 6

Comparison of the four SEM models on the relations between parenting behavior and child aggression.

	Tested model	χ^2	DF	χ^2/df	CFI	RMSEA	AIC	Model comparison	χ^2 difference test	*p*
Mother	M1	122.87	40	3.07	.92	.07	227.92	M1 vs M2	27.848	.001
	M2	95.02	32	2.97	.94	.07	223.72	M1 vs M3	19.920	.011
	M3	102.95	32	3.23	.93	.07	225.62	M2 vs M4	19.873	.011
	M4	75.15	24	3.13	.95	.07	222.71	M3 vs M4	27.800	.001
Father	M1	124.65	40	3.12	.92	.07	224.65	M1 vs M2	20.720	.008
	M2	103.93	32	3.25	.93	.07	219.93	M1 vs M3	18.820	.016
	M3	105.83	32	3.31	.93	.08	221.83	M2 vs M4	17.537	.025
	M4	86.39	24	3.60	.94	.08	218.39	M3 vs M4	19.437	.013

5.3 Parental self-efficacy as mediator between child aggression and parenting behavior

Fig. 5, Table 7 and Table 8 displayed the results of mediation analyses. No model fit was reported as they were saturated models. After controlling for child and mother demographics, the mediation effect of mother PSE on the relations between child aggression (i.e., RA and PA) and mother parenting behavior (i.e., positive and negative) was not significant (B = -.001, SE = .003, 95%CI = [-.012, .002] for the indirect paths from RA to positive parenting;

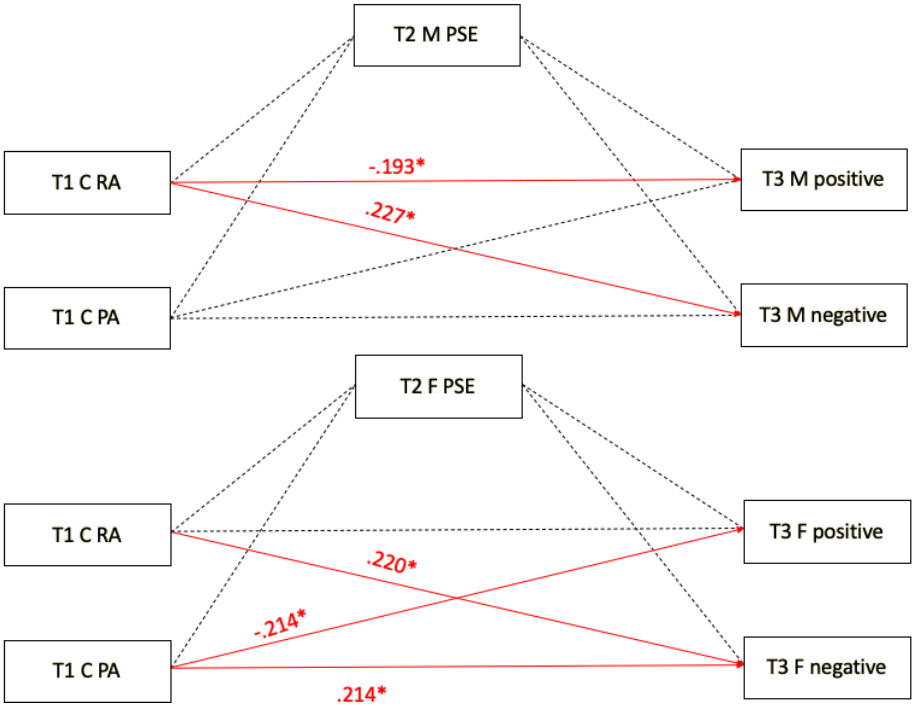
B = .002, SE = .004, 95%CI = [-.003, .016] for PA to positive parenting; B = -.002, SE = .004, 95%CI = [-.017, .003] for RA to negative parenting; B = .003, SE = .005, 95%CI = [-.002, .022] for PA to negative parenting). This implies that the mediation effects of mother PSE on child aggression and mother parenting behavior were not supported by the data. The direct effect of T1 child aggression on T2 mother PSE was found not to be significant (B = .303, p = .784 for RA and B = -.564, p = .701 for PA), and the direct effect of T2 father PSE on T3 father parenting behavior was also found not to be significant (B = -.003, p = .827 for positive parenting and B = -.006, p = .291 for negative parenting). T1 child RA was significantly predictive of T3 mother positive parenting behavior (B = -.193, p = .042) and negative mother behavior (B = .227, p = .013). No significant path was observed for T1 child PA to T3 mother parenting behaviors.

Regarding father model, after controlling for child age and father education, the mediation effect of father PSE on the relations between child aggression (i.e., RA and PA) and father parenting behavior (i.e., positive and negative) was not significant (B = -.006, SE = .006, 95%CI = [-.024, .002] for the indirect paths from RA to positive parenting behavior; B = .003, SE = .005, 95%CI = [-.002, .202] for PA to positive parenting; B = -.005, SE = .005, 95%CI = [-.022, .001] for RA to negative parenting; B = .003, SE = .004, 95%CI = [-.002, .018] for PA to negative parenting). This implies that the mediation effects of father PSE on child aggression and father parenting behavior were not supported by the data. The direct effect of T1 child aggression on T2 father PSE was found not to be significant (B = .060, p = .516 for RA and B = -.055, p = .553 for PA), and the direct effect of T2 father PSE on T3 father parenting behavior was also found not to be significant (B = -.020, p = .805 for positive parenting and B = -.089, p = .261for negative parenting). T1 child RA was significantly predictive of T3 father negative parenting behavior (B = .220, p = .018). T1

child PA significantly predicted T3 father parenting behaviors (B = -.214, p = .028 for positive parenting and B = .214, p = .021 for negative parenting).

