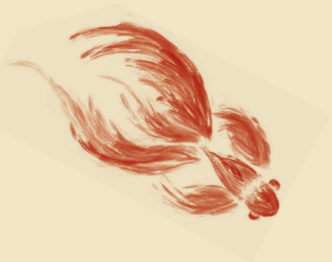
Early Parenting in China:

Associations and Interactions with Socialization Context, Child Self-Control, and Social Adjustment



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Chapter 1

General Introduction

"Mother is a verb. It's something you do. Not just who you are."
Cheryl Lacey Donovan (2009)

Whichever theoretical model is chosen, parenting behaviors represent the most powerful, straightforward, and prolonged influences on child development. Being the most important caregiver in the first few years of a child's life, mothers use parenting behaviors to construct the niche for the early development of social adjustment (Chen, Fu, & Yiu, 2019; Super & Harkness, 1986). The processes by which maternal parenting behaviors sculpt child social adjustment are, by and large, context-specific (Bornstein, 2012; Chen, 2018; Lansford et al., 2018) and individual-dependent (Belsky, Bakermans-Kranenburg, & van IJzendoorn, 2007; Sameroff, 1983; Thomas & Chess, 1977).

First, maternal parenting behaviors and child social adjustment are incubated in the specific social, political, and cultural context, namely the developmental milieu of families. To fully understand the associations between these two constructs, the influences of contextual factors in the macrosystems and exosystems of families need to be considered (Bronfenbrenner, 2005; Super & Harkness, 2002). Just imagine that there are two mothers. One is a Dutch mother. She grows up and gets educated in a Western, rich, democratic society where personal autonomy and individualism are highlighted. She now works only part-time and has the financial support from the government for raising her two children. Another is a Chinese mother. She grows up in rural areas of China and gets educated in an Eastern, Confucianism-prescribed, collectivistic society that highlights family hierarchy and filial piety. She now lives in a city, works overtime to cover family expenses, and has to live together with her parents-in-law who are the main caretakers of the only child in the family. Taking this example, one may wonder how apparent disparities between different sociocultural groups in family policies, lifestyles, and stress levels owing to the role as a parent are linked with maternal parenting behaviors, and further, how these disparities may sculpt child social adjustment in potentially different manners.

Second, the predictive power of parenting behaviors for child social adjustment lies in, not only the singular direct effect of mothers, but also the interaction effect of parenting with a child's dispositional characteristics (Chess & Thomas, 1999; Slagt, Dubas, Deković, & van Aken, 2016a). For this point, imagine that there are two pairs of mother-child dyads. In the first dyad, the child is able to voluntarily regulate

cognitions and behaviors, and the mother grants him or her initiative-taking and independent decision-making. As a result, the child views himself or herself as a competent social partner acknowledged by the mother, and thus is willing to improve the proficiencies of self-control skills and to endorse maternal rules. In another dyad, the child still struggles to control impulsivity and temper, and the mother similarly encourages him or her to freely explore desired behaviors without setting necessary limits. In the long run, the child finds that improving self-control is less self-relevant and socially not required, and thus still behaves impulsively. Accordingly, one might wonder what combinations between maternal parenting behaviors and child characteristics predict optimal development in a progressive direction and what combinations, in contrast, lead to suboptimal psychological functioning.

Embracing the perspectives that multiple contextual factors are associated with maternal parenting behaviors and that the predictions of maternal parenting behaviors to child social adjustment are different depending on child characteristics, the present dissertation is focused on describing, examining, and confirming these developmental processes in the Chinese cultural context. The dissertation has two parts encompassing three unique but interconnected aims. The first part focuses on *parenting behaviors in cultural contexts*. One aim of this part is to measure and describe comprehensively how contemporary urban Chinese mothers use parenting behaviors with young children (**chapter 2**). Another aim of this part is to analyze similarities and differences between Chinese mothers and Dutch mothers with young children in parenting behaviors (**chapter 3**). The second part focuses on *parenting-by-temperament processes predicting child social adjustment*. The aim of this part is to investigate thoroughly how specific dimensions of parenting behaviors (i.e., parenting behaviors that grant or hinder a child's autonomy and independence) combine with specific child temperamental characteristics (i.e., self-control in the cognitive and behavioral domains) to forecast Chinese children's social adjustment across early and middle childhood (**chapters 4, 5, and 6**). Findings from this latter line of research (**chapters 4, 5, and 6**) denote the goodness-of-fit perspective on the interaction effects of parenting and individual characteristics, which are further assembled in a synopsized review (**chapter 7**).

Chinese Cultural Context of Socialization

The chapters of this dissertation focus on maternal parenting behaviors in families

residing in urban areas of mainland China. These parenting behaviors are best characterized as "a combination of traditional Chinese and Western ideologies and practices" (Way et al., 2013, p. 62; see also Lin, Huang, & Wang, 2015, p. 60). Historically, diverse ideologies have molded traditional Chinese culture (e.g., Confucianism, Taoism, Mohism, Legalism, and Buddhism) with Confucianism exerting the most pervasive influences on the social structure and interpersonal relationships in China throughout history (Lin et al., 2015).

The profound impact of Confucian principles can still be seen in contemporary Chinese families in terms of parental expectations for a socially mature and well-adjusted child. Socialization goals of Confucianism, including acquiring knowledge (Zhī), abiding by social norms (Lǐ), showing modesty (Qiān), knowing when one should feel shame (Chǐ), exhibiting self-restraint in emotions and behaviors (Yuē), displaying filial piety toward parents (Xiào), and pursuing social harmony (Hé), continuously guide whether and how often Chinese mothers use certain parenting behaviors in early childhood (Luo, Tamis-LeMonda, & Song, 2013). For instance, an expectation for child self-restraint and filial piety (Chen et al., 2003) and a belief that parents have responsibilities to govern children's development and instill these values in the child (Chao, 1994; 2000) may lead Chinese mothers to train, in a controlling manner, the child to comply with rules and respect parental authority from an early age (Chao, 2000; Yau, Smetana, & Metzger, 2009).

Childrearing ideologies and practices of Chinese mothers, however, have also been undergoing considerable shifts because of the unprecedented social, political, and economic changes during the past 40 years in mainland China. The first series of changes, owing to the adoption of "Reform and Open-up" policy from 1978, encompass a transition from an agrarian, government-planned to a market economy (Cai, 2018; Lin et al., 2015), burgeoning exposure to Western, individualistic ideologies and lifestyles (Chen, Bian, Xin, Wang, & Silbereisen, 2010), and dramatic urbanization as well as massive domestic migration from rural to urban areas (Chen & Li, 2012; Chen, Wang, & Wang, 2009). These changes brought about novel notions for child qualities that are favorable and adaptive in this new developmental milieu. Qualities often highlighted by parents from Western cultures, such as self-confidence, initiative-taking, independent decision-making, and socioemotional well-being, are now entering the childrearing beliefs of Chinese mothers (Way et al., 2013). This is because these qualities presumably meet heightened competition and life pressure in the society

nowadays.

Moreover, the "one-child" policy that began in 1980 and lasted almost 40 years has created a generation of only children (many of whom are parents themselves now), especially in urban areas of China (Falbo & Hooper, 2015). Albeit being updated to the "two-child" version in 2016 and the "three-child" version most recently in 2021, the "one-child" policy has given rise to profound and fundamental changes in family structures and population compositions in contemporary China's society. The "4-2-1" family (four grandparents, two parents, and a single child; Zhang et al., 2019), or the situation in which three generations reside together in one household especially when the child is young (before age of six), has become more and more prevalent (Goh & Kuczynski, 2010). In such families, grandparents actively engage in taking care of the child whereas parents are breadwinners who need to work long hours and have little time for their child (Goh & Kuczynski, 2010). In response to the reality of intergenerational coparenting, Chinese mothers need to flexibly adjust their expectations and practices according to the socialization efforts of grandparents (Goh & Kuczynski, 2010).

The fact that there is only one child and this child (a member of Generation Alpha who was born after 2010 and intensively accesses to the Internet and social media; McCrindle & Fell, 2021) will grow up in a globalized, interconnected, materially endowed, and technologies-driven world, which is much different from the old one, causes education dilemmas for contemporary Chinese mothers (Fong, 2007). On the one hand, they want to be lenient and indulgent toward their child. They financially invest in materials and activities (Falbo & Hooper, 2015), express the intention to protect the colorful childhood of their child (Ren & Edwards, 2016), and adopt child-centered practices to establish closer mother-child relationships (Liu & Jiang, 2021). On the other hand, these mothers still have to be strict and authoritarian in some developmental domains. They hold high expectations for educational achievements (Li, Shi, Wu, & Li, 2020), seriously worry about the academic failures of their child (Wei, Sze, Ng, & Pomerantz, 2020), and use harsh discipline to correct child misbehaviors (Wang & Liu, 2014).

In all, the foregoing aspects of sociocultural backgrounds make contemporary urban Chinese mothers an interesting group with valuable and useful information for studying the antecedents and outcomes of early parenting behaviors as well as the processes through which parenting behaviors carve child outcomes. The extant

evidence on these topics has been drawn from the WEIRD (Western, Educated, Industrialized, Rich, and Democratic) samples (Henrich, Heine, & Norenzayan, 2010; Nielson, Haun, Kärtner, & Legare, 2017) and the scientific "common sense (e.g., descriptive features and relevant theoretical models)" of early parenting behaviors are mostly scrutinized from WEIRD families. Chinese mothers with young children are one of the largest groups of the non-WEIRD population (UNDESA, 2019). Describing the characteristics of parenting behaviors in Chinese mothers and examining the developmental processes by which specific parenting behaviors are related to Chinese children's development, the current dissertation bears promise for making two contributions to knowledge. First, the findings of this dissertation may demonstrate why families from various sociocultural contexts have different (and similar) styles of parenting. Second, the findings of this dissertation may pinpoint whether the theoretical model involving parenting behaviors is valid for explaining the developmental phenomena of children from non-WEIRD families.

Specifically, the focus of the dissertation is on parenting behaviors in early childhood (before 5 years of the child's age). This is because less research attention has been paid to Chinese parenting behaviors in this developmental stage, especially during infancy and toddlerhood. Much more studies on parenting behaviors can be found for school-aged Chinese children and adolescents as it is more convenient to recruit research samples from schools and these participants can themselves provide reports on their parents' parenting behaviors. On top of the scarceness of empirical evidence, early childhood parenting behaviors also deserve a special focus because, first, the maturation of the child's brain functions is evident in early childhood which progress depends on the inputs of parenting behaviors (Richmond et al., 2019), and second, before entering schools, family constitutes the most important social environment for the child wherein parenting behaviors directly construct the experiences of the child and foretell the child's later skills and adjustment in a variety of domains (e.g., Landry, Smith, & Swank, 2003).

Parenting Behaviors of Contemporary Chinese Mothers with Young Children

To understand the characteristics of parenting behaviors in contemporary Chinese mothers with young children, it is important to develop an assessment tool that enables researchers to measure and describe early parenting behaviors validly and accurately.

Thus far there is no unanimous agreement over a single, comprehensive theory of parenting, although most scholars agree that parenting is a multi-dimensional construct (O'Connor, 2002). The first part of this dissertation (**chapters 2 and 3**) investigates the utility of the Comprehensive Early Childhood Parenting Questionnaire (CECPAQ; Verhoeven, Deković, Bodden, & van Baar, 2017) to measure early parenting behaviors of Chinese mothers. The CECPAQ has several advantages compared to other existing measures.

One advantage is its comprehensiveness while still being reasonable in length. The CECPAQ contains thirteen dimensions of parenting behaviors, more than any existing measures of Chinese parenting behaviors. This advantage warrants that a relatively complete, as opposed to piecemeal, image of how contemporary Chinese mothers use parenting behaviors can be described. Another advantage is that the CECPAQ focuses purely on parenting behaviors and purposefully excludes conceptually confounded items that may tap parental cognitions such as the appraised importance of certain parenting behaviors (Verhoeven et al., 2017). This ensures an accurate estimation of individual differences in parenting behaviors only. The third advantage is the inclusion of parenting behaviors that have been proven to be important for early childhood development across cultures. The parenting dimensions in the CECPAQ are not drawn from culturally specific socialization efforts but represent parental socializations widely used to nurture children's cognitive, emotional, and behavioral competencies (or to correct misbehaviors). The specificities of Chinese parenting behaviors (e.g., the frequencies thereof) can be pinpointed by comparing Chinese mothers and mothers from other cultures on these parenting behaviors.

Given these advantages, the CECPAQ serves as the ultimate tool to examine the first two aims of the dissertation. First, this questionnaire was used to measure and describe how Chinese mothers use a broad spectrum of parenting behaviors with young children. To clarify the possible sources of within-group variations in parenting behaviors, maternal correlates, such as education levels, and child correlates, such as children's ages, are investigated as predictors of these parenting behaviors. Second, this questionnaire was used to illustrate the similarities and differences between Chinese mothers and mothers from other cultures (i.e., Dutch mothers) in these early parenting behaviors, taking into account the impacts of the sociopolitical contexts (e.g., only-child statuses) and psychological contexts (e.g., parenting stress levels) between different groups of mothers.

Processes of Parenting Behaviors in Influencing Chinese Children's Social Adjustment

Built on the cornerstone of the first part of the dissertation which uses a self-report parenting questionnaire to comprehensively depict the descriptive features of parenting behaviors in contemporary Chinese mothers, the present dissertation further dives into the functions of specific maternal parenting behaviors that are assessed by observations. This second part of the dissertation aims at delineating the processes through which these parenting behaviors sculpt child development over time.

Undoubtedly, parenting behaviors are directly associated with children's differences in many developmental outcomes and in many cases, such associations are bidirectional (Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000). Researchers have also evinced that the predictions of parenting behaviors to child outcomes are somehow distinctive for children who differ in temperamental characteristics, indicating that interaction effects between parenting behaviors and child temperament are meaningful for explaining children's variations in development (Collins et al., 2000; Kiff, Lengua, & Zalewski, 2011). In the recent decades, theories and models have been proposed to guide the examination of these interaction effects and supportive evidence has been found, especially for the predictability of such interactions for the development of child social adjustment (Belsky, 1997; Boyce & Ellis, 2005; Gallagher, 2002; Pluess & Belsky, 2013; Thomas & Chess, 1977). Yet this line of research remains limited for Chinese children and their social adjustment (Chen, 2018) and this dearth of research should be addressed.

Accordingly, the following issues are discussed to provide bases for the series of studies included in the dissertation that address this research gap: (1) what theoretical models have been proposed to characterize parenting-by-temperament interactions, (2) which specific dimensions of parenting behaviors are developmentally relevant in early childhood, (3) what moderation roles are played by specific temperamental traits in such interactions, and (4) which indicators of child social adjustment are examined.

1. Theoretical Models that Characterize Socialization-by-Temperament Interactions

Parenting-by-temperament interactions can be characterized by four theoretical models, including the goodness-of-fit model (which parenting behavior is beneficial or detrimental for child development depends on children's levels of characteristics;

Thomas & Chess, 1977), the diathesis-stress model (vulnerable children are hindered more by stressful environments than are resilient children; Sameroff, 1983; Zuckerman, 1999), the differential-susceptibility model (susceptible children do better in positive environment but worse in negative ones relative to non-susceptible children; Belsky, 1997; Belsky et al., 2007), and the vantage-sensitivity model (sensitive children benefit more from supportive environments than resistant children; Pluess & Belsky, 2013). Specifically, the latter three models have relatively well-defined patterns of interactions whereas to date, the goodness-of-fit model lacks a clear operationalization as to which pattern of parenting-by-temperament interactions would support the goodness-of-fit hypotheses (Newland & Crnic, 2017; Slagt et al., 2016a).

After a review of literature, only a handful of studies were found that tested these models in the Chinese cultural context of early socialization, including Chen et al. (2014), Liang et al. (2019), Liu, Zhou, Dong, Wang, and Hao (2019), Ren, Zhang, Yang, and Song (2018), Ren, Zhang, Zhou, and Ng (2017), Wang and Wang (2019), Xing, Zhou, Archer, Yue, and Wang (2016). Most of these studies, however, have been cross-sectional, which (1) leads to an ambiguous order of events (i.e., either parenting or child temperament could be a moderator), and (2) compromises in the ability to determine which model is supported as in such cases parenting behaviors might simply reflect maternal passive reactions to child temperament. Moreover, most of the studies have relied exclusively on maternal reports on parenting behaviors and child social adjustment outcomes (e.g., Wang & Wang, 2019), making common method biases an obvious problem. Additionally, a general parenting dimension (e.g., the aversive parenting dimension; Ren et al., 2017) is used in several studies, which, usually, is roughly composed of items belonging to different behavioral domains. This limits a precise examination of the functions of specific parenting behaviors in the interaction effects with child temperament. The research in this dissertation addresses these issues by using longitudinal, observational data on specific dimensions of parenting behaviors to examine which theoretical model of parenting-by-temperament interactions is supported.

2. Maternal Respect for Autonomy and Negative Control as Socialization Contexts

With respect to which (early childhood) parenting behavior is important for child social adjustment, maternal behaviors related to child autonomy (i.e., independent actions to control and realize mental states such as wishes, intentions, and preferences;

Keller, 2012) are promising candidates. In toddlerhood and the preschool years, the role of autonomy becomes central, and toddlers gradually ask for more autonomy in their relationships with mothers (Côté-Lecaldare, Joussemet, & Dufour, 2016). At this age, mothers need to balance the use of two parenting behaviors: respect for autonomy and (negative) control. For one, they need to show respect to children's thriving for autonomy by encouraging child initiatives, providing choices, and explaining her demands (Matte-Gagné, Harvey, Stack, & Serbin, 2015) in order to facilitate healthy development. For another, they also need to maintain their authority, correct children's misbehaviors, and instill important rules. When these controlling behaviors are exercised in a negative way such as commanding, threatening, criticism, and physical force (Laurin & Joussemet, 2017), they can lead to the emergence of psychosocial problems.

The norms of using respect for autonomy and negative control, however, are culturally specific. Such norms are said to be partly determined by socialization goals that mothers in each sociocultural group hold (Chen, 2012; Kagitcibasi, 2017; Keller, 2012; Tamis-LeMonda et al., 2008). In her synthesis, Keller (2012; pp 14-16) suggests that for non-Western, middle-class families such as urban Chinese families, "a child who is socialized toward communal autonomy does not make a distinction between his or her own aspirations and the expectations of the family…Individual psychological autonomy may also be supported…At the same time, these families value relational responsibilities embodying hierarchy, conformity, and respect in the family system."

In accordance with these expectations, urban Chinese mothers allow children's expressions of independence and encourage children to take initiative but still use negative control to assert parental authority (Chen & Chen, 2010). However, no consensus has been reached on the associations between maternal respect for autonomy or negative control and child social adjustment. Preliminary evidence implies that respect for autonomy is not related to child social adjustment (Liu, Chen, Zheng, Chen, & Wang, 2009) and negative control predicts suboptimal social adjustment (Liu & Wang, 2015a; Xing & Wang, 2017). How these associations are potentially moderated by child temperamental traits has not been systematically investigated up to now.

3. Child Self-Control as the Moderator in Parenting-by-Temperament Interactions

To understand whether and how child temperamental traits moderate the

longitudinal associations between maternal respect for autonomy or negative control and child social adjustment, it is necessary to first return to theories of temperament. Temperament is defined as constitutionally based individual differences in reactivity (i.e., responses to change in the external and internal environment) and self-regulation or self-control (i.e., processes that serve to modulate reactivity) in the domains of affect, behavior, and attention (Rothbart, Sheese, Rueda, & Posner, 2011). When it comes to the moderating roles of temperament, children who differ in reactivity display varying levels of emotional, orienting, and motor reactions (Rothbart et al., 2011) and tend to react differently when encountering the same parenting behaviors (e.g., Leerkes, Blankson, & O'Brien, 2009). A growing consensus has been achieved that young children with high levels of reactivity benefit more from supportive parenting and are hampered more by aversive parenting, compared with their peers with low levels of reactivity (Slagt et al., 2016a), including Chinese children (e.g., Ren et al., 2017; Xing et al., 2016).

Children also vary in their abilities to voluntarily control their cognitions and behaviors (hereinafter called "self-control") and to recover from emotional and physiological arousals (Rothbart et al., 2011). However, whether children with varying levels of self-control react differently to the same parenting behaviors remains less clear. In a meta-analytic review, Slagt et al. (2016a) found that self-control did not consistently moderate associations between parenting and child social adjustment across studies and the pattern of interaction effects with self-control did not support the diathesis-stress, differential-susceptibility, or vantage-sensitivity models. This inconsistency has also been shown in Chinese studies. Specifically, while Liu et al. (2019) found that children with low levels of self-control were more responsive to maternal negative expressiveness compared to their counterparts with high levels of self-control, Ren et al. (2018) observed an opposite pattern of moderation, showing that children with high levels of self-control were more responsive to paternal supportive parenting than were their peers with low levels of self-control.

The incongruent moderating roles of self-control engender an intriguing question. Which theoretical models can characterize the interaction effects of parenting behaviors with child self-control? The model that was not tested in the Slagt et al. (2016a) review—the goodness-of-fit model—has become a competitive candidate. To answer this question, the research in this dissertation examined how the combinations of maternal respect for autonomy or negative control with child self-control forecast

social adjustment of Chinese children throughout early and middle childhood. A special focus is put on the efficacy of the goodness-of-fit theory to explain these interaction effects possibly found.

4. Indicators of Child Social Adjustment

Lastly, this dissertation examines Chinese children's social adjustment in the preschool and early school years and its associations with parenting behaviors, child self-control, and the interactions between parenting and child self-control. Social adjustment mainly concerns the extent to which children engage in adaptive, competent social behavior (positive indicators) and the extent to which children inhibit aversive, incompetent behavior (negative indicators) (Crick & Dodge, 1994). Given this definition, it is important to include these two sides of social adjustment so as to obtain an outright impression of the developmental relevance of parenting behaviors and child self-control to social adjustment.

In this dissertation, the positive indicator of social adjustment is child internalization of rules. Internalization of rules refers to the process of taking in values and standards of conduct as one's own (Kochanska & Aksan, 2006). Internalization of rules is socially adaptive, as it warrants young children behaving appropriately in various social environments. The negative indicators are child externalizing behaviors and internalizing behaviors, with an emphasis put on externalizing behaviors. When children are less proficient in internalizing external rules, they might show externalizing behaviors such as breaking rules or being aggressive towards others (Kochanska, Kim, & Boldt, 2015). Internalization of rules and externalizing behaviors are thus conceptually connected. In the dissertation, diverse methods are used to measure child social adjustment, with internalization of rules being mainly assessed by standardized observational tasks and externalizing behaviors by parental reports.

Study Design and Samples

The present dissertation consists of five chapters of empirical studies (**chapters 2-6**) and one chapter of a theoretical review (**chapter 7**). The samples in the empirical studies are described below, and the age range of children in each sample is summarized in Figure 1.

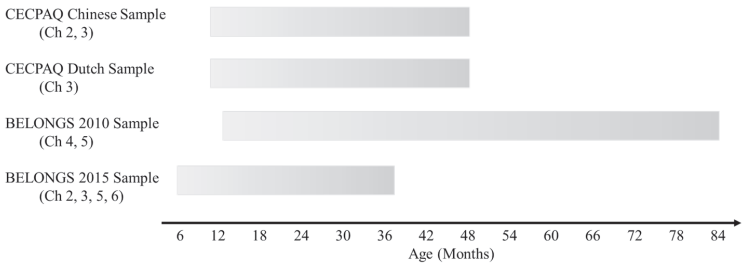

Figure 1. Age ranges of children from the included samples.

Sample 1: CECPAQ Chinese Sample

For **chapters 2 and 3**, participants were 2,179 Chinese mothers with children aged between 1 and 4 years (51% girls, $M_{\text{child age}}$ = 23.27 ± 4.56 months, range = 11.24–52.60 months) from the CECPAQ Chinese sample. These participants were recruited from the maternity and well-baby clinics of a regional hospital in Beijing, China for a study of early parenting and child development. The sample was mainly composed of highly educated, middle-class Chinese mothers with approximately 90% of them having completed college or postgraduation education. Maternal mean age was 34.24 ± 8.49 years. This cross-sectional community sample was used for screening young children at risk of developing externalizing behaviors who were targeted by a follow-up intervention program. Initially, a battery of questionnaires was distributed to the mothers, and they filled in these questionnaires while in a waiting room at the hospital. Mothers reported parenting behaviors on a Chinese version of the CECPAQ (CECPAQ-CV). Demographic variables were collected including maternal ages, education levels, and monthly income as well as children's ages and the only-child statuses. In addition, mothers rated child externalizing behaviors and internalizing behaviors.

Sample 2: CECPAQ Dutch Sample

For **chapter 3**, another group of participants was 1,090 Dutch mothers with children aged between 1 and 4 years (50% girls, $M_{\text{child age}}$ = 26.63 ± 9.35 months, range = 12.03–48.49 months) from the original study where the CECPAQ was developed (Verhoeven et al., 2017). These participants were recruited from several daycares and preschools in the Netherlands. Approximately 62% of the mothers completed college or postgraduation education. Maternal mean age was 33.67 ± 4.38 years. A recruitment letter was sent to targeted families and mothers were asked to complete and return the mailed questionnaires. Maternal parenting behaviors were assessed by the CECPAQ.

Demographic variables including maternal ages, education levels, weekly working hours, children's ages, and the only-child statuses were collected. Moreover, a subset of mothers (n = 216) rated their parenting stress levels. Another subsample (n = 175) reported child externalizing behaviors and internalizing behaviors.

Sample 3: BELONGS 2010 Sample

For **chapters 4 and 5**, participants were Chinese children and their families from the "BELONGS 2010" (Beijing Longitudinal Study 2010; Dong, Wang, Lu, Liang, & Xing, 2018), a 7-wave longitudinal, observational study that began in 2010 when children were 6 months old. The initial sample was recruited from maternity and well-baby clinics of Beijing regional hospitals or through distributing brochures in person around the university campus to families with infants aged between 3 and 5 months old. Due to attrition, some participants with similar ages and from similar backgrounds were recruited in later waves in addition to the initial sample. Maternal mean age was 32.70 ± 3.90 years when recruited. This sample of Chinese mothers were highly educated with approximately 95% having completed college or postgraduation education.

For **chapter 4**, participants were 95 children (56% girls) and their mothers who participated at least once during wave 3 ($M_{\text{child age}}$ = 14.09 ± 0.84 months), wave 4 ($M_{\text{child age}}$ = 24.80 ± 1.13 months), or wave 6 ($M_{\text{child age}}$ = 60.35 ± 0.72 months). For parenting behaviors, maternal respect for autonomy and negative control were coded from free-play tasks at waves 3 and 4. Each parenting behavior was combined across these two waves. For indicators of self-control, committed compliance was coded from a cleanup task at wave 4. For positive indicators of social adjustment, internalization of maternal rules was observed from a cleanup task without adult's surveillance (i.e., internalized cleanup task) at wave 6, and internalization of experimenter's rules was observed from a cheating game task at wave 6. For negative indicators of social adjustment, mothers reported on child externalizing behaviors at wave 6.

For **chapter 5**, participants were 88 children (59% girls) and their mothers who participated at least once during wave 5 ($M_{\text{child age}}$ = 37.81 ± 1.03 months), wave 6 ($M_{\text{child age}}$ = 60.32 ± 0.74 months), or wave 7 ($M_{\text{child age}}$ = 83.58 ± 2.12 months). For parenting behaviors, maternal respect for autonomy and negative control were coded from free-play tasks at wave 5. For indicators of child self-control, cool effortful control was assessed by a computerized Stroop-like inhibition task at wave 6 and hot effortful control was assessed by a delay-of-gratification task at wave 6. For positive indicators

of social adjustment, internalization of maternal rules was observed from internalized cleanup tasks at waves 6 and 7; internalization of experimenter's rules was assessed by cheating game tasks at waves 6 and 7; and mothers reported child internalization in everyday life at waves 6 and 7. These indicators of childhood internalization were aggregated into one composite.

Sample 4: BELONGS 2015 sample

For **chapters 2, 3, 5, and 6**, participants include Chinese children and their families from the "BELONGS 2015" (Beijing Longitudinal Study 2015; Liu et al., 2019), an ongoing project that began in 2015 when infants were 6 months old. The initial sample was recruited from several maternity and well-baby clinics of regional hospitals in Beijing or through signing up on the project website. Due to attrition, some participants with similar ages and from similar backgrounds were recruited in later waves in addition to the initial sample. Maternal mean age was 32.11 ± 4.23 years when recruited. This sample of Chinese mothers were highly educated with approximately 90% having completed college or postgraduation education.

For **chapters 2 and 3**, participants were 160 mothers who participated at wave 4 when their children were approximately 3 years old (49% girls, $M_{\text{child age}}$ = 37.25 ± 1.37 months, range = 34.65–50.56 months). The mothers completed a battery of questionnaires at home and brought them back during the laboratory visit. Similar to the mothers in the CECPAQ Chinese sample, these mothers from the BELONGS 2015 reported on demographic variables including maternal ages, education levels, monthly income, children's ages, and the only-child statuses as well as parenting behaviors in the CECPAQ-CV and child externalizing behaviors and internalizing behaviors. Specifically for these mothers from the BELONGS 2015, weekly working hours, parenting stress, and disciplinary behaviors including non-violent discipline, psychological aggression, and corporal punishment were also reported.

For **chapter 5**, participants were 226 children (49% girls) and their mothers who participated at least once during wave 2 ($M_{\text{child age}}$ = 14.60 ± 0.56 months), wave 3 ($M_{\text{child age}}$ = 24.78 ± 2.35 months), or wave 4 ($M_{\text{child age}}$ = 37.28 ± 1.31 months). For parenting behaviors, maternal respect for autonomy and negative control were coded from free-play tasks at wave 2. For indicators of child self-control, cool effortful control was observed in a Stroop-like inhibition task at wave 3 and hot effortful control was assessed by the externally imposed delay task at wave 3. For positive indicators of social adjustment, internalization of maternal rules was observed from an internalized

cleanup task at wave 4.

For **chapter 6**, participants were 272 children (48% girls) and their mothers who participated at least once during wave 1 ($M_{\text{child age}}$ = 6.27 ± 0.36 months), wave 2 ($M_{\text{child age}}$ = 14.61 ± 0.57 months), wave 3 ($M_{\text{child age}}$ = 24.77 ± 2.35 months), or wave 4 ($M_{\text{child age}}$ = 37.28 ± 1.30 months). For parental expectations, mothers reported on their socialization goals of child autonomy and obedience at wave 1. For parenting behaviors, maternal respect for autonomy and negative control were coded from free-play tasks at wave 2 using two different coding schemes. For indicators of child self-control, mothers rated child compliance and inhibitory control using questionnaires at wave 3. For negative indicators of social adjustment, mothers reported on child externalizing behaviors at wave 4.

Outline of This Dissertation

Figure 2 provides a schematic overview of the associations and concepts that are examined in each chapter.

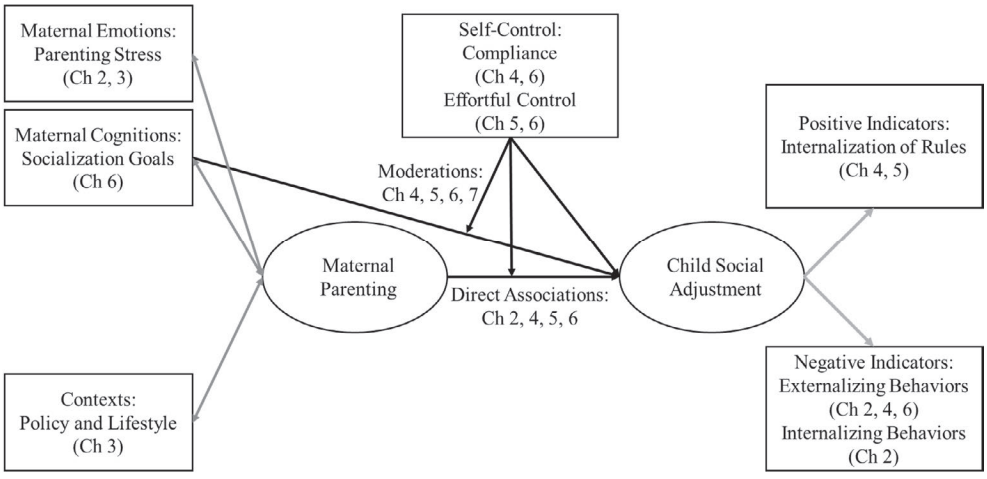

Figure 2. Overview of associations and concepts tested per chapter.

Chapter 2 addresses the need for an adequate and comprehensive Chinese assessment tool for parenting behaviors in early childhood. The focus is on examining the factor structure, reliability, and validity of the CECPAQ-CV to determine its utility with Chinese parents with young children. Moreover, the associations between

parenting behaviors and demographic variables (i.e., maternal ages, education levels, and monthly income as well as children's ages) are examined to describe how contemporary urban Chinese mothers with different demographic characteristics use these parenting behaviors with young children.

Next, **chapter 3** builds on the within-group findings of chapter 2 and studies similarities and differences in parenting behaviors between Chinese mothers and Dutch mothers with 1- to 4-year-olds. It further examines to what extent cultural variations in parenting stress, proportions of only children, and maternal working time explain between-group differences in the parenting behaviors in the CECPAQ.

In **chapter 4**, the focus moves on to the functions of specific parenting behaviors for contemporary urban Chinese mothers—the associations between maternal respect for autonomy and negative control, on the one hand, and how they link to child social adjustment, on the other hand. This chapter reveals how these two parenting behaviors in toddlerhood predict child internalization of rules and externalizing behaviors at the preschool years and how these predictions are moderated by child committed compliance during toddlerhood.

Chapter 5 examines the interaction effects of Chinese mothers' respect for autonomy and negative control with child effortful control on internalization of rules. Two studies with a comparable research design (drawn from BELONGS 2010 and BELONGS 2015) are reported together to examine the moderating roles of cool and hot effortful control and the direct and interactive predictions of these two parenting behaviors to child internalization of rules across early and middle childhood.

In **chapter 6**, the two aspects of the goodness-of-fit theory—the behaviors matching and the expectation-behavior matching—are investigated. For the behaviors matching approach, by comparing maternal respect for autonomy and negative control each measured by two different coding schemes and using maternal reports on child compliance and inhibitory control, this chapter attempts to replicate the moderating roles found in chapters 4 and 5 of these two indicators of child self-control in the longitudinal associations between these two maternal parenting behaviors and child externalizing behaviors. For the expectation-behavior matching approach, this chapter further examines how the longitudinal associations between Chinese mothers' socialization goals of child autonomy and obedience and child externalizing behaviors are moderated by child compliance and inhibitory control.

Chapter 7 aims at refining the goodness-of-fit theory and clarifying how to test

the goodness-of-fit hypotheses. This synopsis summarizes the findings from chapters 4, 5, and 6 and the existing literature, and provides a novel perspective on which pattern of socialization-by-temperament interactions best characterizes the goodness-of-fit conceptualization.

Finally, **chapter 8** compares and summarizes all the relevant findings across the six chapters above, discusses strengths and limitations of the series of the empirical studies in the dissertation, and points out future directions for research and implications for practices.

Part 1

Parenting Behaviors in Cultural Contexts

2

Chapter 2

Chinese Version of Comprehensive Early Childhood Parenting Questionnaire (CECPAQ-CV): Factor Structure, Reliability and Validity

Author Note:

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Author Contributions:

S. Dong conceptualized the research question, and J.S. Dubas and M. Deković gave advice and feedback. Z. Wang coordinated the data collection. S. Dong analyzed the data and wrote the manuscript. J.S. Dubas and M. Deković provided feedback on the analyses and manuscript. Z. Wang gave advice on the revision of the manuscript.

Abstract

Although the research interest in parenting behaviors of Chinese parents has increased during the past two decades, there remains a lack of an adequate and comprehensive Chinese assessment tool for these parenting behaviors in early childhood. Drawn from two samples of Chinese mothers with young children (i.e., 1- to 4-year-olds), this research addressed this gap by examining the factor structure, reliability, and validity of a Chinese version of the Comprehensive Early Childhood Parenting Questionnaire (CECPAQ-CV). Confirmatory factor analyses showed that a 5-factor model, consisting of 13 micro-dimensions of parenting behaviors, best fitted the data for Sample 1 (N_1 = 2,179) compared with 1-factor, 2-factor, and 4-factor models. This 5-factor model was further validated with the data for Sample 2 (N_2 = 160). Reliability was good. The criterion validity of the CECPAQ-CV was supported by expected relations with maternal parenting stress and child externalizing and internalizing behaviors. The convergent and discriminant validity of the CECPAQ-CV was established with the Parent-Child Conflict Tactics Scale. The results indicate that the CECPAC-CV holds promise as a reliable and valid tool to measure important dimensions of early parenting in China.

Keywords: parenting, CECPAQ, factor structure, Chinese parents, early childhood

Introduction

According to the Human Development Reports, China has the second largest population of children under the age of five (UNDP, 2019a). The majority of these 86 million young children are reared by their parents and their development is greatly dependent on what behaviors their parents use with them (Bornstein & Landsford, 2010). Our understanding of these parenting behaviors in China is still preliminary (Chen, Sun, & Yu, 2017; Li & Xie, 2017) and one of the attempts to advance this understanding is to provide researchers and educators with culturally validated assessments.