Fig. 5

Statistic result of the mediation model.



Note. Insignificant paths were showed in dash lines. C RA = child relational aggression; C PA = child physical aggression; M positive = mother positive parenting behavior; M negative = mother negative parenting behavior; PSE = parent self-efficacy. The control variables were not shown in this model; all the covariance were examined but not displayed; * p < .05; *** p < .001.

Table 7

The mediation effects of PSE on child aggression and parenting behavior.

	Mother				Father			
	β	SE	*p*	95% CI	β	SE	*p*	95% CI
	DV = PSE (T2)							
RA (T1)	.303	.691	.784	[-.603, 1.147]	-.785	.729	.553	[-.050, 1.711]
PA (T1)	-.564	.701	.239	[-1.459, .371]	-.449	.716	.516	[-1.383, .449]
	DV = positive parenting behavior (T3)							
RA (T1)	-.195	.083	.042	[-.295, -.085]	-.046	.087	.415	[-.151, .058]
PA (T1)	.033	.085	.838	[-.068, .132]	-.177	.088	.028	[-.288, -.061]
PSE (T2)	-.003	.009	.827	[-.014, .008]	-.007	.009	.805	[-.018, .004]
	DV = negative parenting behavior (T3)							
RA (T1)	.215	.083	.013	[.113, .333]	.155	.082	.018	[.075, .230]
PA (T1)	.067	.084	.301	[-.045, .166]	.242	.083	.021	[.159, .328]
PSE (T2)	-.006	.009	.291	[-.018, .006]	-.006	.009	.261	[-.016, .003]

Note. RA = relational aggression, PA = physical aggression, PSE = parental self-efficacy, T1 = time 1, T2 = time 2.

Table 8

Summary of the mediation effects of PSE in the association between T1 child aggression and T3 parenting behavior.

	Mother			Father		
Indirect Paths	β	SE	95% CI	β	SE	95% CI
RA " PSE " Positive parenting	-.001	.003	[-.012, .002]	-.006	.006	[-.024, .002]
PA " PSE " Positive parenting	.002	.004	[-.003, .016]	.003	.005	[-.002, .202]
RA " PSE " Negative parenting	-.002	.004	[-.017, .003]	-.005	.005	[-.022, .001]
PA " PSE " Negative parenting	.003	.005	[-.002, .022]	.003	.004	[-.002, .018]

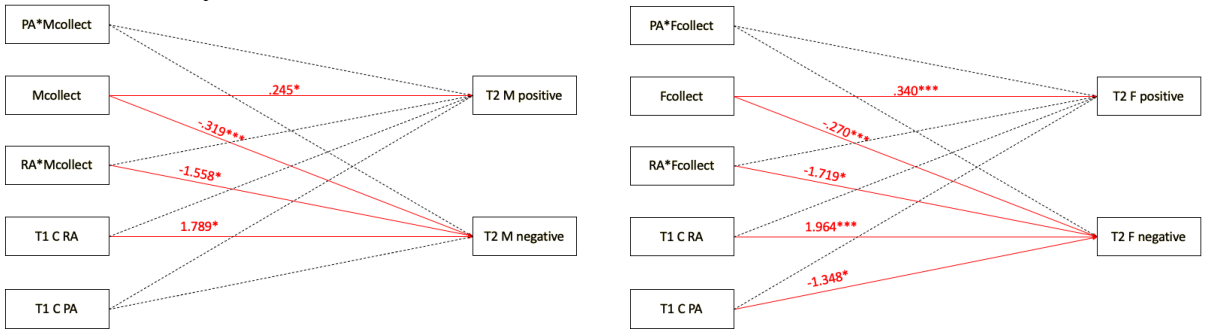
Note. RA = relational aggression, PA = physical aggression, PSE = parental self-efficacy.

5.4 Parents' adherence to collectivism as moderator between child aggression and parenting behavior

Fig. 6 and Table 9 presents the statistics of moderation effects of parents' adherence to collectivism on child aggression and parenting behavior. No model fit was reported as they were saturated models. Results indicated that the interaction between child RA and parents' adherence to collectivism was significant for later negative parenting (B = -1.558, p = .014 for mothers and B = -1.719, p = .003 for fathers) but not for later positive parenting (B = .334, p = .620 for mothers and B =.233, p = .673 for fathers). The simple slope test showed that the interactive effect was significant for parents who adhere less collectivism (i.e., 1 SD below the mean; $p < .01$ for both mothers and fathers) but not for parents who adhere more collectivism (i.e., 1 SD above the mean). This implied that parents' adherence to collectivism significantly moderated the relations between child RA and parents' negative parenting behavior. Specifically, the positive association between child RA and negative parenting behavior was more pronounced for those who adhere less collectivism. No significant interaction between PA and parents' adherence to collectivism was observed.