Over two decades ago, research on Chinese parenting was sparse. In few studies that were conducted, researchers found that Chinese parents were strict and controlling towards their child (Chao, 1994; Fung, 1999). The past twenty years have witnessed a growing number of studies on early Chinese parenting. In the main, contemporary Chinese parents show high warmth and acceptance and low hostility and negativity (e.g., Camras, Kolmodin, & Chen, 2008; Chen et al., 2017; Xing & Wang, 2017). Yet the use of harsh discipline has also been recorded (Liu & Wang, 2015a). Increasingly abundant self-reported measures have helped researchers reveal this pattern of parenting among Chinese parents (Table 1 lists the six most frequently used parenting questionnaires for mainland Chinese parents with young children). However, existing questionnaires used with Chinese samples still have several shortcomings, including focusing on only a limited number of parenting dimensions, mixing items measuring parental cognitions and parenting behaviors, not being suitable for parents with infants and toddlers, and not being theoretically and culturally grounded. There remains a lack of an adequate and comprehensive Chinese assessment tool of parenting behaviors in early childhood. Therefore, the current study was designed to address this research gap.

There is no unanimous agreement over a single, comprehensive theory of parenting thus far, although most scholars agree that parenting is a multi-dimensional construct (O'Connor, 2002). Two seminal views of parenting exist: one focuses on within-parent similarities across individual parenting dimensions (a person-centered parenting styles approach; O'Connor, 2002) while another focuses on the specificity of individual parenting dimensions (a variable-centered parenting dimensions approach; Grusec & Davidov, 2010). The latter view has been progressively supported (Grusec & Davidov, 2010) and is said to be especially useful for examining parenting behaviors in

understudied population (e.g., Chinese parents; Bornstein, 2012). Moreover, dimensions can be and usually are used to identify parenting styles.

Based on the dimensions approach, different clusters of parenting dimensions have been found, including (a) one general dimension ranging from hostile, cold, and rejecting behaviors that hinder child development to supportive, warm, and accepting behaviors that promote child development (Russell, 1997); (b) two orthogonal dimensions denoted by warmth and control (e.g., Deater-Deckard et al., 2011), of which distinctive combinations also differentially influence child development (Maccoby & Martin, 1983); and (c) parenting dimensions universally relevant to child development and dimensions relatively culturally-specific (Grusec & Davidov, 2010). Of note, four parenting dimensions are considered universally crucial: *support* to alleviate child distress (attachment theory; Bowlby, 1969), *structure* to facilitate child cooperation (attachment theory; Bowlby, 1969), *stimulation* to scaffold child understanding (Vygotsky's theory; Holden, 2010), and *disciplinary strategies* to mitigate or assert hierarchy in the family (social learning theory; Bandura, 1977). This model by Grusec and Davidov (2010) is becoming influential in the field and has guided the development of novel parenting questionnaires.

The Comprehensive Early Childhood Parenting Questionnaire

To address the dearth of an adequate and comprehensive Chinese questionnaire of parenting behaviors in early childhood, we selected the Comprehensive Early Childhood Parenting Questionnaire (CECPAQ; Verhoeven, Deković, Bodden, & van Baar, 2017) and provided the first efficacy of using this tool with Chinese mothers to measure their early parenting behaviors. The CECPAQ, a 54 items questionnaire, was originally developed for Dutch parents with children aged between 1 and 4 years. During the initial development of the CECPAQ, five macro-dimensions of parenting (detailed below) were deduced which were based on attachment theory (Bowlby, 1969), Vygotsky's sociocultural theory of learning (Holden, 2010), and social learning theory (Bandura, 1977). Items from nine parenting scales (see Verhoeven et al., 2017 Appendix) were reviewed for their appropriateness of tapping the relevant parenting behaviors. These selected 54 items were evaluated by experts in consideration of their importance for child early development and their actual frequencies in everyday life. There are at least four reasons as to why the CECPAQ is a preferable alternative to the existing parenting questionnaires in China.

Table 1

Summary of Six Most Frequently Used Parenting Questionnaires for Mainland Chinese Parents with Young Children

Measure (Parenting Dimensions)	Authors (Year)	Child Age	Items†	Dimensions Used
Self-Expressiveness Within the Family Questionnaire (SEFQ):	Camras, Chen, Bakeman, Norris, & Cain (2006)‡	3 years		(a) (b)
	Camras, Kolmodin, & Chen (2008)	3 years		(a) (b)
(a) Positive expressiveness (23 items);	Cheng, Wang, Wu, & Su (2018b)	3-5 years		(b)
(b) Negative expressiveness (17 items).	Cheng, Wang, Zhao, & Wu (2018c)	3-5 years		(b)
	Hu, Wang, & Liu (2017)	3-5 years		(a) (b)
	Wu, Wang, & Liu (2017)	3-5 years		(a) (b)
	Liu, Zhou, Dong, Wang, & Hao (2019)	1.2 years	12	(a)
Parental Acceptance and Rejection Questionnaire (PARQ):	Xing & Wang (2017)‡	3-6 years		(c) (d)
	Chen (2020)	3.2 years		(c)
(c) Warmth (8 items);	Chen & Zhou (2019)	3.6-6.8 years		(c)
(d) Hostility (6 items).	Xing, Liu, & Wang (2019)	4 years		(c)
Parent-Child Conflict Tactics Scale (CTSPC):	Cui, Xue, Connolly, & Liu (2016)‡	3-5 years		(e) (g) (h)
(e) Corporal punishment (6 items);	Cheng, Wang, Wu, & Su (2018b)	3-5 years		(e) (h)
(f) Non-violent discipline (4 items);	Cui, Deatrick, & Liu (2018)	3-5 years		(g)
(g) Physical abuse (7 items);	Liu & Wang (2015a)	3-5 years		(h)
(h) Psychological aggression (5 items).	Liu & Wang (2015b)	3-6 years		(e) (h)
	Xing, Liu, & Wang (2019)	4 years		(e) (h)
	Xing & Wang (2017)	3-6 years		(e)
	Xing, Wang, & Wang (2018)	4 years		(e)
	Xing, Yin, & Wang (2019)	4.8 years		(e)
	Xing, Zhang, Shao, & Wang (2017)	4.1 years		(e) (h)
Child Rearing Practice Report (CRPR)	Chen et al. (1998)	2 years	91	Acceptance Rejection Encourage achievement Protection & concern

Table 1 (continued)

Measure (Parenting Dimensions)	Authors (Year)	Child Age	Items†	Dimensions Used
	Chen, Chen, Wang, & Liu (2002)	2 years	91	Warmth Induction / reasoning Power assertion
	Chen et al. (2014)	2 years	18	Supportive parenting Power assertion
Chinese Parenting Practices Measure (CPPM):	Wu et al. (2002)‡	5.2 years		(i) (j) (k) (l) (m)
(i) Encouragement of modesty (4 items);	Chen, Sun, & Yu (2017)	3-6 years		(i) (j) (k) (l) (m)
(j) Beliefs of maternal involvement (4 items);	Nelson et al. (2006)	4-6.8 years		(i) (k)
(k) Directiveness (3 items); (l) Shaming / love withdrawal (3 items); (m) Protection (3 items).			7	Shaming / psychological control
Parenting Styles and Dimensions Questionnaire (PSDQ):	Wu et al. (2002)‡	Preschool ages		(n) (o) (p) (q) (r) (s)
(n) Warmth / acceptance (7 items);	Chen, Sun, & Yu (2017)	3-6 years		(n) (o) (p) (q) (r) (s)
(o) Reasoning / induction (4 items);	Nelson et al. (2006)	4-6 years		(q)
(p) Democratic participation (4 items);	Nelson, Hart, Yang, Olsen, & Jin (2006)	3.8-6.3 years	8	(q) Psychological control
(q) Physical coercion (5 items); (r) Verbal hostility (3 items);	Porter et al. (2005)	4-6 years	60	(n) (o) (p) (s) Physical & verbal hostility
(s) Nonreasoning (3 items).	Ren & Edwards (2015)	3-5 years	49	(o) (p) (r) (s) Warmth & involvement Good nature / easy going Clear guidance Corporal punishment Directiveness Insecure guidance

Note. † Dimensions used in the study which have different numbers of items from the original version of the questionnaire.
‡ The study with the full range of parenting dimensions of the corresponding questionnaire that has been conducted the earliest.

First, as seen in Table 1, most measures tap a limited number of parenting dimensions. The Self-Expressiveness Within the Family Questionnaire (SEFQ, 40 items; Camras, Chen, Bakeman, Norris, & Cain, 2006) and Parental Acceptance and Rejection Questionnaire (PARQ, 14 items; Xing & Wang, 2017) tap only two parenting dimensions. Another four measures are also less comprehensive, focusing on only four (Parent-Child Conflict Tactics Scale, CTSPC, 22 items; Cui, Xue, Connolly, & Liu, 2016 and Child Rearing Practices Report, CRPR, 91 items; Chen et al., 1998), five (Chinese Parenting Practices Measure, CPPM, 18 items; Wu et al., 2002), or six dimensions (Parenting Styles and Dimensions Questionnaire, PSDQ, 26 items; Wu et al., 2002).

The CECPAQ, however, consists of five macro-dimensions (i.e., support, stimulation, structure, harsh discipline, and positively discipline) which taps thirteen micro-dimensions of parenting behaviors including sensitivity, responsiveness, affection, involvement in activities, exposure, using toys, consistency, overreactivity, laxness, verbal punishment, physical punishment, psychological control, and positive discipline. Obviously, the CECPAQ captures a wider range of parenting behaviors, which may have the potential to provide a more complete snapshot of parenting in early childhood. Of note, each of these five macro-dimensions of parenting has been found to be relevant to the development of young Chinese children (see Luo, Tamis-LeMonda, & Song, 2013 for a review). In general, support, stimulation, structure, and positive discipline are associated with higher social competence (e.g., Chen et al., 2014; Ren & Edwards, 2015), whereas harsh discipline is associated with more problem behaviors (e.g., Cui, Deatrick, & Liu, 2018; Xing, Wang, & Wang, 2018).

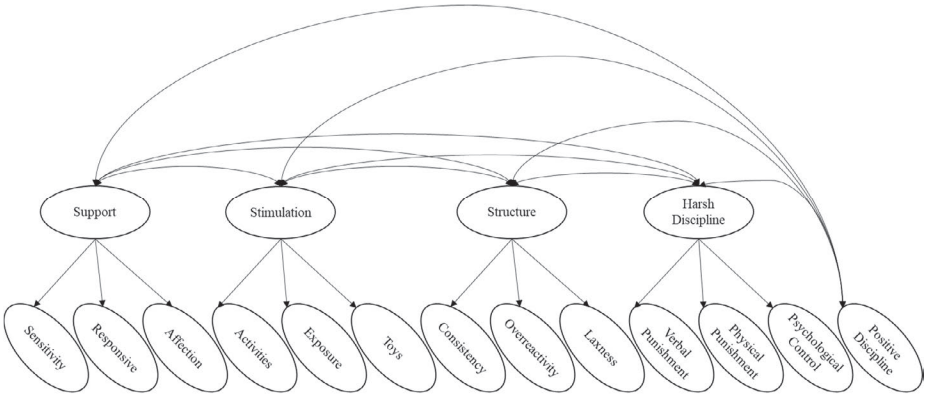
Second, some questionnaires are composed of scales measuring both parenting behaviors and parental cognitions (e.g., the CPPM measures encouragement of modesty and beliefs of maternal involvement). This phenomenon also occurs at the item level. For instance, among the items of maternal involvement in the CPPM, one is described as “A mother’s sole interest is in taking care of her children” while another is described as “Mothers express love by helping children to succeed in school”. This could be especially problematic as behaviors and cognitions are different aspects of parenting (Bornstein & Landsford, 2010) and it is difficult to draw a firm conclusion for the roles played by constructs measured with conceptually confounded items. In contrast, the CECPAQ focuses on parenting behaviors solely and the items are worded in such a way that parental cognitions are not confounded. As such, the CECPAQ has the potential to reveal relatively accurate, unconfounded associations between

parenting behaviors and child outcomes, which may, in turn, facilitate future interventions specifically targeting those parenting behaviors.

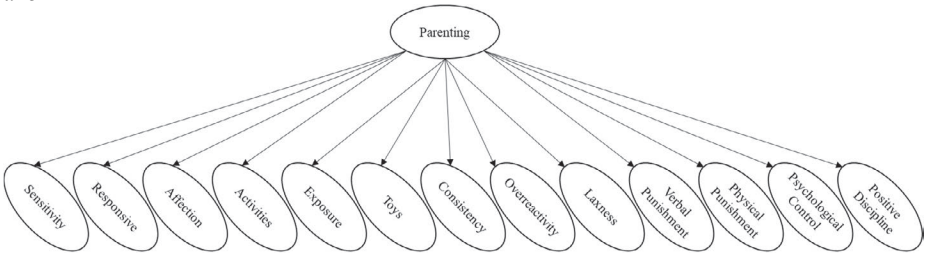
Third, with the exception of the CRPR (e.g., Chen et al., 1998), the questionnaires in Table 1 are only suitable for parents of preschool- or school-aged children. The CECPAQ was initially developed to tap into parenting behaviors important for child development during the first 4 years (Verhoeven et al., 2017). Therefore, the CECPAQ could fill the age gap in the literature on the parenting behaviors of Chinese parents with infants and toddlers.

Finally, questionnaires including CRPR and PSDQ were developed on the basis of the parenting styles approach that uses typologies established from WEIRD (Western, educated, industrial, rich, and democratic) populations (Nielsen, Haun, Kärtner, & Legare, 2017) to depict distinctive combinations of naturally occurring parenting behaviors (Maccoby & Martin, 1983). However, since mainland Chinese parents differ from WEIRD samples on developmental experiences, these prototypes of parenting do not necessarily generalize to Chinese parents (Li & Xie, 2017). Measures based on the styles approach may lead to questionable validity and, even worse, misleading interpretations of parenting (Chao, 1994; Li & Xie, 2017). A good example is the ill-established structure of the CRPR among Chinese studies, in which parenting dimensions are distinctively constructed using a different selection of items (see Table 1).

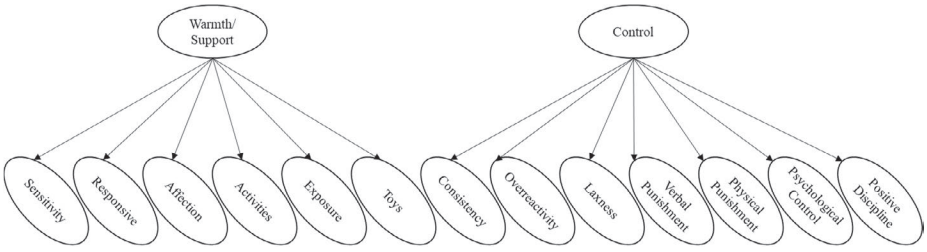
In contrast, the CECPAQ was developed based on the parenting dimensions approach, which describes parenting as multifaceted and situationally determined (Grusec & Davidov, 2010). This approach has been acknowledged for its appropriateness and empirical validity in capturing the specific functional meaning of parenting behaviors in understudied cultures (Bornstein, 2012). The developmental relevance of parenting dimensions included in the CECPAQ has been cross-culturally validated (e.g., Deater-Deckard et al., 2011; Huang et al., 2011; Mesman, van IJzendoorn, & Bakermans-Kranenburg, 2012) including among Chinese families (Luo et al., 2013). Therefore, the CECPAQ is more theoretically and culturally grounded compared with CRPR and PSDQ.



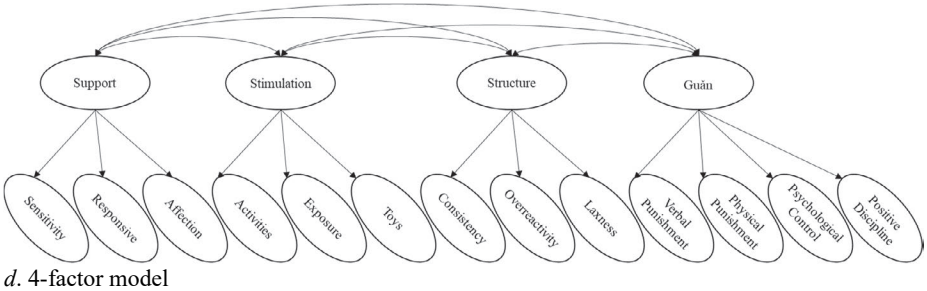
a. 5-factor model



b. 1-factor model



c. 2-factor model



d. 4-factor model

Figure 1. Factor structure models tested for the CECPAQ-CV.

The Present Study

Given the aforementioned strengths of the CECPAQ, the present study was designed to determine whether this measure could be reliably and validly used with Chinese parents with young children. Maternal reports on a Chinese version of the CECPAQ (CECPAQ-CV) were collected as mothers remain the primary caregiver of young children in China. Mothers have the most responsibility for childrearing and they offer affection, scaffolding, and guidance to facilitate child development (Barnard & Solchany, 2002). To this end, we aimed at examining the factor structure, reliability, and validity of the CECPAQ-CV with Chinese mothers.

For factor structure, we first conducted confirmatory factor analyses similar to those in the original study (Verhoeven et al., 2017). That is, we tested a 5-factor model (Figure 1a) with support, stimulation, structure, harsh discipline, and positive discipline built upon the 13 micro-dimensions of parenting behaviors against a 1-factor model in which parenting ranges from negative to positive (Figure 1b; Russell, 1997) and a 2-factor model (Figure 1c) with two orthogonal dimensions to organize all the parenting behaviors (Deater-Deckard et al., 2011): warmth/support (sensitivity, responsiveness, affection, involvement in activities, exposure, and using toys) and control (consistency, overreactivity, laxness, verbal punishment, physical punishment, psychological control, and positive discipline).

In addition, a 4-factor model (Figure 1d) unique in the Chinese culture was examined in this study which was derived from the concept of *Guǎn* (Chao, 1994; Li & Xie, 2017). Guǎn represents parental governance and control imbued with care and concern for a child (Chen et al., 2017), which could be manifested as positive and negative disciplinary strategies. This model also matches the proposed four universally important parenting dimensions in the Grusec and Davidov (2010) model. As a result, the macro-dimensions of support (sensitivity, responsiveness, affection), stimulation (using toys, involvement in activities, exposure), and structure (consistency, overreactivity, laxness) remain the same as those in the 5-factor model, while verbal punishment, physical punishment, psychological control, and positive discipline would load on the fourth macro-dimension of Guǎn. Of note, this research is mainly an exploratory one aimed at examining which factor structure of the CECPAQ-CV best fits the data for Chinese mothers. Therefore, we did not make a concrete hypothesis with respect to which model is more optimal.

After the factor structure was determined, the reliability and validity of the

CECPAQ-CV was then examined to determine its utility with Chinese mothers. The CECPAQ has excellent reliability in the original study, the Cronbach's α values ranging from .75 to .88 (Verhoeven et al., 2017). In the current study, we provided more information regarding the reliability of the CECPAQ-CV, including (1) the composite reliability, which is suitable when there are multiple micro-dimensions within a macro-dimension (Bentler, 2009) and acknowledges the possibility of heterogeneous item-construct relations (Geldhof, Preacher, & Zyphur, 2014); and (2) the mean inter-item correlations (MIC), which indicates unidimensionality of the measured parenting behaviors and is independent of scale length (Clark & Watson, 1995).

Our next step was to test the criterion, convergent, and discriminant validity of the CECPAQ-CV. Similar to the original study, the criterion validity was established with child problem behaviors and parenting stress. According to theories about the determinants of parenting (Abidin, 1992; Belsky, 1984), these two factors exert a direct influence on parenting behaviors. Child problem behaviors have been found to be negatively related to maternal support and structure and positively related to harsh discipline (e.g., Verhoeven et al., 2017; Xing & Wang, 2017). In the current study to estimate the criterion validity, we examined associations of the CECPAQ-CV with child externalizing and internalizing problems as assessed by the Chinese Version of Infant-Toddler Social and Emotional Assessment (CITSEA; Briggs-Gowan & Carter, 1998; Zhang et al., 2009). The CITSEA is a culturally-validated instrument for measuring child problem behaviors and social competence in the first three years of life, and has shown expected associations with positive (Chen et al., 2014) and negative (Liu, Zhou, Dong, Wang, & Hao, 2019) parenting behaviors of Chinese mothers.

Parenting stress has been consistently associated with lower maternal support (Chen, 2020; Xing & Wang, 2017) and structure (Verhoeven et al., 2017) and higher levels of harsh discipline (e.g., Liu & Wang, 2015a). As such we examined associations of the CECPAQ-CV with a Chinese version of the Parenting Stress Index-Short Form (PSI-SF; Abidin, 1995; Luo et al., 2021). The PSI-SF is a widely used tool tapping parental stressful reactions arising from the different demands of the parenting role. This 15-item Chinese version of the PSI-SF (PSI-SF-15) has shown expected associations with positive parenting and harsh discipline (Luo et al., 2021) guaranteeing a valid use with Chinese parents. Given the above empirical evidence for the CITSEA and the PSI-SF-15, they were selected as the criterion measures for the validity of the CECPAQ-CV. We expect negative associations with child problem

behaviors and parenting stress for parenting behaviors that are supportive, scaffolding, and structured, and positive associations with these constructs for parenting behaviors that are inconsistent, negative, and harsh.

Furthermore, we extended the original Dutch study by testing the convergent and discriminant validity of the CECPAQ-CV with non-violent discipline, corporal punishment, and psychological aggression in the CTSPC. The CTSPC has been demonstrated to be a reliable and valid tool for assessing child abuse and harsh disciplines (Liu & Wang, 2015a). For good convergent and discriminant validity, the mean correlation with these indicators in the CTSPC would be significant for the macro-dimension in the CECPAQ-CV consisting of the similar constructs (i.e., verbal punishment, physical punishment, and psychological control, respectively) and stronger for this macro-dimension than for the other macro-dimensions in the CECPAQ-CV.

Finally, parenting is socially patterned and demographic factors have been linked to parenting behaviors among Western samples (e.g., Belsky, Bell, Bradley, Stallard, & Stwewart-Brown, 2007). Specifically, child age was especially relevant to maternal disciplinary practices in early childhood. Several national survey studies have found that mothers use more harsh discipline and positive discipline as a child gets older (see Wissow, 2002 for a review). Past studies have also indicated that maternal age, income, and education are related to higher support and positive discipline and lower harsh discipline (Belsky et al., 2007; Browne & Jenkins, 2012). To explore these associations in Chinese families, we examined whether child age and maternal age, education, and income were related to individual differences in parenting behaviors in the CECPAQ-CV.

Method

Participants

Sample 1. Participants were recruited from the maternity and well-baby clinics of a regional hospital in Beijing, China for a study of early parenting and child development. Children who did not have any severe medical conditions or developmental disabilities and lived with their mother or both parents were eligible for participation in the study. Mothers filled in the questionnaires while in a waiting room in the hospital.

The initial sample included 2,219 mothers with children aged between 1 and 4

years (1,090 boys and 1,129 girls). We excluded 40 participants (19 boys and 21 girls) as their missingness on the items of the CECPAQ-CV was larger than 20% (Downey & King, 1998). No differences were found on maternal ages, education, income, and child ages between the included and excluded samples (*p*s > .38). The included sample (N_1 = 2,179) was composed of 1,071 boys and 1,108 girls. Child mean age was 23.27 ± 4.56 months (range = 11.24 – 52.60) with 75% of the children being an only child. Maternal mean age was 34.17 ± 8.61 years. Approximately 90% of the mothers had completed college or postgraduate education. The mode of maternal monthly income (40.3%) was between 3,000 and 6,000 yuan.

Sample 2. Participants were from the Beijing Longitudinal Study 2015 (BELONGS 2015), an ongoing longitudinal study that began in 2015 when infants were 6 months. The initial sample was recruited from several maternity and well-baby clinics of regional hospitals in Beijing or through signing up on the project website. The CECPAQ-CV data were collected at wave 4 when the child was approximately 3 years old. The questionnaire was completed at home by mothers and brought back during the laboratory visit.

This sample (N_2 = 160) was composed of mothers of 82 boys and 78 girls. At wave 4, child mean age was 37.25 ± 1.37 months (range = 34.65 – 50.56) and 62.1% of the children was an only child. Maternal mean age was 35.96 ± 4.19 years. Approximately 90% of the mothers have completed college or postgraduate education. The mode of maternal monthly income (29.4%) was between 6,000 and 10,000 yuan.

Measures

Comprehensive Early Childhood Parenting Questionnaire (CECPAQ). Most of the 54 items of the CECPAQ (Verhoeven et al., 2017) were assessed on a 6-point scale, ranging from 1 (*never*) to 6 (*always*). Nine items (item 14-23) were rated on 6-point scales that are anchored on one effective and one ineffective response to the parenting situation (e.g., the responses to the situation "When there is a problem with my child" range from 1 = *Things build up and I do things I don't mean to* to 6 = *Things don't get out of hand*). To develop the CECPAQ-CV, two Chinese-native speakers and one bilingual English-Chinese speaker (the first author) translated the items into Chinese and then another bilingual English-Chinese speaker back-translated the items into English. The accuracy of the final Chinese version was checked and agreed upon by the four translators.

Chinese Version of Infant-Toddler Social and Emotional Assessment (CITSEA). Mothers in Samples 1 and 2 filled out the CITSEA (Briggs-Gowan & Carter, 1998; Zhang et al., 2009) to assess child externalizing and internalizing behaviors. The 18-item externalizing behavior scale (Cronbach's α was .92 in Sample 1 and .90 in Sample 2) consists of peer aggressiveness, aggressiveness, and impulsivity subscales. The 27-item internalizing behavior scale (Cronbach's α was .91 in Sample 1 and .89 in Sample 2) consists of anxiety, depression, fear, compulsiveness, separation distress, and inhibition to novelty subscales. All items are rated on a 3-point scale (0 = *not true or rarely*, 1 = *sometimes true or sometimes*, 2 = *very true or often*). The mean scores of externalizing and internalizing behaviors were used.

Parenting Stress Index-Short Form—15 items version (PSI-SF-15). Mothers in Sample 2 rated their parenting stress on the Parenting Stress Index-Short Form (Abidin, 1995). Using a refined 15-item Chinese version (PSI-SF-15; Luo et al., 2021), parenting distress (i.e., the level of distress resulting from the demands of child-rearing; 5 items), parent-child dysfunctional interaction (i.e., mothers' dissatisfaction with interactions with their children; 5 items) and perception of a child being difficult (i.e., mothers' perceptions of their children's self-regulatory abilities; 5 items) were measured. All the items are rated on a 5-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) and the mean score of each subscale was used. In this study, the PSI-SF-15 has good reliability, Cronbach's α = .86.

Parent-Child Conflict Tactics Scale (CTSPC). Three subscales of the CTSPC (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998) were used with mothers in Sample 2: 4-item non-violent discipline (e.g., explanation and time-out), 5-item psychological aggression (e.g., threatening or shaming), and 5-item corporal punishment (e.g., spanking or pinching). This measure has been translated into Chinese and used in early childhood previously (Liu & Wang, 2015a, 2015b). Mothers reported their frequencies of using these disciplinary behaviors in the previous 12 months on seven categories (0 = *never*, 1 = *once*, 2 = *twice*, 3 = *three to five times*, 4 = *six to ten times*, 5 = *eleven to twenty times*, 6 = *more than twenty times*), Cronbach's α = .79. Items were scored using the midpoints for the answer categories: for categories 0, 1, and 2, midpoints are 0, 1, and 2; for categories 3, 4, and 5, midpoints are 4, 8, and 15; for category 6, the midpoint is 25. The total score of each subscale was calculated by summing up the item scores.

Analytic Strategies

All analyses were conducted with M*plus* 8.4 (Muthén & Muthén, 1998-2017). Parameters were estimated by a robust weighted least squares estimator using a diagonal weight matrix (WLSMV) which performs accurately in factor loading estimates regardless of sample sizes when data are ordered-categorical measures (Li, 2016). Missing data were handled by full information maximum likelihood (FIML) which provides relatively unbiased estimates (Graham & Coffman, 2012). Analyses proceeded as follows: First, we explored which factor structure of the CECPAQ-CV best applies to Sample 1 data and validated the selected factor structure with Sample 2 data. Second, the reliability of the CECPAQ-CV was calculated and the validity of the CECPAQ-CV was examined with child problem behaviors, parenting stress, and the parenting behaviors reported on the CTSPC.

Factor structure. Two steps were used to examine the factor structure of the CECPAQ-CV. In step 1, four models (the 1-factor, 2-factor, 4-factor, and 5-factor model) were tested against each other to determine which factor structure fits the best with Sample 1 data. The model was selected based on (1) acceptable model fit, indexed by comparative fit index (CFI) above .90 and the root mean square error of approximation (RMSEA) values smaller than .08 (Hu & Bentler, 1999); (2) a significant result of chi-square difference test when compared with other models (DIFFTEST function in M*plus*); and (3) factor loadings of all items on the corresponding micro-dimension and factor loadings of all micro-dimensions on the corresponding macro-dimension being significant. In step 2, the selected model from step 1 was validated with Sample 2 data by examining the goodness of model fit, the significance of the factor loadings, and correlations among the macro-dimensions of parenting.

Reliability and validity. Three indicators of reliability were reported for the CECPAQ-CV: (1) the Cronbach's α for the macro-dimensions, which should be larger than the marginal standard (.60; Barker, Pistran, & Elliot, 1994); (2) the composite reliability for the macro-dimensions, which should be larger than .60 (Geldhof et al., 2014); and (3) the MIC for the micro-dimensions, which should be within the range of .15 to .50 (Clark & Watson, 1995).

For the criterion validity of the CECPAQ-CV, zero-order concurrent correlations were estimated between the mean scores of macro-dimensions of parenting behaviors in the CECPAQ-CV and the mean scores of child externalizing behaviors and internalizing behaviors assessed by the CITSEA (Samples 1 and 2). Zero-order

correlations with the mean scores of parenting distress, parent-child dysfunctional interaction and perception of a child being difficult in the PSI-SF-15 (Sample 2) were also calculated for the CECPAQ-CV.

For the convergent and discriminant validity, the multi-trait correlations method in Raykov (2011) was used to calculate the mean correlation with non-violent discipline, corporal punishment, and psychological aggression in the CTSPC (Sample 2) for the macro-dimensions of parenting behaviors in the CECPAQ-CV. This method estimates convergent and discriminant validity coefficients defined in terms of observed measure correlations, rather than fitting confirmatory factor models with these observed indicators (Raykov, 2011). Capturing each parenting behavior through a latent variable respectively, we can calculate the multi-trait correlations between these latent variables to index the intervals of convergent and discriminant validity coefficients. This is done through examining whether the mean correlation of the overlapping constructs in the CTSPC and the CECPAQ-CV is significant (the convergent validity) and whether the mean correlation of the overlapping constructs is also significantly stronger than the mean correlations between the non-overlapping constructs in these two questionnaires (the discriminant validity).

Results

Descriptive Analyses

In Table 2, descriptive information of all variables is presented separately for Samples 1 and 2. To check the distribution of these variables based on skewness and kurtosis, a sample-size dependent method was used (Kim, 2013). All the variables in Sample 1 were normally distributed (either |skewness| < 2 or |kurtosis| < 7). All the variables were also normally distributed in Sample 2 except for psychological aggression (skewness = 1.81, Z = 9.43; kurtosis = 3.83, Z = 10.04) and corporal punishment (skewness = 2.69, Z = 14.01; kurtosis = 9.71, Z = 25.48) in the CTSPC.

In regard to participants from the two studies, mothers in Study 2 displayed slightly more support, Welch's ANOVA test, $F_{adjust}(1, 201.64) = 5.38$, $p = .02$, effect size, Hedges' $g = 0.17$, and used relatively more positive discipline, $F_{adjust}(1, 239.64) = 58.92$, $p < .001$, $g = 0.47$. In addition, children in Study 2 had more externalizing behaviors, $F_{adjust}(1, 180.96) = 22.60$, $p < .001$, $g = 0.40$, and more internalizing behaviors, $F_{adjust}(1, 182.54) = 7.61$, $p = .01$, $g = 0.22$. Participants from the two studies did not differ on maternal stimulation, structure, and harsh discipline in the CECPAQ-CV, all F_{adjust} <

2.58, *p*s > .10, and they had a similar pattern of parenting behaviors across the five macro-dimensions in the CECPAQ-CV, for the means, Mann-Whitney test, $Z = 0.52$, $p = .60$, and for the coefficients of variation (i.e., means divided by standard deviations), $Z = 1.36$, $p = .22$, indicating that mothers in both studies showed high levels of positive parenting and low levels of negative parenting.

Table 2
Descriptive Statistics for the Chinese Version of Comprehensive Early Childhood Parenting Questionnaire (CECPAQ) and Criteria Measures

	Sample 1 (N_1 = 2179)			Sample 2 (N_2 = 160)		
Variables	*M*	*SD*	Range	*M*	*SD*	Range
CECPAQ						
Support	5.19	0.66	1.38 – 6.00	5.29	0.50	3.38 – 6.00
Sensitivity	5.11	0.74	1.25 – 6.00	5.27	0.53	3.75 – 6.00
Responsiveness	5.19	0.68	1.20 – 6.00	5.21	0.54	3.00 – 6.00
Affection	5.26	0.73	1.25 – 6.00	5.40	0.57	3.00 – 6.00
Stimulation	4.80	0.85	1.00 – 6.00	4.72	0.65	2.69 – 6.00
Involvement in activities	4.94	0.93	1.00 – 6.00	5.05	0.76	3.00 – 6.00
Exposure	4.58	0.96	1.00 – 6.00	4.49	0.78	2.40 – 6.00
Using toys	4.95	0.94	1.00 – 6.00	4.76	0.78	2.80 – 6.00
Structure	4.24	0.61	1.75 – 6.00	4.29	0.55	2.67 – 5.67
Consistency	4.28	0.91	1.00 – 6.00	4.24	0.70	1.67 – 5.67
Overreactivity	4.42	0.90	1.00 – 6.00	4.32	0.80	2.50 – 6.00
Laxness	4.07	0.82	1.00 – 6.00	4.29	0.74	2.00 – 6.00
Harsh discipline	2.48	0.71	1.00 – 5.58	2.56	0.63	1.08 – 4.17
Verbal punishment	2.94	0.97	1.00 – 6.00	3.26	0.88	1.00 – 5.00
Physical punishment	1.76	0.83	1.00 – 6.00	1.71	0.67	1.00 – 3.67
Psychological control	2.61	0.82	1.00 – 6.00	2.64	0.70	1.17 – 4.17
Positive discipline	4.86	0.90	1.00 – 6.00	5.20	0.51	3.50 – 6.00
Criterion variables						
Child externalizing behaviors	0.40	0.31	0.00 – 2.00	0.52	0.31	0.00 – 1.44
Child internalizing behaviors	0.46	0.25	0.00 – 1.75	0.52	0.25	0.04 – 1.23
Parenting distress				2.22	0.70	1.00 – 4.00
P-C dysfunctional interaction				1.49	0.44	1.00 – 2.80
Difficult child				1.99	0.78	1.00 – 4.00
Non-violent discipline				36.57	21.39	2.00 – 90.00
Psychological aggression				15.82	16.40	0.00 – 90.00
Corporal punishment				8.23	10.90	0.00 – 67.00

Note. P-C = Parent-Child. Sample sizes slightly vary for each variable (missingness < 0.63%).

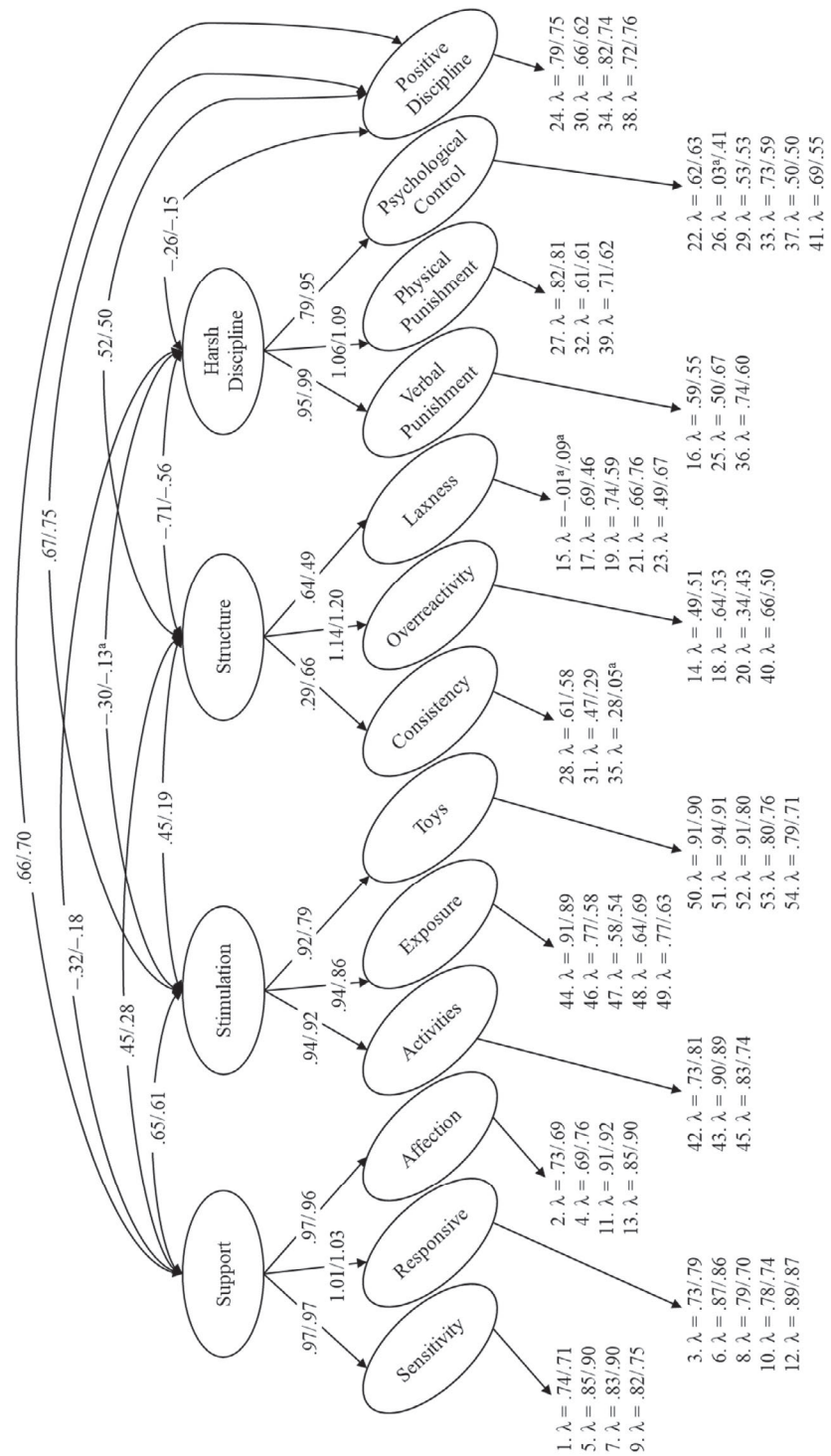


Figure 2. Five-factor structure model of the CECPAQ-CV and standardized parameters.
Standardized parameters for Sample 1/Sample 2 are presented separately. [a] $p > .05$ and all the other parameters are significant.