Fig. 6

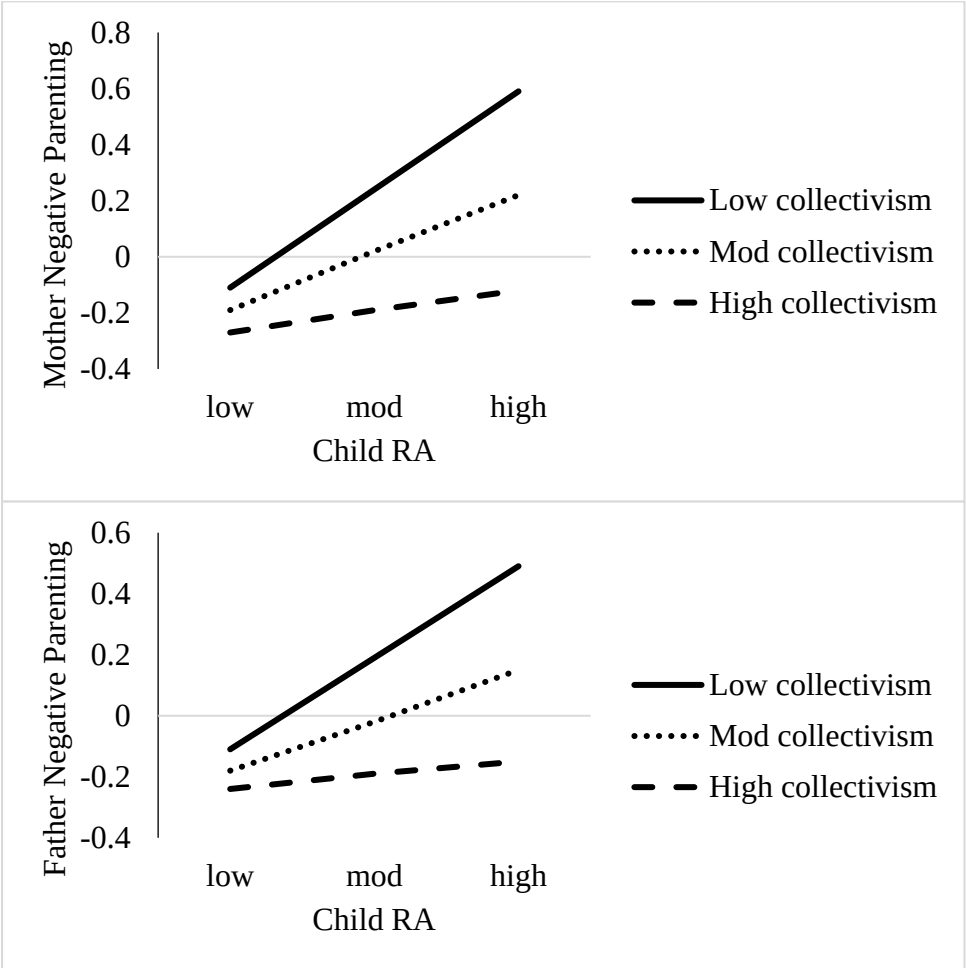
Statistic result of the moderation model.



Note. Insignificant paths were showed in dash lines. RA = child relational aggression; PA, = child physical aggression; M positive = mother positive parenting behavior; M negative = mother negative parenting behavior; Mcollect = mother's adherence to collectivism; F positive = father positive parenting behavior; F negative = father negative parenting behavior; Fcollect = father's adherence to collectivism; The control variables were not shown in this model; all the covariance were examined but not displayed; * $p < .05$; *** $p < .001$.

Fig. 7

Moderation Plots.



Note. RA = child relational aggression; PA = child physical aggression.

Table 9

The moderating effects of parents' adherence to collectivism on child aggression and parenting behavior.

	DV = M positive (T2)			DV = M negative (T2)		
	β	SE	*p*	β	SE	*p*
Mcollect	.245	.013	.002	-.319	.015	<.001
RA	-.348	.589	.608	1.789	.683	.005
PA	-.606	.534	.315	-.254	.619	.657
RA * Mcollect	.334	.027	.620	-1.558	.032	.014
PA * Mcollect	.454	.024	.540	.328	.028	.564
	DV = F positive (T2)			DV = F negative (T2)		
	β	SE	*p*	β	SE	*p*
Fcollect	.340	.014	< .001	-.270	.017	< .001
RA	-.200	.517	.725	.964	.601	< .001
PA	.035	.588	.956	-1.348	.687	.042
RA * Fcollect	.233	.024	.673	-1.719	.028	.003
PA * Fcollect	-.209	.027	.735	1.391	.032	.11

Note. RA = relational aggression, PA = child physical aggression, M positive = mother positive parenting behavior, M negative = mother negative parenting behavior, Mcollect = mother's adherence to collectivism, F positive = father positive parenting behavior, F negative = father negative parenting behavior, Fcollect = father's adherence to collectivism.

Chapter 6 Discussion

6.1 Summary of Findings

The goals of this study were to explore the bidirectional relations between child aggression and parenting behavior, the mediation role of PSE, and the moderation role of parental adherence to collectivism. The research questions were as follows: (a) What is the bidirectional relationship between parenting behavior and child aggression? (b) Does PSE mediate the relationship between child aggression and parenting behavior? (c) Does parental adherence to collectivism moderate the relationship between child aggression and parenting behavior? The corresponding hypotheses were as follows: (a) There is a bidirectional relationship between child aggression and parenting behavior; higher levels of child aggression predict lower levels of positive and higher levels of negative parenting behavior. Conversely, lower levels of child aggression predict higher levels of positive and lower levels of negative parenting behavior. (b) PSE mediates the effect of child aggression on parenting behavior; higher child aggression predicts lower PSE, resulting in lower positive parenting and higher negative parenting behaviors. (c) Parental adherence to collectivism moderates the effect of child PA and RA on parenting behavior; this effect is stronger for parents with greater adherence to collectivism.