Factor Structure of the CECPAQ-CV

Next, we estimated the factor structure of the CECPAQ-CV. The model fit indices are shown in Table 3 for the 1-factor model, 2-factor model, 4-factor model, and 5-factor model. First, the 5-factor model yielded the best model fit, indexed by the largest CFI and the smallest RMSEA, all of which met the required standards. Second, the 5-factor model fitted the Sample 1 data significantly better than the 1-factor model, $\Delta\chi^2(12) = 8907.75$, $p < .001$, the 2-factor model, $\Delta\chi^2(9) = 4678.41$, $p < .001$, and the 4-factor model, $\Delta\chi^2(3) = 818.22$, $p < .001$. Third, all the micro-dimensions of parenting behaviors loaded significantly on the respective macro-dimensions (see Figure 2). All but two items loaded significantly on the respective micro-dimensions. Item 15 ("When my child does something I don't like", from 1 = *I do something about it every time it happens* to 6 = *I often let it go*) did not load on laxness, $\lambda = -.01$, $p = .75$. Item 26 ("I tell my child that she or he should be ashamed when she or he misbehaves") did not load on psychological control, $\lambda = .03$, $p = .32$. In Figure 2, support, stimulation, structure, and positive discipline are positively related to each other (rs > .44, ps < .001) and negatively related to harsh discipline (rs < –.26, ps < .001).

Table 3
Confirmatory Factor Analysis Model Fit Statistics for the Chinese Version of Comprehensive Early Childhood Parenting Questionnaire (CECPAQ-CV)

Model	χ^2	*df*	CFI	RMSEA [90% CI]
1-factor	48662.13	1367	.66	.13 [.13, .13]
2-factor	35702.18	1364	.75	.11 [.11, .11]
4-factor	18429.21	1358	.88	.08 [.08, .08]
5-factor	13514.67	1355	.91	.06 [.06, .07]
5-factor (Sample 2)	1784.28	1355	.94	.04 [.04, .05]

Validation of the 5-Factor Model

In Table 3, for Sample 2, the model fit of the 5-factor model is good, indicating that the 5-factor model of the CECPAQ-CV is stable. The factor loadings of all the micro-dimensions and of all but two items were significant. Item 15 did not load on laxness again, $\lambda = .09$, $p = .28$. Additionally, item 35 ("My child talks me out of being punished after she or he has done something wrong") did not load on consistency, $\lambda = .05$, $p = .64$. In Figure 2, support, stimulation, structure, and positive discipline are positively related to each other (rs > .18, ps < .03). Their negative correlations with harsh discipline were significant, rs < –.15, ps < .04, except for stimulation, $r = -.13$, $p = .06$.

Reliability of the CECPAQ-CV

Since the background of Samples 1 and 2 was generally homogenous, these two samples were combined (N_{Chinese} = 2339) to calculate the psychometric properties of the CECPAQ-CV. All Cronbach's αs were larger than the marginal standard (.60; Barker et al., 1994): support, .96, stimulation, .95, structure, .66, harsh discipline, .85, and positive discipline, .83. All composite reliability met the required standard (> .60; Geldhof et al., 2014): support, .96, stimulation, .96, structure, .81, harsh discipline, .88, and positive discipline, .83. The MICs for consistency (.20), overreactivity (.25), laxness (.23), psychological control (.30), and verbal punishment (.35) were acceptable (Clark & Watson, 1995). The MICs for sensitivity (.65), responsiveness (.66), affection (.63), involvement in activities (.65), using toys (.74), exposure (.53), physical punishment (.51), and positive discipline (.54) were above the criterion of .50 (Clark & Watson, 1995), indicating that the items in these micro-dimensions were relatively highly correlated and somewhat isomorphic with each other.

Validity of the CECPAQ-CV

Criterion validity. In Table 4, correlations between the five macro-dimensions in the CECPAQ-CV and child problem behaviors are calculated for the combined sample. Support, stimulation, structure, and positive discipline were negatively, whereas harsh discipline was positively, associated with child externalizing behaviors and internalizing behaviors. For Sample 2, support, stimulation, structure, and positive discipline were generally negatively (10 out of 12 correlations), while harsh discipline was positively, correlated with parenting stress, parent-child dysfunctional interaction, and perceptions of a child as difficult.

Convergent validity. In Table 4, harsh discipline was positively related to non-violent discipline, psychological aggression, and corporal punishment in the CSTPC at a moderate to high level (.27 to .51). The correlations for the other four macro-dimensions (i.e., support, stimulation, structure, and positive discipline) were generally nonsignificant (only 2 out of 12 correlations were significant). To check the convergent validity of the CECPAQ-CV, we calculated the mean correlation coefficient (r_1) between harsh discipline and non-violent discipline, psychological aggression, and corporal punishment in the CSTPC. This coefficient was significant, r_1 = .37, 95% CI = [.26, .47]. For comparison, we calculated the mean correlation coefficient (r_2) between

the other four macro-dimensions and non-violent discipline, psychological aggression, and corporal punishment in the CSTPC. This coefficient was not significant, $r_2 = .06$, 95% CI = [–.03, .15]. These results indicate that harsh discipline has acceptable convergent validity, exhibiting a moderate correlation with similar measures in the CSTPC, while other macro-dimensions in the CECPAQ-CV are not related to these measures in the CSTPC.

Discriminant validity. We tested whether r_1 differed from r_2 to check the discriminant validity of the CECPAQ-CV. The difference was significant, $\Delta r = .31$, 95% CI = [.16, .46], Wald test χ^2 (1) = 16.87, $p < .001$, Cohen's $d = 0.69$. Since structure was negatively related to psychological aggression in the CTSPC and positive discipline was positively related to non-violent discipline in the CTSPC (see Table 4), the discriminant validity was also checked by calculating the differences between r_1 and the mean correlation coefficients for structure or positive discipline. Similarly, r_1 was larger than these coefficients, all χ^2 (1) > 9.64, ps < .01, all Cohen's $d > 0.50$. These results indicate that apart from harsh discipline, other macro-dimensions of the CECPAQ-CV do not tap the three constructs measured in the CTSPC.

Table 4

Correlations between the Chinese Version of Comprehensive Early Childhood Parenting Questionnaire (CECPAQ-CV) and Criteria Measures and Demographic Variables

Correlations	Support	Stimulation	Structure	Harsh Discipline	Positive Discipline
1. Child externalizing behaviors	–.22***	–.21***	–.24***	.33***	–.15***
2. Child internalizing behaviors	–.17***	–.17***	–.24***	.23***	–.12***
3. Parenting distress	–.24**	–.09	–.35***	.18*	–.16
4. P-C dysfunctional interaction	–.44***	–.26**	–.33***	.26**	–.43***
5. Difficult child	–.31***	–.19*	–.46***	.43***	–.36***
6. Non-violent discipline	.12	.07	.04	.27**	.21*
7. Psychological aggression	.02	–.02	–.19*	.51***	.13
8. Corporal punishment	.10	–.07	.01	.45***	.02
9. Child age	.01	–.01	–.03	.11***	.08**
10. Maternal age	.05*	–.02	–.00	.04*	.01
11. Maternal education	.09***	.14***	.11***	–.06*	.17***
12. Maternal monthly income	.02	.04	.07**	–.07**	.11***

Note. P-C = Parent-Child. * $p < .05$, ** $p < .01$, *** $p < .001$.

Correlations with Demographic Variables

In Table 4, we present how child age as well as maternal age, education, and income are correlated with parenting behaviors in the CECPAQ-CV. Mothers used more harsh discipline and positive discipline with older children. Older mothers tended to use

more support and harsh discipline. Maternal education was positively related to support, stimulation, structure, and positive discipline, and negatively related to harsh discipline. Maternal income was related to more structure and positive discipline and less harsh discipline.

Discussion

There is an increasing interest in the parenting behaviors of Chinese parents during the past decade (e.g., Chen & Zhou, 2019; Ren & Edwards, 2015). A close examination of these parenting behaviors could add to scientific knowledge since parenting-relevant models, norms, and approaches are tested almost exclusively with WEIRD samples (Bornstein, 2012). Practically, such examination is also beneficial for young Chinese children, who constitute a relatively large proportion of the world population, as their development is scaffolded or undermined by these parenting behaviors (e.g., Chen et al., 1998).

To this end, the current study examined the utility of the CECPAQ-CV with Chinese parents. Drawing from two samples of Chinese mothers, we confirmed the 5-factor structure model of the CECPAQ-CV and demonstrated that the CECPAQ-CV has good psychometric properties including relatively high reliability and validity. In all, strengths of the CECPAQ-CV were theoretically justified and promising data were provided for the feasibility of using the CECPAQ-CV to comprehensively tap early parenting behaviors in Chinese mothers.

Our results showed that the CECPAQ-CV was composed of five macro-dimensions, that is, support, stimulation, structure, harsh discipline, and positive discipline, which is consistent with the original Dutch study (Verhoeven et al., 2017). This consistency provides additional support that the CECPAQ is well-constructed and covers parenting behaviors important for the early development of both Chinese and Dutch children. Supporting the importance of these five dimensions, cross-cultural studies have also shown that these parenting behaviors contribute to outcomes in multiple developmental domains and are particularly influential in early childhood (e.g., Huang et al., 2011; Mesman et al., 2012).

With respect to thirteen micro-dimensions of parenting behaviors, we found that these constructs were generally well-established and the majority of the items loaded significantly on the corresponding parenting dimension (51 out of 54 items). These findings may suggest that most items in the CECPAQ-CV could be used with Chinese

parents to validly tap their parenting behaviors. However, it should be noted that three items (15, 26, and 35) did not load on the corresponding micro-dimensions, warranting further discussions of their cultural sensitivity in capturing the purportedly measured parenting behavior among Chinese mothers.

Specifically, item 15, measuring whether a parent will take some actions when a child does something the parent dislikes, did not load on laxness and item 35, measuring the situation in which a child persuades a parent to not punish him or her, did not load on consistency in Sample 2. Theoretically, very young Chinese children are not punished for misbehaviors until they reach the "age of understanding" (approximately 6 years of age) (Cheah, Leung, Tahseen, & Schultz, 2009). Parents are supposed to be lenient and warm toward young children and tolerate these children's wrongdoing before that age (Cheah et al., 2009).

Empirical evidence from the study of another Chinese parenting questionnaire has shown that two items measuring parenting behaviors similar to those tapped by items 15 and 35 are not applicable to Chinese parents (e.g., "I follow through with a consequence when my child misbehaves"; Guo, Morawska, & Filus, 2017). Interviews with parents have revealed that these behaviors are perceived as the inflexibility of managing a child's misbehaviors rather than parental consistency or low laxness (Guo et al., 2017). This might explain the non-significant factor loadings of items 15 and 35 in the CECPAQ-CV. Given that the factor loadings of these two items were significant in the original Dutch study, a critical step in the future is to determine whether they should be dropped (if their factor loadings are also not significant among samples from other cultures).

Moreover, item 26, measuring using shaming as an approach to socializing a child, had a low factor loading on psychological control. This is in line with a study examining the factor structure of psychological control with Chinese immigrant parents, which has shown that shaming has the lowest factor loading among the three scales (shaming, guilt induction, and love withdrawal) (Yu, Cheah, Hart, Sun, & Olsen, 2015). To some extent, our result might indicate mixed attitudes towards shaming in contemporary Chinese mothers. For one, drawn from traditional Chinese ideology, shaming has the function of transmitting cultural values to a child. Chinese studies conducted over two decades ago found that shaming was recognized as a means to bring the lesson about transgressions to its fullest impact (Fung, 1999; Wu et al., 2002). For another, drawn from Western values, shaming reflects manipulating a child's self-esteem, which is less

acceptable (Soenens, Vansteenkiste, & Van Petegem, 2015). Thus, it is possible that the mothers in our study held one of these two distinctive attitudes while some displayed a more mixed pattern of shaming use overall (a quarter of them chose low frequencies, one third chose high frequencies, with just under half showing moderate levels).

The current findings also showed that the CECPAQ-CV has good internal consistency, indicated by the acceptable Cronbach's α values and composite reliability of all the macro-dimensions. But it is worth mentioning that the MICs of the micro-dimensions in support, stimulation, and positive discipline were relatively high, suggesting that the items in these micro-dimensions are isomorphic to some degree which may be caused by conceptual redundancy or overlap in response distributions. As these items are consecutively assigned and adjacent to each other, random allocation of their sequence might be needed to reduce responding biases (e.g., always choosing the same value for the adjacent items).

With respect to validity, we found that the CECPAQ-CV has good criterion validity, indicated by the expected negative associations with child externalizing behaviors and internalizing behaviors and maternal parenting stress for support, stimulation, structure, and positive discipline and the positive associations with these external criterion variables for harsh discipline. Therefore, our results are congruent with numerous theoretical and empirical studies, which have shown that child problem behaviors and parenting stress could reduce the use of positive and supportive parenting behaviors (e.g., Xing & Wang, 2017) and increase the use of negative and harsh parenting behaviors (e.g., Liu & Wang, 2015a). Of course, longitudinal studies are needed to determine order of effects but nonetheless our results are consistent with these earlier findings in other Chinese studies.

Furthermore, our findings revealed that the CECPAQ-CV has good convergent and discriminant validity established with the CTSPC. As expected, harsh discipline was shown to have the strongest associations with non-violent discipline, psychological aggression, and corporal punishment in the CTSPC, whereas the other four macro-dimensions differed from these three indicators in the CTSPC. It is noteworthy that although harsh discipline and positive discipline were negatively associated with each other, they both linked positively with non-violent discipline in the CTSPC. To understand this seemingly odd result, we examined the items of non-violent discipline and found that there are two items measuring parenting behaviors that may be perceived as non-violent, but still punitive (timeout and privilege removal; Holden,

Grogan-Kaylor, Durrant, & Gershoff, 2017) and two items measuring parenting behaviors that are perceived as purely non-violent and not punitive (induction and distraction; van Zeijl et al., 2007). This inconsistency probably explains why positive links with non-violent discipline were found for both harsh discipline and positive discipline. To some extent, such a result supports that the CECPAQ-CV distinguishes conceptually varied constructs better than the CTSPC, in particular for parental disciplines.

Limitations and Future Research

There are several limitations and future directions. First, although the confirmation of the factor structure of the CECPAQ-CV has ensured meaningful within-group comparisons of parenting behaviors among Chinese mothers, whether the factor structure and validity of this measure holds for Chinese fathers needs to be determined in future research. In addition, cross-cultural studies are needed to follow up on the estimation of measurement invariance, which could then reveal between-group similarities and differences in early parenting behaviors. Second, the CECPAQ aims at capturing parenting behaviors critical for development in general but does not cover socialization efforts unique in specific cultures. Future research could examine profiles of parenting behaviors measured by both the CECPAQ and culture-specific questionnaires (e.g., the CPPM measures encouragement of modesty specifically for Chinese parents) to better understand parenting characteristics in a selected culture. Third, although the CECPAQ is aimed at including fundamental dimensions of parenting, the developmental relevance and importance of some parenting behaviors (such as autonomy support; Andreadakis, Joussemet, & Mageau, 2019) has not been demonstrated in early childhood and across cultures until more recently. Future research should consider investigating associations between autonomy support and parenting behaviors in the CECPAQ to advance the understanding of parenting in early childhood.

Conclusion and Implications

The current study examines the factor structure, reliability, and validity of the CECPAQ-CV. We confirm the 5-factor structure model previously found among Dutch parents and find good psychometric properties of the CECPAQ-CV, thus suggesting that this assessment tool holds promise as a reliable and valid tool to measure

parenting behaviors of Chinese mothers in early childhood. Furthermore, there are at least two reasons as to why researchers and educators should consider using the CECPAQ-CV in their research. First, this comprehensive yet reasonably short questionnaire can give a quick snapshot of a wide range of parenting behaviors specific for parents of infants, toddlers, and preschoolers, such that researchers and educators can acquire a fuller understanding of how parents exert influences on their child in the investigated families. Second, this questionnaire focuses purely on parenting behaviors enabling researchers to examine the mechanisms of how specific parenting behaviors are shaped by related parental cognitions (e.g., beliefs and socialization goals) among Chinese families.

3

Chapter 3

To Excel and To Be Happy: Parenting Behaviors, Parenting Stress, and Sociocultural Contexts in Chinese and Dutch Families

Author Note:

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Author Contributions:

S. Dong conceptualized the research question, and J.S. Dubas, M. Deković, and Z. Wang gave advice and feedback. Z. Wang coordinated the data collection in China and M. Verhoeven coordinated the data collection in the Netherlands. S. Dong analyzed the data and wrote the manuscript. J.S. Dubas and M. Deković provided feedback on the analyses. J.S. Dubas, M. Deković, and M. Verhoeven provided feedback on the manuscript.

Abstract

The current research examined the similarities and differences in parenting behaviors between 2339 Chinese and 1090 Dutch mothers with 1- to 4-year-olds and investigated to what extent group differences in parenting stress, proportions of only children, and maternal working time explain cultural variations in parenting behaviors. Thirteen parenting behaviors were assessed using the Comprehensive Early Childhood Parenting Questionnaire. Parenting stress was measured by the Chinese and Dutch versions of the Parenting Stress Index-Short Form. Mothers also reported whether the child was an only child and how many hours they worked per week. Mean-level differences were tested. Results showed that Chinese mothers differed from Dutch mothers in eleven parenting behaviors at the mean level. Moreover, a mediational model, examining whether parenting stress, only-child status, and maternal working time could explain cultural differences in parenting behaviors, was investigated. Compared to Dutch mothers, Chinese mothers had higher parenting stress which linked to less support (sensitivity, responsiveness, affection), stimulation (involvement in activities, exposure, using toys), structure (consistency, low overreactivity, low laxness), positive discipline, and more harsh discipline (verbal punishment, physical punishment, psychological control). Compared to Dutch families, Chinese families were more likely to have an only child, which linked to more stimulation and less harsh discipline. After adjusting for these mediators, Chinese mothers reported more sensitivity, responsiveness, affection, laxness, psychological control, and positive discipline as well as less exposure, consistency, and verbal punishment than Dutch mothers. In summary, this research extends the knowledge of similarities and differences in parenting behaviors between different sociocultural groups.