The results of this study suggested that (a) associations between parental behavior and child aggression were transactional. Specifically, regarding child PA, maternal and paternal negative parenting behavior at T1 predicted more child PA at T2, resulting in increased positive parenting behavior at T3 for mothers but not for fathers. For child RA, maternal and paternal T1 negative parenting behaviors significantly predicted more child RA at T2, resulting in decreased T3 positive parenting behavior. Moreover, paternal negative parenting behavior at T2 predicted reduced child RA at T3. Additionally, (b) PSE at T2 was not a

significant mediator in the relationship between T1 child aggression and T3 parenting behavior for either parent and (c) parental adherence to collectivism significantly moderated the effects of T1 child RA on T2 negative parenting behavior. Specifically, for both mothers and fathers, the positive association between child RA and negative parenting behavior was stronger for parents who did not adhere as strongly to collectivism.

6.2 Bidirectional Relationship Between Parenting Behavior and Child Aggression

Although the reciprocal model had the best fit with the data, contrary to the hypothesis, a bidirectional relationship between parenting behavior and child aggression was not supported. Instead, a transactional relationship between these two variables was observed; parent-driven influences on child aggression at an earlier time was transacted to subsequent parenting behaviors. The nonsignificant finding for bidirectional relations is not consistent with theoretical frameworks that propose bidirectional parent–child interactions, but is consistent with other studies failing to observe a bidirectional relation (e.g., Verhoeven et al., 2010). A possible reason may be the developmental stage chosen to test parent–child bidirectionality. Specifically, because parents are the absolute authority for children from infancy to early childhood (Cox et al., 2010), models including both parent-driven effects and child-driven effects may have the parent-driven effect overwhelm the child-driven effect, reducing its significance. When children grow up and enter school, the development of cognitive functions, language ability, and motor skills may increase their ability to influence their environment. Thus, child-driven effects may be more salient in adolescents as they strive for increased emotional and behavioral autonomy (Small et al., 1988).

This observed transactional relation is consistent with earlier theories that emphasized the dynamic interplay between parenting behavior and child outcomes and emphasized the

subsequent effects on parenting behavior and child maladjustment (Sameroff & Mackenzie, 2003). The relationship is also consistent with empirical research investigating the longitudinal transactional relationship between parenting behavior and child outcomes in early childhood (Berlin et al., 2009) and middle childhood (Gershoff et al., 2012; Lansford et al., 2011). For example, Mackenzie et al. (2015) observed that maternal spanking in early years influenced later child problematic behavior and predicted subsequent parenting behavior. Zadeh et al. (2010) reported that maternal negativity predicted child externalizing behaviors from T1 to T2 and reported that child behavior at T2 subsequently influenced maternal behavior at T3. Child-driven effects in transactional cycles across development were also in line with a recent review, suggesting that child externalizing behaviors (e.g., aggression) were important for subsequent parental functioning (r = .087, 95% CI [.07, .10]; Yan et al., 2020).

Negative parenting behavior has long been associated with aggressive behavior in preschoolers (e.g., Combs-Ronto et al., 2009); thus, the observation of the predictive effect of T1 negative parenting behavior on T2 child aggression in the present study was unsurprising. Children may express hostile emotions caused by receiving negative parenting by using aggression. However, differences were observed in the subsequent results for PA and RA, as well as for mothers and fathers. Specifically, for mothers, T2 child PA was associated with higher levels of T3 positive parenting behavior, whereas T2 child RA was related to lower levels of T3 positive parenting behavior. This finding may indicate that the association between child aggression and maternal positive parenting behavior is dynamic and contextual; different forms of aggression (i.e., PA and RA) elicit different changes in parenting behavior. The varied results for PA and RA may be because PA and RA are perceived differently by Chinese parents. Specifically, a previous study reported that more

intervention strategies were reported by Chinese parents when confronting the hypothetical PA situations than RA situations because PA is perceived to be more obvious and severe than RA (Lau, 2017). Therefore, if children exhibit substantial problematic behavior, parents may frequently modify parental behaviors to determine a strategy that is successful with the child.

In this study, T1 negative parenting behavior elicited more child PA at T2. Mothers may notice this adverse change caused by previous negative parenting behavior and attempt to adopt different strategies such as positive parenting behavior (e.g., talking with the child about their problems, explaining why rules should be obeyed, and encouraging free expression in the child) at T3 to solve the problem. In contrast to the findings for PA, child RA at T2 was predictive of less T3 maternal positive parenting behavior. A possible explanation is that, because RA is perceived to be less obvious and less severe than PA (Lau, 2017), mothers may feel that intervention is not as urgent or necessary. Therefore, decreased positive parenting behavior is indicative of modest negative maternal attitudes toward RA.

Results for fathers had both similarities and differences to results for mothers. Similar to mothers, fathers at T3 adopted less positive parenting behaviors in response to T2 child RA. As with mothers, this decrease in positive parenting behavior may indicate modest negative paternal attitude toward RA because RA is perceived as less obvious and less severe (Lau, 2017). However, two results distinguished fathers and mothers. First, the increased negative paternal parenting behavior from T1 to T2 predicted reduced child RA at T3. This result may imply that increased negative paternal parenting behavior (e.g., physical coercion, verbal hostility, and punishments) was effective in curbing child RA, consistent with studies suggesting that authoritarian parenting is sometimes associated with positive child outcomes in the Chinese context (e.g., Chao, 2000; Cheung & McBride-Chang, 2008).