Keywords: parenting, cultural difference, parenting stress, contextual factors, early childhood

Introduction

Mainland Chinese children achieved the highest academic scores in the Programme for International Student Assessment (PISA), as reported by the Organization for Economic Cooperation and Development (OECD, 2019a). In comparison, Dutch children reported the highest subjective well-being among children from the most developed countries, as shown in a UNICEF report (Gromada, Rees, & Chzhen, 2020). Coincidentally, yet not surprisingly, best-selling books also describe how Chinese and Dutch parents use parenting behaviors distinctively to socialize such varying qualities in their children. *Battle Hymn of the Tiger Mother* by Amy Chua (2011) depicts a "typical" Chinese mother (*tiger mother*) who uses harsh control and extreme demands for excellence to help her daughters achieve academic accomplishments. In contrast, *The Happiest Kids in the World: Bring Up the Dutch Way* by Rina Mae Acosta and Michele Hutchison (2017) reveals the parental strategies that help Dutch children go through a happy developmental trajectory, such as encouraging children to express themselves and creating regular family activities and routines.

Chinese and Dutch parents may hold different opinions on what parenting behavior is more effective in cultivating their desired qualities of children and *that* behavior is used with different frequencies in everyday life, respectively (Gartstein & Putnam, 2018). However, few studies have compared Chinese and Dutch parents on diverse dimensions of parenting behaviors in early childhood. Thus, the first aim of this research is to examine the similarities and differences between Chinese and Dutch mothers in parenting behaviors during early childhood. To understand such similarities and differences, we further examined whether Chinese and Dutch mothers differ in parenting stress and to what extent this difference could explain cultural differences in parenting behaviors because it has been shown that parenting behaviors covary with parenting stress (Deater-Deckard, 1998). Moreover, despite obvious disparities between China and the Netherlands in policies and lifestyles, we do not know to what extent these contextual factors are associated with parenting behaviors and parenting stress. Therefore, we also aim at elucidating how cultural differences in contextual factors, that is, the one-child policy in China and the emphasis on work-life balance in the Netherlands, may help explain the differences between Chinese and Dutch mothers in parenting behaviors.

Parenting Behaviors in Chinese and Dutch Families

Past research has revealed that Chinese mothers of young children are more authoritarian (Su & Hynie, 2011; Wang & Phinney, 1998) and less authoritative (Su & Hynie, 2011), compared with European American or European Canadian mothers. Yet with the dramatic social and economic changes in China during the past two decades, Chinese mothers are gradually tending to adopt authoritative parenting over authoritarian parenting (Lu & Chang, 2013), even though Confucianism, with its emphasis on filial piety and familial hierarchy, continues to influence contemporary Chinese families. As a result, harsh, authoritarian parenting is still prevalent among Chinese mothers, although the acceptance of this parenting style is declining (Lu & Chang, 2013; Su & Hynie, 2011).

In spite of these findings, some researchers have challenged the validity of cross-cultural comparisons in this way given that the prototypic patterns of parenting styles might not be similarly perceived by parents from different cultures (Bornstein, 2012). Instead, studying specific dimensions of parenting behaviors could ensure a more precise delineation of cultural differences (Bornstein, 2012). To stimulate such comparisons of specific parenting behaviors, we used the Comprehensive Early Childhood Parenting Questionnaire (CECPAQ; Verhoeven, Deković, Bodden, & van Baar, 2017) in the current study (which is developed based on a dimensions approach). This questionnaire measures a wide range of parenting behaviors that are relevant for child development in early childhood and its psychometric properties have been validated in both Chinese (Dong, Dubas, Deković, & Wang, 2021a) and Dutch parents (Verhoeven et al., 2017). The CECPAQ taps into thirteen dimensions of behaviors covering five parenting domains: support (sensitivity, responsiveness, affection), stimulation (involvement in activities, exposure, using toys), structure (consistency, overreactivity, laxness), harsh discipline (verbal punishment, physical punishment, psychological control), and positive discipline (see Supplementary Materials for the definition and example item of each parenting dimension).

Although some studies have examined the differences between Chinese mothers and European American or European Canadian mothers in specific parenting behaviors (e.g., Camras, Kolmodin, & Chen, 2008; Wu et al., 2002), as far as we know, only one study has been conducted to directly compare the differences between Chinese and Dutch mothers (Gartstein & Putnam, 2018). With respect to the five domains of parenting behaviors, except for harsh discipline, only a small body of

research has focused on the cultural differences in support, stimulation, structure, and positive discipline in early childhood (i.e., before 6 years of age) and these findings in the literature are somewhat inconsistent.

In regard to maternal *support* in early childhood, compared with American mothers, mainland Chinese mothers have been found to be less warm (Wu et al., 2002) and to show less affection towards their children (Camras et al., 2008). Similar results were found with immigrant Chinese mothers of young children compared with European American mothers (Kelley & Tseng, 1992). However, Lin and Fu (1990) found no such difference on maternal affection for immigrant Chinese mothers in comparison with European American mothers.

As to maternal *stimulation* in early childhood, a recent report has indicated that compared with Dutch mothers, Chinese mothers engaged less with young children in various activities (e.g., doing housework together; Gartstein & Putnam, 2018). No difference, however, was found between Chinese mothers and American mothers on their involvement intended for helping a child succeed academically (Wu et al., 2002). It remains largely unknown whether Chinese and Dutch mothers differ in stimulation behaviors such as exposing a child to diverse stimuli or providing various toys to a child.

For maternal *structure* in early childhood, one study found that immigrant Chinese mothers were less consistent than European American mothers (Kelley & Tseng, 1992), whereas another study found no differences in consistency and laxness between immigrant Chinese mothers and European Canadian mothers (Chan, Penner, Mah, & Johnston, 2010). However, immigrant Chinese mothers with middle childhood children were laxer than European American mothers in enforcing rules (Hulei, Zevenbergen, & Jacobs, 2006).

Cultural differences in *harsh discipline* in early childhood have been examined more often. Studies have found that both mainland Chinese and immigrant Chinese mothers use more physical punishment (Gartstein & Putnam, 2018; Kelley & Tseng, 1992; Wu et al., 2002) and psychological control (Wu et al., 2002) than European American or European Canadian mothers. With respect to verbal punishment, two studies found that Chinese or immigrant Chinese mothers used this behavior more often than European American mothers (Gartstein & Putnam, 2018; Kelley & Tseng, 1992), although another study reported no difference (Wu et al., 2002). When directly compared with Dutch mothers, Chinese mothers used more physical punishment and verbal punishment (Gartstein & Putnam, 2018).

As far as we know, only two studies have examined cultural differences in maternal *positive discipline* in early childhood. One found that immigrant Chinese mothers used positive discipline less frequently than European American mothers (Kelley & Tseng, 1992) while another found no difference between immigrant Chinese mothers and European Canadian mothers in the frequency of using positive discipline (Mah & Johnston, 2012).

In summary, compared to mothers from Western cultures broadly defined, Chinese mothers are less supportive, less structured, and use harsh discipline more often. When compared to Dutch mothers specifically, Chinese mothers are more likely to use harsh discipline and show less involvement in activities. However, these past studies, including the Gartstein and Putnam (2018) study, have a relatively small sample size of participants in each culture, calling for a replication of findings. Harsh discipline and involvement in activities are not necessarily the only parenting behaviors that might lead to the diverse orientations towards the *ideal* child in these two cultures (i.e., academically successful Chinese children versus happy Dutch children). Of importance is to examine the unknown group variations in other parenting behaviors. Therefore, the first aim is to provide a first piece of evidence for the similarities and differences in a comprehensive assessment of early parenting behaviors with relatively large samples of Chinese and Dutch mothers.

Parenting Stress and Parenting Behaviors

To elucidate possible cultural differences in parenting behaviors, we further examined the sources of such differences. First of all, we focus on differences between Chinese and Dutch mothers in parenting stress, which is defined as the aversive psychological reaction to the demands of being a parent (Deater-Deckard, 1998). Parenting stress is examined because it is firmly linked with parenting behaviors. In theory, parenting stress reduces the planful, child-centered, positive parenting behaviors including support, stimulation, and positive discipline and increases the reactive, parent-centered, negative parenting behaviors including harsh discipline and a lack of structure (Deater-Deckard, 1998).

Such effects of parenting stress on parenting behaviors have been demonstrated by a substantial body of studies conducted in a single culture. For instance, early childhood parenting stress was related to lower levels of positive parenting (Hao et al., 2019) and higher levels of psychological control over time (Liu & Wang, 2015b) among

Chinese mothers. Similarly, Dutch mothers with higher parenting stress displayed lower positive parenting (Rönkä, Malinen, Sevón, Metsäpelto, & May, 2017). In our reports on the CECPAQ, both Chinese (Dong et al., 2021a) and Dutch mothers (Verhoeven et al., 2017) who had higher parenting stress used more harsh discipline and less support and structure.

As far as we know, however, only one study has compared early childhood parenting stress between different groups, showing that Chinese mothers had a higher level of parenting stress than Canadian mothers (Su & Hynie, 2011). Thus far, differences in parenting stress have not been examined between Chinese and Dutch mothers, yet some indirect evidence implies a possibility of this difference. Specifically, a representative sample of Dutch parents rated an average parenting stress level at 1.32 out of 4 (Flink et al., 2012), thus at the lower end of the scale. In comparison, a representative sample of Chinese parents reported an average parenting stress level at 3.01 out of 5 (Hong & Liu, 2019), showing a mid-range level. These results suggest that compared with Dutch mothers, Chinese mothers might be more stressed by their responsibilities as a parent, although clear comparisons are needed using comparable items of parenting stress across samples.

Importantly, this potential difference in parenting stress may help us understand cultural variations in parenting behaviors that might be found. There has been preliminary evidence showing that the cultural difference in authoritarian parenting, but not authoritative parenting, is fully explained by the group difference in parenting stress during early childhood (Su & Hynie, 2011). Relatedly, we expect that the potential cultural difference in parenting stress would explain at least a part of the variations between Chinese and Dutch mothers in parenting behaviors, especially for negative, harsh parenting behaviors.

Of note, one potential confounding factor for parenting stress is child problem behaviors. Child externalizing and internalizing behaviors can be a source of stressful events that can impact both parenting stress and parenting behaviors (Deater-Deckard, 1998). In addition to emotions related to childrearing duties (e.g., parenting stress), parenting behaviors may also be triggered by having to respond to child problem behaviors. Meta-analytic reviews have shown that parental support and positive discipline are negatively, while harsh discipline is positively, associated with child externalizing behaviors (Hoeve et al., 2009) and internalizing behaviors (Pinquart, 2017b). Although how parenting is related to child problem behaviors is in general

similar across samples from East Asia and Western Europe (Pinquart & Kauser, 2018), we controlled for links between parenting behaviors and child problem behaviors to delineate how parenting stress may mediate associations of culture and parenting behaviors.

Contextual Factors: Only-Child Status and Maternal Working Time

To further understand cultural differences in parenting behaviors, broader contexts with known socio-cultural disparities that may directly or indirectly affect socialization processes ought to be taken into account. Contextual factors at the macrosystem or exosystem constitute the developmental milieu of families (Bronfenbrenner & Morris, 2006) and they may affect parenting behaviors fully or partially through influencing the levels of parenting stress. We focused on two of such factors which are related to the distinctive policies and lifestyles between countries: the one-child policy in China and the lifestyle of emphasizing work-life balance in the Netherlands.

From 2016 when the new family planning policy was implemented in China and the 40-year-long one-child policy ended, urban Chinese couples are allowed to have a second child. However, a relatively large proportion of Chinese couples still decided to have only one child (Attané, 2016). Obviously, an only child demands less from parents. For Chinese mothers (Hong & Liu, 2019) or mothers from Western countries (e.g., Sweden; Östberg & Hagekull, 2000), those with more children report higher parenting stress. On the other hand, parenting an only child may ask for more parental responsibilities and devotion owing to higher parental expectations. As such, the only-child status is possibly related to parenting stress, which in turn further links to parenting behaviors. Therefore, we expected that cultural differences in parenting behaviors would be at least partially explained by the apparently different proportions of only children between Chinese and Dutch samples.

Furthermore, the Netherlands ranked the highest among the rich countries on work-life balance, particularly indicated by the fact that the Dutch seldom work very long hours (OECD, 2019b). Indeed, it seems that Dutch mothers with young children work fewer hours per week (29 hours; Rönkä et al., 2017) compared to Chinese mothers (45 hours; Du et al., 2019). A shorter working time means that Dutch mothers may schedule their time flexibly and spend more time with their young children, all linking to lower parenting stress (Roeters, Van der Lippe, Kluwer, & Raub, 2012). However,

an opposite association has also been found that longer working time was related to lower parenting stress and work-family conflict, possibly because of a reduced financial stress (Berryhill & Durtschi, 2017). Given the disparity in working hours between Dutch and Chinese mothers and the fact that maternal working time is possibly associated with parenting stress, cultural differences in parenting behaviors might be in part explained by the expected differences in working hours between Chinese and Dutch mothers.

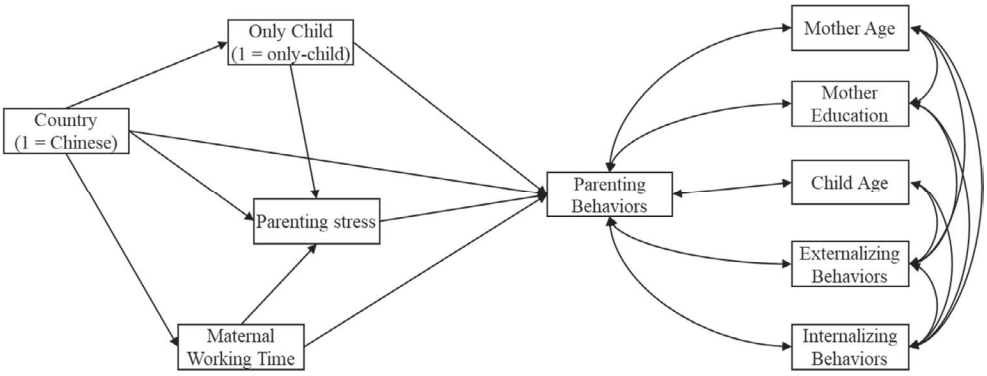

Figure 1. Theoretical model of direct and indirect associations between culture and parenting behaviors. Covariance between each predictor (i.e., country, the only-child status, maternal working time, and parenting stress) and each covariate (i.e., mother age, mother education, child age, child externalizing behaviors, and child internalizing behaviors) is estimated but not shown in the figure.

The Present Study

In all, the aims of the present study are threefold. First, we examined the similarities and differences between Chinese and Dutch mothers in the mean level of parenting behaviors. Second, to understand the cultural differences in parenting behaviors that we may find, we examined to what extent Chinese and Dutch mothers differ in their parenting stress and to what extent this varying level of parenting stress is related to their differences in parenting behaviors, independently of child problem behaviors and demographic factors including mother age, education, and child age. Third, given that the only-child status and maternal working time are possibly associated with parenting stress, we also examined to what extent the associations between culture and parenting behaviors would be mediated by the only-child status and maternal working time potentially through parenting stress.

We took two steps to guarantee the validity of comparisons in the current research.

First, the Netherlands is one of the most developed countries whereas China ranks far behind (UNDP, 2019b). Therefore, while Dutch families were recruited nationwide, Chinese families were recruited only from Beijing, one of the most developed cities in China. Economically and ecologically, these two samples of families were relatively comparable. Second, we established the equivalence of all assessments before conducting cross-cultural comparisons. Notwithstanding a long history of research on comparing Chinese and European parents on their parenting (albeit on a limited number of parenting dimensions), researchers only began to acknowledge the importance of estimating measurement invariance of assessments more recently (Putnick & Bornstein, 2016). This step is a prerequisite for comparing group means and group variations in associations among variables as it guarantees similar perceptions of the descriptions of items across different sociocultural groups (Putnick & Bornstein, 2016).

Method

Participants

Chinese sample

Chinese families were recruited from maternity and well-child clinics of several regional hospitals in Beijing with a subset of families being recruited through signing up on the research website. Forty participants were excluded as their missingness on the items of the CECPAQ was larger than 20% (Downey & King, 1998). The final Chinese sample included 2,339 mothers with children (1,153 boys and 1186 girls) aged between 11.24 and 50.56 months (M_{age} = 24.23 ± 5.65 months). Maternal mean age was 34.24 ± 8.49 years. Approximately 90% of the mothers completed college or postgraduation education.

Dutch Sample

Dutch families were recruited from several daycares and preschools in the Netherlands. A recruitment letter was sent to targeted families and mothers were asked to complete and return the mailed questionnaires within two weeks. Nine participants were excluded due to their missingness larger than 20%. Thirty-nine participants were further excluded because either the mother or the child was non-Dutch, possibly influencing the understanding of the items used. In addition, the nationality information was missing for one participant who was also excluded. The final Dutch sample included 1,090 mothers with children (532 boys, 542 girls, and 16 participants

missing on this information) aged between 12.03 and 48.49 months (M_{age} = 26.63 ± 9.35 months). Maternal mean age was 33.67 ± 4.38 years. Approximately 62% of the mothers completed college or postgraduation education.

Measures

Parenting Behaviors

The CECPAQ was used, a 54-item scale developed to tap into critical parenting behaviors in early childhood with the current Dutch sample (Verhoeven et al., 2017). The questionnaire was rated on a 6-point scale, ranging from 1 (*never*) to 6 (*always*). Nine items (items 14-23) were rated on 6-point scales that are anchored on one effective and one ineffective response to the situation (see Verhoeven et al., 2017 for details). The factor structure of the CECPAQ (i.e., 5 macro- and 13 micro-dimensions) has been validated in the current Chinese sample (Dong et al., 2021a) and most items can be validly used with Chinese mothers. The reliability of the CECPAQ is good, the Cronbach's αs ranging from .75 to .88 for Dutch mothers and from .66 to .96 for Chinese mothers. The criterion validity is also good, and the acceptable convergent and discriminant validity has been established with the Parent-Child Conflict Scales (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998) in the Chinese sample. The mean scores of 13 micro-dimensions of parenting behaviors were used.

Parenting Stress

Chinese mothers. A subset of Chinese mothers (n = 160) rated their parenting stress on the Chinese version of the Parenting Stress Index-Short Form (PSI-SF-CV; Abidin, 1995; Luo et al., 2021). The PSI-SF-CV includes 36 items which are rated on a 5-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The PSI-SF-CV has good reliability, Cronbach's α = .86.

Dutch mothers. A subset of Dutch mothers (n = 216) rated their parenting stress on the Dutch version of the PSI-SF (NOSI; De Brock, Vermulst, Gerris, & Abidin, 1992). The NOSI includes 25 items which are rated on a 6-point Likert-type scale, ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). The NOSI has good reliability, Cronbach's α = .92.