Second, T2 child PA predicted by T1 negative paternal parenting behavior did not subsequently predict positive or negative paternal parenting behavior at T3; this result differed from that for mothers. Notably, differences observed between mothers and fathers were consistent with expectations of maternal and paternal roles in traditional Chinese families. The Confucian tradition stipulates a differentiation in parental gender roles. Mothers are expected to be virtuous and tender-hearted, whereas fathers are expected to have agency, discipline, and authority (Ho, 1986; Shek, 1998), as in the proverb, "strict fathers and kind mothers" (yan fu ci mu). Traditionally, Chinese mothers are caregivers and fathers are authority figures (Ho, 1986). In other words, Chinese mothers are expected to take care of and protect children, whereas Chinese fathers are models for their children (Wilson, 1974). In this study, T2 child PA only predicted more positive parenting behavior for mothers but not for fathers, possibly because mothers in this study are more caring and protective of their children. Therefore, if a child displayed more PA, only mothers modified parental behaviors (i.e., from negative to positive) to find a strategy that is effective for the child. Moreover, the effects of T2 negative paternal parenting behavior on controlling subsequent child RA may be due to the traditional authoritative role of Chinese fathers in father–child interactions. Unlike results for European or American parents, the authoritarian parenting style was demonstrated to have positive effects for controlling behavioral problems of Chinese children because authoritarianism is perceived positively in traditional Chinese culture (for a review, see Chao & Tseng, 2002).

Results of this study indicated both positive and negative influences of negative parenting on the development of child aggression in the Chinese context. This is not surprising, because other studies have also indicated mixed findings on the negative (i.e., authoritarian) parenting style plays in child outcomes (Chen et al., 1997; Eisenberg et al., 2009; Zhou et al., 2008).

Apart from the potential explanation of traditional cultural values, some researchers have suggested that the characteristics of negative (i.e., authoritarian) parenting cause mixed outcomes. Specifically, the punitive aspects of negative parenting may generate more negative effects on child outcomes than other aspects (e.g., control of autonomy and directiveness). Due to the combination of these aspects, understanding the exact predictors of child maladjustment is difficult (Bugental & Grusec, 2007). Therefore, in-depth explorations of the constructs of negative (i.e., authoritarian) parenting behavior are necessary to interpret the results.

6.3 Nonsignificant Mediation Role of PSE

According to Bandura and Adams (1977), PSE is formed based on parental experience (i.e., successful or unsuccessful) and physiological and emotional states (i.e., negative or positive states). Successful parental experiences and positive physiological and emotional states increase PSE, whereas parental experiences of failure and negative physiological and emotional states reduce PSE. Because high PSE parents are likely to adopt more positive parenting behaviors such as reasoning and low PSE parents tend to apply more negative parenting strategies such as corporal punishment (Jones & Prinz, 2005), parents with aggressive children were hypothesized to have difficulty maintaining high PSE because child aggression is interpreted as unsuccessful parenting and causes negative parental emotions (Chau & Giallo, 2015; Leerkes & Burney, 2007). Contrary to this hypothesis, the mediation association was not supported by the data.

A possible explanation of this nonsignificant finding is that previous studies have reported that the main predictors of maternal PSE varied over time. For example, during the transition to parenthood, social support, ethnicity, maternal age, and family income were suggested to

be important predictors of PSE (Shorey et al., 2014). In later parenthood, physical changes of children as well as parent–child communication quality have increased influence on PSE (Glatz & Buchanan, 2015). Parental childhood maltreatment was also suggested to indirectly predict PSE due to insecure attachment and mental health problems (Caldwell et al., 2011). Therefore, the PSE of parents with children in early childhood may be primarily determined by parental characteristics such as age, education level, employment status, and childhood maltreatment instead of child aggressive behavior.

Notably, other studies have contradictory findings. For example, more problematic behavior from children tended to reduce PSE, eliciting harsher discipline (Day et al., 1994). A possible reason for the mixed findings is that PSE may have been measured incorrectly in some studies, reducing the validity of the research and possibly erroneously revealing significant effects. For example, associations between PSE and child externalizing behavior were stronger for young children and adolescents due to the observational methods used in relevant studies. Studies using parental reports have also demonstrated a connection, but the direction of results is confounding because some parents may have inflated their reported PSE (Conrad et al., 1992).

Some differential studies have also suggested that the link between PSE and parenting behavior may depend on the broader familial and sociocultural context. For example, positive links between PSE and positive parenting behavior were only identified for parents with children with few externalizing behaviors. For parents whose children had more externalizing behaviors, PSE did not predict parenting behaviors (Glatz et al., 2017). Prior negative experiences with the challenging child may have caused substantial negative emotions for parents, outweighing the influence of PSE. Additionally, Elder et al. (1995) demonstrated that

although levels of PSE are similar for African-American and Caucasian parents, African-American parents exhibited more proactive parenting strategies to protect children from risk compared with their Caucasian peers. African-American parents may have perceived their community as unresponsive; thus, they bore the responsibility of protecting the child themselves. This discrepancy indicates that social context may be a moderator of the relationship between PSE and parenting.