Data aggregation. The items with similar descriptions of situations were selected from the PSI-SF-CV and the NOSI. Two bilingual raters matched the items individually. Ten items were identified and agreed upon by the raters (e.g., "I often have the feeling that I cannot handle things very well"). The reliability of the selected

10 items was good, for Chinese mothers, α = .83 and for Dutch mothers, α = .86. A response collapse procedure was used with the NOSI because the method for estimating measurement invariance requires an equal number of response categories (see below in the Results section). In the NOSI, the adjacent responses 3 (*slightly disagree*) and 4 (*slightly agree*) were combined for Dutch mothers, because there is only one response in the PSI-SF-CV indicating the similar degree of (dis)agreement, 3 = *neutral (neither disagree nor agree)* for Chinese mothers.

Contextual Factors

Only-child status. Chinese mothers indicated if their child was an only child while Dutch mothers reported on a similar item asking whether the child is the only child living at home. As expected, Chinese children (71.6%, n = 1675) were more likely to be the only child than Dutch children (38.5%, n = 420), Goodman and Kruskal τ = .11, standard error = .01, $p < .001$. This information is missing for 75 (3.2%) Chinese and 27 (2.5%) Dutch participants.

Maternal working time. All Dutch mothers and a subsample of Chinese mothers (n = 150) reported how many hours they usually work per week. As expected, the average weekly working hours for Chinese mothers (M = 41.26 hours, SD = 14.85, ranging from 0 to 76 hours) were much higher than Dutch mothers (M = 23.54 hours, SD = 8.80, ranging from 0 to 60 hours), Welch's $F(1, 164.57) = 202.96$, $p < .001$, Hedges' g = 1.81.

Covariates: Child Problem Behaviors

Chinese children. Externalizing and internalizing behaviors of all the Chinese children (n = 2,339) were reported on the Chinese Version of Infant-Toddler Social and Emotional Assessment (CITSEA; Briggs-Gowan & Carter, 1998; Zhang et al., 2009). The 18-item externalizing behavior scale (Cronbach's α = .92) and the 27-item internalizing behavior scale (Cronbach's α = .91) were used. All items are rated on a 3-point scale (0 = *not true or rarely*, 1 = *sometimes true or sometimes*, 2 = *very true or often*).

Dutch children. A subsample of Dutch mothers (n = 175) reported child externalizing and internalizing behaviors on the Child Behavior Checklist 1½–5 (CBCL; Achenbach & Rescorla, 2000). The 24-item externalizing behavior broadband scale (Cronbach's α = .90) and the 36-item internalizing behavior broadband scale (Cronbach's α = .86) were used. Items are rated on a 3-point scale (0 = *not true for the child*, 1 = *somewhat or sometimes true*, 2 = *very true or often true*).

Data aggregation. To identify the items tapping the same construct, two bilingual raters matched the items in the CITSEA and the CBCL individually. Seven items measuring the same externalizing behaviors (e.g., "Hits others") and eleven items measuring the same internalizing behaviors (e.g., "Unhappy, sad or depressed") were identified and agreed upon. Moreover, for externalizing behavior, the two raters agreed that one item ("Is disobedient or defiant") in the CITSEA matched with two different items ("Disobedient" and "Defiant") in the CBCL[1]. The reliability was good for externalizing behaviors, αs, .78 for the Chinese sample (8 items) and .80 for the Dutch sample (9 items) as well as internalizing behaviors, αs, 72. for the Chinese sample (11 items) and .71 for the Dutch sample (11 items).

Data Analytic Plan

All analyses were conducted with M*plus* 8.4 (Muthén & Muthén, 1998-2017). When estimating the cross-cultural equivalence of assessments, parameters were estimated by a robust weighted least squares estimator using a diagonal weight matrix (WLSMV) given the categorical nature of all the items and that this method performs accurately in factor loading estimates (Li, 2016). When estimating models conducted to explore cultural differences in parenting behaviors, a maximum likelihood estimation with robust standard errors (MLR) was used, which is suitable for data with non-normally distributed continuous variables. These two estimators were selected and used because each of them provides the most accurate estimation for the planned analyses and these two parts of analyses were relatively independent. Missing data were handled by full information maximum likelihood (FIML), which provides relatively unbiased estimates (Graham & Coffman, 2012).

Measurement Invariance of Assessments

Measurement invariance of all scales was examined using multi-group confirmatory factor analyses (MG-CFA) for categorical items (Svetina, Rutkowski, & Rutkowski, 2020). Although there are three levels of invariance (configural, metric, and scalar), cross-cultural comparisons are only valid when metric or scalar invariance is met. The establishment of metric invariance (equal slopes for categorical items)

[1] The Dutch sample (CBCL) has separate items for "Disobedient" and "Defiant", while the Chinese sample (CITSEA) had the combined item "Is disobedient or defiant". Therefore, the two items ("Disobedient" and "Defiant") in the CBCL were both matched with the corresponding item ("Is disobedient or defiant") in the CITSEA when estimating the measurement invariance of child externalizing and internalizing behaviors.

allows meaningful comparisons of the strengths of correlations among constructs. The establishment of scalar variance (equal slopes and thresholds for categorical items) allows meaningful comparisons of the latent means of constructs.

Correspondingly, we first estimated metric invariance models separately for all 13 parenting behaviors, parenting stress, and child problem behaviors. The assumption of metric invariance is tenable if the model fit is acceptable as indexed by a comparative fit index (CFI) and Tucker-Lewis index (TLI) larger than .90 and a root mean square error of approximation (RMSEA) smaller or equal to .08 (Hu & Bentler, 1999). If this assumption was not supported, we estimated partial metric invariance. Once the (partial) metric invariance model was determined, we further tested (partial) scalar invariance. The final invariance level was determined by calculating the differences in CFI and RMSEA between the (partial) metric invariance model and the (partial) scalar invariance model with $\Delta CFI \geq -.004$ in conjunction with $\Delta RMSEA \leq .01$ indicating that (partial) scalar invariance was acceptable (Rutkowski & Svetina, 2017).

Differences in Parenting Behaviors at the Mean Level

Next, the cultural differences in the mean level of parenting behaviors were calculated. The Welch's test was used as it can provide accurate estimates when the equal variance requirement is not met (Delacre, Lakens, & Leys, 2017). Effect sizes were estimated using the Hedges' *g* value and were interpreted using the criteria in Sawilowsky (2009): small, < 0.20; medium, 0.20 ~ 0.50; large, 0.50 ~ 1.20; and very large, > 1.20.

Parenting Stress and Contextual Factors as Mediators

Then, we conducted thirteen mediation regression models to examine to what extent the associations between culture and parenting behaviors were mediated by parenting stress, the only-child status, and maternal working time, while controlling for the associations between parenting behaviors and child problem behaviors and demographics (i.e., maternal age, education, and child age). In this way, we could determine whether the cultural differences found in parenting behaviors were actually owing to the different levels of parenting stress, different proportions of only children, and different maternal working hours between Chinese and Dutch families (see also Su & Hynie, 2011). For each parenting behavior, five mediation paths were estimated (see Figure 1): (1) culture → parenting stress → parenting behavior; (2) culture → the only-child status → parenting behavior; (3) culture → maternal working time → parenting behavior; (4) culture → the only-child status → parenting stress → parenting

behavior; and (5) culture → maternal working time → parenting stress → parenting behavior.

Results

Measurement Invariance of Assessments

Using the MG-CFA for categorical items method (Svetina et al., 2020) to estimate measurement invariance requires an equal range of response categories per item for the two groups of participants. However, this requirement was not met for 23% of the items (e.g., Chinese mothers chose "0", "1", and "2" while Dutch mothers chose only "0"and "1" for "Physically attacks people"). Thus, we generated three pseudo-participants (one "Chinese" and two "Dutch") with data to fill in the sparse categories for the sole purpose of estimating the measurement invariance of our assessments. This method was used as other methods such as the response collapse might induce the possibility of ignoring important information about between-group differences (Kite, Jorgensen, & Chen, 2018). The procedure for generating pseudo-participants is detailed in Supplementary Materials.

In Supplementary Table S1, metric invariance was established for eleven out of thirteen parenting dimensions and partial metric invariance was obtained for consistency and overreactivity. Scalar invariance was tenable for eight parenting dimensions (i.e., sensitivity, responsiveness, affection, involvement in activities, exposure, using toys, verbal punishment, and psychological control). Partial scalar invariance was established for laxness, physical punishment, and positive discipline. For parenting stress, scalar invariance was supported (Supplementary Table S2). As to child problem behaviors, externalizing and internalizing behaviors were examined together so as to account for their covariance. Scalar invariance was obtained (Supplementary Table S2). Together, the above results indicate that scalar invariance could be established for the majority of the assessments, and it is reasonable to compare group differences in parenting behaviors, parenting stress, and child problem behaviors.

Table 1
Means (M) and Standard Deviations (SD) of the Variables for Chinese Mothers (n = 2339) and Dutch Mothers (n = 1090)

Dependent Variables	Range	Chinese *M* (*SD*)	Dutch *M* (*SD*)	Welch's *F*(1, adjusted *df*)	*p*	Hedges' *g*	Effect Size Criteria
Parenting Behaviors							
Sensitivity	1 – 6	5.12 (0.73)	5.10 (0.50)	0.89 (1, 2974.49)	.35	0.03	
Responsiveness	1 – 6	**5.20** (0.67)	5.11 (0.53)	14.45 (1, 2656.55)	< .001	0.13	small
Affection	1 – 6	5.27 (0.72)	5.22 (0.56)	3.68 (1, 2661.68)	.06	0.06	
Involvement in activities	1 – 6	4.95 (0.92)	**5.19** (0.62)	76.44 (1, 3009.59)	< .001	0.28	medium
Exposure	1 – 6	4.57 (0.95)	**4.88** (0.55)	143.55 (1, 3270.08)	< .001	0.37	medium
Using toys	1 – 6	**4.93** (0.93)	4.86 (0.73)	6.54 (1, 2635.08)	.01	0.09	small
Consistency	1 – 6	4.27 (0.89)	**4.96** (0.57)	740.46 (1, 3119.13)	< .001	0.85	large
Overreactivity	1 – 6	**2.59** (0.89)	2.40 (0.72)	42.48 (1, 2585.37)	< .001	0.22	medium
Laxness	1 – 6	**2.91** (0.82)	1.94 (0.56)	1623.82 (1, 2947.05)	< .001	1.31	very large
Verbal punishment	1 – 6	2.96 (0.97)	**3.04** (0.84)	6.54 (1, 2410.07)	.01	0.09	small
Physical punishment	1 – 6	**1.76** (0.82)	1.60 (0.53)	47.68 (1, 3082.98)	< .001	0.22	medium
Psychological control	1 – 6	**2.62** (0.81)	1.52 (0.47)	2523.09 (1, 3276.86)	< .001	1.53	very large
Positive discipline	1 – 6	**4.88** (0.88)	4.82 (0.76)	4.42 (1, 2413.95)	.04	0.07	small
Parenting Stress	1 – 5	**2.04** (0.59)	1.40 (0.47)	129.68 (1, 295.91)†	< .001	1.23	very large
Externalizing behaviors	0 – 2	**0.48** (0.37)	0.41 (0.31)	7.44 (1, 213.15)‡	.01	0.18	small
Internalizing behaviors	0 – 2	**0.40** (0.28)	0.12 (0.17)	406.44 (1, 255.32)‡	< .001	1.02	large

Note. Figures marked in bold indicate the group with a higher mean score. † $n_{Chinese} = 160$, $n_{Dutch} = 216$; ‡ $n_{Chinese} = 2339$, $n_{Dutch} = 175$.

Differences in Parenting Behaviors at the Mean Level

In Table 1, compared to Dutch mothers, a significant mean-level difference was found on eleven out of thirteen parenting dimensions for Chinese mothers. For maternal support, no difference was shown for sensitivity and affection, but Chinese mothers were slightly more responsive. For maternal stimulation, Chinese mothers

used toys with their child slightly more often, while provided less exposure to diverse stimuli and displayed lower involvement in activities. For maternal structure, Chinese mothers were more likely to overreact to the child's misbehaviors and were noticeably less consistent and laxer in their parenting. For maternal harsh discipline, Chinese mothers used slightly less verbal punishment, but more physical punishment and considerably more psychological control. For maternal positive discipline, Chinese mothers used slightly more positive discipline.

To analyze the pattern of parenting behaviors in the two groups of mothers, the means (*M*) and coefficients of variation (CoV, mean divided by standard deviation) across thirteen parenting behaviors were ranked and the rank order was compared. In spite of the mean-level differences in eleven parenting behaviors, the two groups of mothers had a similar pattern across thirteen parenting dimensions, for the M_{rank}, Mann-Whitney test $Z = 0.13$, $p = .90$, and for the CoV_{rank}, $Z = 1.67$, $p = .10$. Together, these results above indicate that although Chinese mothers used eleven specific parenting behaviors with frequencies more or less different from Dutch mothers, in general they both showed more child-centered, positive parenting and less parent-centered, negative parenting towards their young children.

Parenting Stress and Contextual Factors as Mediators

We further tested whether parenting stress and the contextual factors including the only-child status and maternal working time explain the cultural differences in parenting behaviors, independently of covariates. In Supplementary Table S3, correlations with mediators (parenting stress, the only-child status, and maternal working time) and covariates (mother age, education, child age, externalizing, and internalizing behaviors) for the thirteen parenting behaviors were generally similar across Chinese and Dutch families. Next, the mediational model shown in Figure 1 was conducted for each of the thirteen parenting dimensions. As summarized in Table 2, model fit was excellent for each model and the total effect sizes (R^2) were significant for all parenting behaviors.

As expected, in all the models, country (0 = Dutch, 1 = Chinese) was positively related to parenting stress, the only-child status, and maternal working time, consistent with the results that Chinese mothers reported higher parenting stress than Dutch mothers (see Table 1) and that Chinese mothers worked longer and were more likely to have an only child than Dutch mothers (see the Method section). Unexpectedly,

the only-child status and maternal working time was not related to parenting stress in any models. Therefore, we further focused on the relations with parenting stress, the only-child status, and maternal working time for each parenting behavior and the adjusted direct relations between country and parenting behaviors.

Maternal Support Domain

Parenting stress was related to less *sensitivity*, *responsiveness*, and *affection* and maternal working time was related to less *sensitivity*. After adjusting for the cultural differences in parenting stress and maternal working time, Chinese mothers were more sensitive, responsive, and affectionate than Dutch mothers, indexed by the positive direct associations with country.

Maternal Stimulation Domain

Parenting stress was related to less *involvement in activities*, *exposure*, and *using toys*. In contrast, the only-child status was related to more *involvement in activities*, *exposure*, and *using toys*. The cultural differences in *involvement in activities* and *using toys* were fully accounted for by parenting stress and the only-child status, while Chinese mothers still showed less *exposure* than Dutch mothers.

Maternal Structure Domain

Parenting stress was associated with less *consistency* and more *overreactivity* and *laxness*. However, both the only-child status and maternal working time were related to less *overreactivity*. As a result, the cultural difference in *overreactivity* was fully explained by parenting stress, the only-child status, and maternal working time, while the adjusted direct association with country explained the majority of the variance in *consistency* and *laxness*, indicating that Chinese mothers were still less consistent and laxer in parenting than Dutch mothers, independently of parenting stress.

Maternal Harsh Discipline Domain

Parenting stress was related to more *verbal punishment*, *physical punishment*, and *psychological control*, whereas the only-child status was related to less *verbal punishment*, *physical punishment*, and *psychological control*. The cultural difference in *physical punishment* was fully explained by parenting stress and the only-child status, but after adjusting for these two mediators, Chinese mothers used slightly less *verbal punishment* and considerably more *psychological control* than Dutch mothers.

Maternal Positive Discipline Domain

Parenting stress was related to less *positive discipline*. Chinese mothers, however, still used more *positive discipline* than Dutch mothers after adjusting for this mediator.

Table 2

Associations Between Culture and Parenting Behaviors Mediated by Parenting Stress, Only-Child Status, and Maternal Working Time

Dependent Variables (N = 3429)	CFI	RMSEA	Total R^2	Total Effect	Direct Effect	Indirect Effect				
					Country → Parenting	Path 1: Country → Stress → Parenting	Path 2: Country → Only → Parenting	Path 3: Country → Time → Parenting	Path 4: Country → Only → Stress → Parenting	Path 5: Country → Time → Stress → Parenting
Sensitivity	.996	.028	.15***	.01	.28***	–.21***	–.01	–.07*	–.00	.02
Responsiveness	.996	.027	.16***	.06***	.25***	–.22***	–.01	.00	.00	.03
Affection	.996	.027	.10**	.03	.19***	–.18***	.01	.00	–.00	.02
Involvement in activities	.996	.027	.05**	–.13***	–.04	–.09**	.02**	–.03	–.00	.01
Exposure	.996	.027	.07**	–.17***	–.12*	–.11**	.02**	.03	–.00	.01
Using toys	.996	.027	.04*	.04*	.05	–.08*	.05***	.02	–.00	.01
Consistency	.997	.027	.17***	–.37***	–.36***	–.08*	.01	.05	–.00	.01
Overreactivity	.996	.027	.21***	.10***	–.01	.24***	–.03***	–.07*	.00	–.03
Laxness	.997	.027	.29***	.52***	.50***	.07*	.00	–.04	.00	–.01
Verbal punishment	.996	.027	.10**	–.04*	–.09*	.15***	–.05***	–.04	.00	–.02
Physical punishment	.996	.027	.13***	.10***	.03	.18***	–.03***	–.06	.00	–.02
Psychological control	.998	.027	.39***	.58***	.48***	.13**	–.02***	.02	.00	–.01
Positive discipline	.996	.027	.07**	.03*	.11*	–.13***	–.01	.05	–.00	.02

Note. Stress = parenting stress, Only = the only-child status, Time = maternal working time. * $p < .05$, ** $p < .01$, *** $p < .001$.

Discussion

Cultural differences in parenting behaviors fascinate researchers and educators because they offer a useful telescope through which we can understand how between-group variations in multiple developmental domains emerge early in life. Thereupon, drawn from relatively large samples, the current research was conducted to examine the similarities and differences between Chinese and Dutch mothers in their parenting behaviors. We further examined the possible explanations of differences in parenting behaviors in relation to different levels of parenting stress and disparities in contextual factors related to distinctive policies and lifestyles between these two cultures. Overall, we found both similarities and differences in the five domains of parenting behaviors in early childhood (i.e., support, stimulation, structure, harsh discipline, and positive discipline).

Similarities and Differences in Maternal Support

In regard to maternal support, both Chinese and Dutch mothers reported similarly high levels of sensitivity and affection. This similarity in sensitivity is in line with Mesman et al. (2016) who found that sensitivity is highly valued among different cultural groups (including Dutch and Chinese) of mothers, suggesting that sensitivity might be perceived as a cross-cultural ideal. The cultural similarity in affection, however, is not consistent with the finding that Chinese mothers expressed fewer positive emotions than American mothers (Camras et al., 2008), though we do not know whether American and Dutch mothers have a similar level of affection and Camras et al. (2008) only had a small sample. Our finding may be interpreted in light of different traditions of displaying affection in Dutch and Chinese families. In Dutch families, parents express their affection using practices of physical contact, while in Chinese families, harmony is the overarching theme which is achieved through companionship (Rothbaum, Morelli, Pott, & Liu-Constant, 2000). This idea is confirmed when we examined the items of affection. Dutch mothers were found to report a higher frequency of hugging or kissing their child and Chinese mothers reported a higher frequency of spending intimate times with their child.