6.4 Parental Adherence to Collectivism as a Moderator

For the moderation analyses, parental adherence to collectivism was hypothesized to moderate the relations between child aggression and parenting behavior, and this effect was hypothesized to be more pronounced for parents adhering more strongly to collectivism. Although parental adherence to collectivism was indeed a significant moderator in the association between child aggression and parenting behavior, the direction of effects was contrary to the hypothesis. Specifically, parental adherence to collectivism was found to moderate the positive predictive influence of child RA on negative parenting behavior of both parents, and this predictive effect was more pronounced for parents weakly adhering to collectivism. Moreover, parental adherence to collectivism was neither a significant moderator for child PA and negative parenting behavior nor for child aggression (both RA and PA) and positive parenting behavior. This finding is consistent with previous studies reporting that parents adhering to traditional Chinese values (e.g., collectivism and harmonious interpersonal relationship) were more likely to adopt positive parenting (e.g., Shuster et al., 2012) because positive parenting is more likely to maintain high-quality parent–child relationships and reduce problematic child behaviors that are disruptive to interpersonal relationships in family and school settings (Shek, 2006). The result also supported theories proposing that cultural values are predictors of parental beliefs and

socialization goals, influencing parenting practices (Chao, 2000). Therefore, parent–child interactions within the family should be considered within a cultural context (e.g., Bornstein & Lansford, 2010).

Contrary to the hypothesis of this study, the positive relationship between RA and negative parenting behavior was only significant for parents who adhere weakly to collectivism; this result may be due to the convergent nature of RA and collectivism. According to values of collectivism for conflict and confrontation, if "genuine" harmony (i.e., holistic and sincerely harmonious) is hard to achieve, conflicts should be disregarded to maintain a "surface" harmony (Huang, 2016). This "surface harmony" is a strategy to hide interpersonal conflicts, and is internally consistent with the "invisible" nature of RA. Therefore, parents who adhere to collectivism may not perceive RA as a problematic behavior, because, to some extent, RA conforms to collectivist values. For parents who do not adhere to collectivism, although RA is perceived as less serious than PA, RA may still be perceived as a problematic behavior that requires intervention with controlling strategies (e.g., negative parenting). This theory is consistent with a previous longitudinal study revealing that child aggressive behavior (both PA and RA) predicted increased parental control (He et al., 2019).

However, parental adherence to collectivism was not a significant moderator between child PA and negative parenting behavior in this study. The positive association between child PA and negative parenting behavior was observed for all parents, regardless of cultural values. This effect may be because PA is universally perceived as a challenging behavior by parents because it is apparent in daily life and may cause injury (Lau, 2019; Swit et al., 2018). Therefore, parents regardless of adherence to collectivism were found to intervene in PA with controlling strategies.

6.5 Theoretical and Practical Implications

The present study built upon previous literature by contributing to theory and suggesting practical improvements. Regarding theoretical contributions, the bidirectional relations between parenting behavior and child aggression for preschoolers were explored, as was the mediation role of PSE and the moderation role of cultural values; the actual mechanism of these relations was described. Results from this longitudinal study provide key information regarding transactional relations between parenting behavior and preschoolers' aggression; the effects of prior parenting behavior on preschooler aggression were transacted, influencing subsequent parenting behavior. Supplementing literature heavily emphasizing negative parenting behavior in child aggression (e.g., Pinquart, 2017), this research reveals the role of positive parenting behavior in the trajectory of child aggression. In addition to responding to child aggression with negative parenting strategies, parents may also react by modifying positive parenting behaviors. Furthermore, because relevant studies have primarily focused on mothers, the results of this study concerning fathers are an important contribution and reveal the importance of paternal involvement in family studies.

For the second research question, the mediation role of PSE was examined in the relationship of child aggression and parenting behavior. In contrast to other studies claiming that PSE is a potential mediator between parenting behavior and child outcomes (for a review, see Jones & Prinz, 2005), the findings of this study revealed that PSE was not a significant mediator in the relationship between child aggression and parenting behavior. The finding implies that PSE may change over time and can be influenced by different predictors at different stages (e.g., expectation during pregnancy or social support during early parenthood). For the third research question, this is the first study examining the moderation role of parental adherence to collectivism in the relationship between child aggression and parenting behavior. The

results suggested that the positive relation between child aggression and negative parenting behavior was significantly moderated by parental adherence to collectivism. This finding highlighted the importance of localization for family studies.

The results of the present study also have implications for therapeutic interventions for aggressive children, suggesting that parents may not be as influenced by child behavior as previously thought and that children may not be as vulnerable as previously believed. The bidirectional relationship between parenting behavior and child outcomes changes depending on the developmental period of the child; older children may have more influence on their environments than younger children do. If one party in a relationship is negative and hostile, the other is likely to respond by increasing their own negativity. Results regarding the transactional model of the relationship between parenting behavior and child aggression suggest that, in family education, interventions for only parenting strategies or only child aggression may be insufficient. Efforts should be made to jointly prevent both negative parenting and the effects on children. Hence, both parents and children should be targeted by educational programs and counseling. Moreover, parents should be educated regarding child-driven effects on their own parenting behavior and be mindful of changes in their behavior further reinforcing child aggression. Additionally, exploration of moderation effects indicated that some groups of parents (e.g., parents who adhere more strongly to collectivism) may have different responses to child aggression (i.e., RA) than other parents. Varied parental perceptions and responses to child aggression due to social context and cultural values must be considered when designing and conducting intervention programs. Because the positive relationship between RA and negative parenting behavior was only observed for parents who adhered less strongly to collectivism, these parents must be educated regarding appropriate strategies (e.g., inductive reasoning) for coping with child RA.

6.6 Limitations and Future Directions

Although innovative, this study has several limitations. First, the generalizability of the study may be limited by the stratified convenience sampling strategy. Specifically, parenting behavior and child aggression were only assessed in one Chinese city (Guangzhou); thus, the sample was from a particularly privileged class in China. Because parents in Guangzhou are typically well-educated, their parental beliefs and behaviors may differ from those of parents in other regions of China. Although stratified (e.g., high-, middle- and low-income strata), the kindergartens were not chosen at random, therefore the bias inherent in this convenience sampling should not be ignored. Future studies may consider using a more representative sampling strategy (e.g., stratified random sampling) and involving participants from different areas of China to improve the generalizability of the study. Cross-cultural data regarding parenting behavior is also necessary to conduct a cross-cultural comparison of the transactional relationship between parenting behavior and child aggression.

Second, the study is limited by the assessment of parenting behavior and child aggression. Similar to most parent–child research (e.g., Chang et al., 2003), only parent ratings were used to assess parent behavior and child aggression. Although ratings from mothers and fathers were combined for parenting behavior and child aggression, information from teachers or children was not used. Adopting only parental reports may result in informant bias because parental reports are based on subjective judgment. The validity of the findings is therefore reduced. Moreover, detailed data regarding parent–child interactions in the family context were not obtained. Therefore, moment-to-moment parent–child interactions could not be investigated; these interactions could reveal an in-depth portrait of the interconnections between parenting characteristics and child behavior. Future studies could consider adopting other data collection strategies such as observation or experimental manipulation to obtain a

more comprehensive data set.

Third, this study only considered some parenting practices and child outcomes and thus failed to examine other important aspects of parenting behavior (e.g., psychological control) that are theoretically related to child aggression and the critical developmental changes that occurred during the study period. One study indicated that parental psychological control is closely related with child RA because the nature of psychological control (e.g., love withdrawal) is similar to RA (Nelson & Crick, 2004). Longitudinally, maternal psychological control was predictive of child RA after 1 year and vice versa (Kuppens et al., 2009). A review study reported a weak but positive relationship between parental psychological control and RA (Kuppens et al., 2013). The failure to examine these aspects of parenting behavior may limit the understanding of parenting behavior in the development of child aggression developed in this study. Future studies may consider including more related variables such as psychological control for measurements of parenting behavior.

Finally, this study was strengthened by the use of longitudinal data, including three waves of data collection with a focus on a brief temporal period of nine months before entrance to primary school. However, because the transition to primary school is a significant life event for young children, failure to obtain data during this period prevents the assessment of the important changes of aggression during the transition from early childhood to childhood. Future studies should consider extending data collection to the transition to primary school to better understand the transactional relations between parenting behavior and child aggression.

Chapter 7 Conclusion

The bidirectional relationship between parenting behavior and preschooler aggression and the relevant mechanisms have received infrequent examination in the literature. Because the onset of aggressive behavior is in early childhood and because preschoolers are more affected by parental influences than are older children, more in-depth research regarding the mutual effects of parenting behavior and preschooler aggression is necessary to design intervention programs that are effective for parents in different cultures. In particular, studies that capture longitudinal developments of parenting behavior and child aggression and that examine potential mediators and moderators of these developments are highly desirable.

This thesis had three purposes. First, the longitudinal bidirectional relations between parenting behavior and child aggression in early childhood were examined. Second, the mediation role of PSE in the relationship between child aggression and parenting behavior was investigated. Third, parental adherence to collectivism was examined as a moderator for the association of child aggression and parenting behavior. The results of the present study replicated several findings from previous studies regarding parenting behavior and child aggression (e.g., the predictive effect of negative parenting behavior on child aggression) and also contributed new information in two important ways.

First, this study is the first investigation of the bidirectional relationship between parenting behavior and preschooler child aggression for Chinese subjects. Previous studies only examined negative parenting behavior or only assessed maternal reports. This study included both positive and negative parenting behaviors and reports from both parents. Second, this study investigated the mechanism of the effects of child aggression on parenting behavior by including PSE as a mediator and parental adherence to collectivism as a moderator; these had

not been examined in previous studies.

The findings of the present study indicated that, longitudinally, parenting behavior and preschooler aggression were transactional; prior parenting behavior influenced later child aggression, which subsequently affected parenting behavior. PSE was not a mediator explaining predictions of child aggression for parenting behavior, whereas parental adherence to collectivism moderated predictions of child aggression for parenting behavior. Specifically, the positive association between child RA and subsequent negative parenting behavior was stronger for parents who were less adherent to collectivism.

The findings of this study can be used to develop intervention and training programs to improve the parenting skills of Chinese parents with aggressive children. Early interventions in aggression before elementary school lay a strong foundation for later socioeconomic development. Parents, kindergarten teachers, and researchers must exert more effort to identify and correct child aggressive behavior. For example, kindergartens could organize seminars on dealing with child aggression to improve parenting skills. Existing teacher education programs could be strengthened by emphasizing teacher awareness of behavioral problems in early childhood. Researchers are encouraged to further investigate parenting behavior and child aggression to broaden knowledge in the field of early childhood education.

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Appendix A: Application for Ethical Review

香港教育大學
The Education University of Hong Kong

29 May 2019

Miss TAO Sisi
Research Postgraduate Programmes
Graduate School

Dear Miss Tao,

Application for Ethical Review <Ref. no. 2018-2019-0222>

I am pleased to inform you that approval has been given by the Human Research Ethics Committee (HREC) for your research project:

Project title: The Bidirectional Relations between Child Aggression on Parenting Behavior

Ethical approval is granted for the project period from 29 May 2019 to 1 June 2020. If a project extension is applied for lasting more than 3 months, HREC should be contacted with information regarding the nature of and the reason for the extension. If any substantial changes have been made to the project, a new HREC application will be required.

Please note that you are responsible for informing the HREC in advance of any proposed substantive changes to the research proposal or procedures which may affect the validity of this ethical approval. You will receive separate notification should a fresh approval be required.

Thank you for your kind attention and we wish you well with your research.

Yours sincerely,

[redacted]

Patsy Chung (Ms)
Secretary
Human Research Ethics Committee

c.c. Professor CHOU Kee Lee, Chairperson, Human Research Ethics Committee

香港新界大埔露屏路十號
10 Lo Ping Road, Tai Po, New Territories, Hong Kong
T (852) 2548 8888 F (852) 2548 0000 www.eduhk.hk

Appendix B: Consent Form and Information Sheet

THE EDUCATION UNIVERSITY OF HONG KONG
Department of Early Childhood Education

CONSENT TO PARTICIPATE IN RESEARCH

My school hereby consents to participate in the captioned project supervised by Dr. Lau, Yi Hung Eva and conducted by Miss TAO Si Si, who are staff / students of Department of Early Childhood Education in The Education University of Hong Kong.

I understand that information obtained from this research may be used in future research and may be published. However, our right to privacy will be retained, i.e., the personal details of my students'/teachers' will not be revealed.

The procedure as set out in the **attached** information sheet has been fully explained. I understand the benefits and risks involved. My students'/teachers' participation in the project are voluntary.

I acknowledge that we have the right to question any part of the procedure and can withdraw at any time without negative consequences.

Signature: _____
Name of Principal/Delegate*: (Prof/Dr/Mr/Mrs/Ms/Miss*)
Post: _____
Name of School: _____
Date: _____
(please delete as appropriate)*

INFORMATION SHEET

Your school is invited to participate in a project supervised by Dr. LAU, Yi Hung Eva and conducted by Miss TAO Si Si, who are staff / students of Department of Early Childhood Education in The Education University of Hong Kong.

The present study is a longitudinal study aims to explore the bidirectional relations between child aggression and parenting behavior. About 200 kindergarten children and their parents will be recruited from six kindergartens. In this study, parents of your school be invited to complete parent questionnaire for three times (Time 1 in October 2019; Time 2 in January 2020; Time 3 in April 2020). The questionnaire normally takes 30 minutes to complete. Meanwhile, children in your school will participate in an individual interview to be conducted at the kindergarten to examine his/her social behavior. The interview will normally last for 10 to 13 minutes. After the interview, a cartoon paster will be provided to children as compensation. The result of the study will be disseminated by means of thesis publication, journal publication and conference presentation.

Please understand that your students'/parents' participation are voluntary. They have every right to withdraw from the study at any time without negative consequences. All information related to your students'/parents' will remain confidential and will be identifiable by codes known only to the researcher.

If you have any concerns about the conduct of this research study, please do not hesitate to contact the Human Research Ethics Committee by email at hrec@eduhk.hk or by mail to Research and Development Office, The Education University of Hong Kong.

If you would like to obtain more information about this study, please contact Ms. TAO Sisi at telephone number [redacted] or through email ([redacted]), or her supervisor Dr. LAU at telephone number [redacted].

Thank you for your interest in participating in this study.

TAO Si Si
Principal Investigator

香港教育大學
幼兒教育學系

參與研究同意書

本校同意參加由劉怡虹博士負責監督,陶思思女士負責執行的研究計劃。她/他們是香港教育大學學生/教員。

本人理解此研究所獲得的資料可用於未來的研究和學術發表。然而本人有權保護本校學生/教師的隱私,其個人資料將不能洩漏。

研究者已將所附資料的有關步驟向本人作了充分的解釋。本人理解可能會出現的風險。本人是自願讓本校學生/教師參與這項研究。

本人理解本人及本校學生/教師皆有權在研究過程中提出問題,並在任何時候決定退出研究, 更不會因此而對研究工作產生的影響負有任何責任 。

簽署 _____ 教授 博士 先生 女士 小姐

校長 學校代表 姓名 _____

職位 _____

學校名稱 _____

日期 _____

請刪去不適用者

有關資料

誠邀 貴校參加劉怡虹博士負責監督,陶思思女士負責執行的研究計劃。她/他們是香港教育大學學生/教員。

本研究是一項追蹤研究，旨在探討兒童攻擊行為與父母行為的互反關係。來自 6 個幼兒園的約 200 名學前兒童和他們的父母將會參與此實驗。在此實驗中，貴幼兒園家長將會被邀請三次完成一份家長問卷（第一次與 2019 年 10 月，第二次與 2020 年 1 月，第三次與 2020 年 4 月）。每次完成問卷約需時 30 分鐘。同時，我們會到貴幼兒園與學生進行一次採訪活動，以評估其社交行為。每次採訪需時約 10 至 13 分鐘。在採訪之後，學生將會獲得一張卡卡通貼紙作為補償。是次研究的成果將會作為學位論文及學術論文發表，以及在學術會議中進行口頭演講。

貴校學生 家長的參與純屬自願性質。所有參加者皆享有充分的權利在研究開始前或後決定退出這項研究 更不會因此引致任何不良後果。凡有關 貴校學生 家長的資料將會保密 一切資料的編碼只有研究人員得悉。

如閣下想獲得更多有關這項研究的資料,請與陶小姐聯絡,電話[redacted]電郵[redacted],或聯絡她的導師劉博士,電話[redacted]

如閣下對這項研究的操守有任何意見,可隨時與香港教育大學人類實驗對象操守委員會聯絡(電郵:hrec@eduhk.hk;地址:香港教育大學研究與發展事務處)。

謝謝閣下有興趣參與這項研究。

陶思思
首席研究員