Maternal support is influenced by parenting stress. Sensitivity was found to be context-dependent—Chinese mothers worked longer hours and experienced more parenting stress than Dutch mothers, both related to a lower level of sensitivity as they are physical and psychological burdens that may bring about treating children from a

parent-centered perspective. As a result, mothers may not pick up a child's signal accurately. Comparatively, elevated parenting stress linked to lower affection, possibly because mothers with a high level of parenting stress have difficulties to regulate their emotion (Hu, Han, Bai, & Gao, 2019) which may further spillover to the mother-child relationship, resulting in fewer expressions of positive affection. Although Chinese mothers reported slightly higher levels of responsiveness than Dutch mothers, the difference in parenting stress explained a part of the difference in responsiveness, pointing to the fact that parenting stress may make it less possible for mothers to appropriately respond to a child's signals. After adjusting for all the mediators, Chinese mothers were slightly more sensitive, responsive, and affectionate than Dutch mothers.

Similarities and Differences in Maternal Stimulation

Regarding maternal stimulation, at the mean level, Chinese mothers reported less frequent involvement in activities, which is consistent with Gartstein and Putnam (2018). Compared to Dutch mothers, Chinese mothers were also less likely to invite the child to social interactions and daily routines, but more likely to use different toys with the child. Regardless of these small-in-scope mean differences, results showed a similar pattern of mediations through parenting stress and the only-child status on these three parenting behaviors. On the one hand, mothers suffering from higher levels of parenting stress used stimulation behaviors less frequently, presumably because these mothers may participate passively in childrearing. They may withdraw the use of practices that need to be planned, such as creating occasions for the child's participation in routines. On the other hand, owing to the fact that there is not a sibling in the home to share attention, mothers could spend more time engaging in using toys and playing with only children. Since elevated parenting stress and an only-child status were both the characteristics of the Chinese sample, the negative mediation of parenting stress was compensated by the positive mediation of the only-child status. Eventually, the differences in involvement in activities and using toys were made equal by such compensatory processes.

Yet after controlling for these mediators, Chinese mothers were still lower than Dutch mothers in exposing their child to various stimuli. Two factors may explain this finding: social environment and grandparent-parent coparenting. First, Chinese and Dutch mothers differ in the number of places where they tend to interact with their child. Research has shown that Chinese parents tend to interact with their child

exclusively at home (home as a "haven") while Dutch parents tend to also take their child to public places (public places as a "heaven") (Zhao, Dijst, & Chai, 2016). The items in exposure presumably tap more into the parental tradition of Dutch mothers than that of Chinese mothers. Second, grandparent-parent coparenting is prevalent in contemporary Chinese families, especially during the first few years of a child's life (Li & Liu, 2019). Relatedly, grandparents rather than mothers may take care of and engage the child in social activities particularly when mothers are working but even when mothers are home. Therefore, compared to Dutch mothers, Chinese mothers have relatively fewer opportunities to offer these experiences themselves.

Similarities and Differences in Maternal Structure

In direct contrast to maternal support or stimulation, considerable differences were found on maternal structure, indicating that Chinese mothers were significantly less consistent and laxer than Dutch mothers. These results are congruent with the previous findings (Kelley & Tseng, 1992; Hulei et al., 2006) and adds to the literature on such differences between Chinese and Dutch parents in early childhood. Parenting stress explained a small proportion of such variations, showing that Chinese mothers had higher levels of parenting stress which was further related to less consistency and more laxness. Additionally, we surmise that the prevalent grandparent-parent coparenting may also assist in interpreting the remaining variance. In these urban Chinese families, mothers need to adjust their requests and punishment depending on grandparents' reactions. It is likely that Chinese mothers may not insist on punishing a child (thus being inconsistent) if grandparents already take actions or Chinese mothers need to tolerate a child's wrongdoings and respect grandparents' opinions (thus being lax) if the grandparents disagree with maternal requests or punishment utilized.

Chinese mothers were also more likely to overreact to child misbehaviors, and this cultural difference was mainly explained by the variation in parenting stress. The only-child status and maternal working time only explained a small amount of the cultural difference in overreactivity. Overreactivity reflects inappropriately and exaggerated reactions to children's misbehaviors which is most likely to occur when parenting stress increases owing to relatedly ineffective emotion regulation strategies (Hu et al., 2019). As such, mothers with high levels of parenting stress may rely more on reactive, parent-centered behaviors (Deater-Deckard, 1998) and children's misbehaviors may

trigger such negative reactions more easily (Mackler et al., 2015). This finding is consistent with Su and Hynie (2011) who found that the association between culture and authoritarian parenting is fully mediated by parenting stress.

Similarities and Differences in Maternal Harsh Discipline

Cultural differences in harsh discipline were more complex in comparison to the other parenting domains. At the mean level, Chinese mothers used more physical punishment and psychological control but less verbal punishment than Dutch mothers. A similar pattern of mediations through parenting stress and the only-child status was shown for these three parenting behaviors. First, Chinese mothers had a higher level of parenting stress, which in turn was linked to higher levels of harsh discipline. Again, when parenting stress increases, mothers may have difficulties to regulate their emotions (Hu et al., 2019) and are prone to use reactive, parent-centered behaviors, including scolding, spanking, or mentally manipulating. Conversely, Chinese families were more likely to have an only child and mothers used fewer harsh disciplinary behaviors with only children. Although inconsistent with the idea that the high expectation Chinese parents might have for an only child escalates harsh discipline (Liu & Wang, 2015b), this result is in line with the finding that Chinese mothers tended to use authoritarian parenting with preschoolers who had a sibling (Fan & Chen, 2020).

After controlling for these mediators, the proportion of the remaining variance was different for the three parenting behaviors. Chinese mothers used verbal punishment less often and psychological control noticeably more often, possibly indicating varying traditions of parental power assertion. Given the belief that children younger than 6 years old are incapable of understanding rules and parents should be lenient during this period (Cheah, Leung, Tahseen, & Schultz, 2009), Chinese mothers may avoid using verbal punishment to reduce direct conflicts with their child. Rather, psychologically controlling practices such as shaming (Wu et al., 2002) and guilt induction (Wang, Bernas, & Eberhard, 2008) have been found to be used by Chinese mothers to have children pay attention to social norms and show respect to maternal authority. Respectively, psychological control, although being not highly favored and not used very often, is still acceptable in the Chinese culture. In contrast, the cultural difference in physical punishment was fully explained by the mediators, thus comparable with the finding of overreactivity, and both findings demonstrate that maternal inappropriately reactions to children's misbehaviors are context-dependent

more than culture-dependent, mainly owing to the discernible difference in the levels of parenting stress between Chinese and Dutch mothers.

Differences in Positive Discipline

Furthermore, we found that Chinese mothers used positive discipline slightly more often than Dutch mothers although Chinese mothers also reported higher parenting stress which was related to less positive discipline. This finding is not consistent with the literature showing that immigrant Chinese mothers used positive discipline less often than European American or Canadian mothers (Kelley & Tseng, 1992; Mah & Johnston, 2012). However, compared to immigrant Chinese mothers, mainland Chinese mothers were found to display somewhat more positive discipline (Chen, Sun, & Yu, 2017), making them possibly also use positive discipline more often than European mothers. Our finding may be understood in light of the trend that authoritativeness is becoming prevalent among the upper- and middle-class urban Chinese families (Liu & Guo, 2010) and correspondingly, positive discipline is being encouraged in particular for this group of parents (i.e., Chinese mothers in our study).

Similarities in Pattern of Parenting Behaviors and Pattern of Mediations

Despite these mean-level differences, we found that Chinese and Dutch mothers both showed more child-centered, positive parenting and less parent-centered, negative parenting in early childhood. This result is consistent with the premise in the recent literature that Chinese mothers, especially those who live in urban China, are gradually becoming more authoritative (Liu & Guo, 2010; Lu & Chang, 2013). This finding is in direct contrast to the impression of a tiger mother, further suggesting that a proneness to classifying Chinese mothers into an authoritarian, strict style of parenting is not accurate, at least not for urban Chinese mothers with young children. Furthermore, the mediations through the only-child status are mostly influential on maternal harsh discipline and stimulation, indicating that Chinese mothers' proneness of leniency in early childhood is more salient for only children. This leniency is characterized as executing milder punishment with only children while offering more participation in learning activities.

Moreover, we found that although Dutch mothers used psychological control less often, which is consistent with a large body of literature, yet notably, they used verbal punishment more frequently than Chinese mothers. Such results imply that compared

to Chinese families, a lower level of harsh discipline may not fully explain how Dutch mothers promote and maintain their children's psychological well-being. Rather, Dutch mothers were consistent and rarely slipshod in their parenting, pointing to the possibility that a high level of parental structure may be one of the secrets of how Dutch mothers help their children go through a happy childhood.

Limitations and Future Directions

The current study has limitations. First, all the variables are measured by mother reports. Subjective biases such as socially desirable responses are thus possible. Using observations for parenting behaviors is an important approach to confirming the cultural differences found in our research. Second, despite we handled the missing data using FIML, incomplete data of variables inevitably introduce systematical measurement errors and power issues for detecting effects. Finally, it should be borne in mind that this study is among the first ones that examine differences between Chinese and Dutch mothers in parenting behaviors. Replications are therefore needed before a firm conclusion of cultural patterns could be drawn for these mean-level differences in specific parenting dimensions.

In spite of these limitations, some interesting research questions also arise from our findings. First, significant cultural variations in consistency, laxness, and psychological control are not explained by the differences in parenting stress, the only-child status, maternal working hours, demographics, and child problem behaviors. Future studies should investigate other possible explanations, such as grandparent-parent coparenting. Second, the cultural difference in parenting stress played a critical role in explaining group differences in several parenting behaviors. Thereafter a question needs to be answered: Why is there a cultural difference in parenting stress? Although we expected that structural differences at the macrosystem or exosystem levels may contribute to the difference in parenting stress between Chinese and Dutch mothers, the chained mediations tested (from the only-child status or maternal working time to parenting stress) were not significant. Future research should examine other contextual factors that may be relevant to parenting stress.

Conclusion

Drawing from large samples of families, this research investigates cultural differences between Chinese and Dutch mothers in early parenting behaviors and

further examines how parenting stress and contextual factors including the only-child status and maternal working time explain these cultural differences. We find mean-level differences between Chinese and Dutch mothers in eleven parenting dimensions and illustrate that parenting stress and known disparities in contextual factors (the only-child status and maternal working time) explain all or part of the cultural differences in parenting behaviors. Therefore, our research adds to the understanding of factors that may lead to cultural variations in early parenting.

Supplementary Materials

Comprehensive Early Childhood Parenting Questionnaire (CECPAQ): Definition and Example Items of Each Parenting Dimension

Support Domain

Support refers to the extent to which parents are attuned, supportive and acquiescent to the child's needs and demands (Verhoeven, Deković, Bodden, & van Baar, 2017).

1 *Sensitivity*

Sensitivity refers to the parents' ability to perceive children's signals accurately (Ainsworth, Bell, & Stayton, 1974).

Example item: "I know what my child feels or needs."

2 *Responsiveness*

Responsiveness refers to the parents' ability to respond to children's signals promptly and appropriately (Ainsworth et al., 1974).

Example item: "When my child is not feeling well, I'm able to comfort him."

3 *Affection*

Affection refers to the extent to which parents show positive and warm behaviors toward their child (Aunola, Ruusunen, Viljaranta, & Nurmi, 2015).

Example item: "I hug, kiss, or hold my child for no particular reason."

Stimulation Domain

Stimulation refers to the extent to which parents engage their child in learning activities (Verhoeven et al., 2017).

4 *Involvement in activities*

Involvement in activities refers to parents' efforts to engage children in activities that promote learning (Tucker-Drob & Harden, 2012).

Example item: "I tell my child stories or read books to him/her."

5 *Exposure*

Exposure refers to parents' efforts to provide opportunities to children to interact with the physical and social elements of the environment (Dauch, Imwalle, Ocasio, & Metz, 2018).

Example item: "I regularly let my child play with other children."

6 *Using toys*

Using toys refers to the abundance and diversity of play materials that parents

offer and use when playing with their child (Dauch et al., 2018).

Example item: "My child and I play together with musical toys (e.g., drum, flute)."

Structure Domain

Structure refers to the extent to which parents provide an organized environment and external structure for their child (Verhoeven et al., 2017).

7 *Consistency*

Consistency refers to the extent to which parents enforce rules and punishment consistently (Shelton, Frick, & Wootton, 1996).

Example item (reverse coded): "When my child misbehaves, I let my child out of a punishment early."

8 *Overreactivity*

Overreactivity refers to parents' tendency to respond with exaggerated anger, frustration, and meanness to children's misbehaviors (van den Akker, Deković, & Prinzie, 2010).

Example item: "When I'm upset or under stress…I am no more picky than usual / I'm on my child's back."

9 *Laxness*

Laxness refers to parents' permissiveness and the tendency to set limits ineffectively (Irvine, Biglan, Smolkowski, & Ary, 1999).

Example item: "When I give a fair threat or warning…I always do what I said / I often don't carry it out."

Harsh Discipline Domain

Harsh discipline refers to the extent with which parents use harsh, power assertive disciplinary techniques (Verhoeven et al., 2017).

10 *Verbal punishment*

Verbal punishment refers to parents' power assertion expressed through scolding, yelling, or derogating (Berlin et al., 2009).

Example item: "When my child disobeys, I get angry and raise my voice."

11 *Physical punishment*

Physical punishment refers to parents' power assertion expressed through slapping or spanking with a hand with the intent to modify children's behavior (Wissow, 2001).

Example item: "I spank my child for whining."

12 *Psychological control*

Psychological control refers to parents' tendency to use manipulative behaviors that intrude upon the psychological and emotional well-being of children (Barber, 1996).

Example item: "When my child does something I don't like, I insult my child."

Positive Discipline Domain

13 *Positive discipline*

Positive discipline refers to the extent with which parents use disciplinary techniques that explain existing rules and the consequences of misbehaviors (Verhoeven et al., 2017).

Example item: "I explain to my child the consequences of his / her behavior."

Pseudo-Participants Generation Process

Chinese Sample

Three pseudo-participants (one "Chinese" and two "Dutch") were generated to fill in the sparse response categories of some items for parenting behaviors, parenting stress, and child problem behaviors. With respect to the pseudo-Chinese participant, because no Chinese mother chose the category "5" for the item "My child does a few things that bother me a great deal" in the Chinese version of the Parenting Stress Index-Short Form (Abidin, 1995; Luo et al., 2021), this category gap is filled by the pseudo-Chinese participant when estimating the measurement invariance for parenting stress. Specifically, this pseudo-participant is missing on all the other items in all the other scales such that it will not bring about any variations to these other items.

Dutch Sample

With respect to the data of the Dutch participants, since a maximum for two response categories was missing for a certain item used in the current research, we needed to generate at least two pseudo-Dutch participants to fill in the gaps on these two categories simultaneously and also randomly complete one missing category on the other items. This means that the two pseudo participants are mutually exclusive on the two missing categories (e.g., one is assigned "4" and another is assigned "5") while randomly assigned to an item with one missing category (e.g., one is assigned "5" and another is assigned "5" or missing on this item). Similarly, these two pseudo-participants are missing on the other items with a complete range of response categories. The two pseudo-Dutch participants fill in the gaps of categories in the

following items (*the sparse categories*):

(1) nineteen items in the Comprehensive Early Childhood Parenting Questionnaire (CECPAQ; see Verhoeven et al., 2017 Appendix 1 for specific item descriptions), including #1 (*1* & *2*), #2 (*2*), #3 (*1*), #5 (*1* & *2*), #6 (*1*), #7 (*1* & *2*), #8 (*1*), #9 (*1*), #10 (*1* & *2*), #11 (*1* & *2*), #12 (*1* & *2*), #13 (*1* & *2*), #15 (*6*), #22 (*6*), #26 (*6*), #44 (*1*), #49 (*1*), #50 (*1*), and #51 (*1*);

(2) one item of externalizing behaviors in the Child Behavior Checklist 1½–5 (Achenbach & Rescorla, 2000), namely, "Physically attacks people" (*2*);

(3) five items of internalizing behaviors in the Child Behavior Checklist 1½–5 (Achenbach & Rescorla, 2000), including "Unhappy, sad or depressed" (*2*), "Looks unhappy without good reason" (*2*), "Withdrawn, doesn't get involved with others" (*2*), "Nervous, highstrung, or tense" (*2*), and "Too fearful or anxious" (*2*);

(4) four items in the Dutch version of the Parenting Stress Index-Short Form (De Brock, Vermulst, Gerris, & Abidin, 1992), including "I often have the feeling that I cannot handle things very well" (*5*), "Sometimes my child does things that bother me just to be mean" (*4* & *5*), "My child does a few things that bother me a great deal" (*5*), and "My child turned out to be more of a problem than I expected" (*5*).

Supplementary Tables

Table S1

Measurement Invariance of the CECPAQ Between Chinese and Dutch Mothers

	χ^2	df	CFI	RMSEA	$\Delta\chi^2$	ΔCFI	ΔRMSEA
Sensitivity							
Metric [a]	45.91**	16	.998	.03 [.02, .04]			
Scalar [b]	47.44**	19	.998	.03 [.02, .04]	2.10	0 [b-a]	0 [b-a]
Responsiveness							
Metric [a]	113.55**	25	.996	.05 [.04, .05]			
Scalar [b]	145.49**	29	.994	.05 [.04, .06]	32.77**	–.002 [b-a]	0 [b-a]
Affection							
Metric [a]	87.33**	16	.995	.05 [.04, .06]			
Scalar [b]	73.46**	19	.996	.04 [.03, .05]	2.17	.001 [b-a]	–.01 [b-a]
Involvement in Activities							
Metric [a]	38.40**	9	.997	.04 [.03, .06]			
Scalar [b]	45.73**	11	.996	.04 [.03, .06]	8.79*	–.001 [b-a]	0 [b-a]
Exposure							
Metric [a]	438.47**	25	.965	.10 [.09, .11]			
Scalar [b]	376.96**	29	.970	.08 [.08, .09]	7.09	.005 [b-a]	–.014 [b-a]
Using Toys							
Metric [a]	82.28**	25	.999	.04 [.03, .05]			
Scalar [b]	166.35**	29	.998	.05 [.05, .06]	58.36**	–.001 [b-a]	.01 [b-a]

Table S1 (continued)

	χ^2	df	CFI	RMSEA	$\Delta\chi^2$	ΔCFI	ΔRMSEA
Consistency							
Metric [a]	276.13**	9	.702	.13 [.12, .15]			
Partially metric [b]	86.00**	6	.911	.09 [.07, .11]			
Partially scalar [c]	156.51**	7	.833	.11 [.10, .13]	68.13**	–.078 [c-b]	.02 [c-b]
Overreactivity							
Metric [a]	326.67**	16	.892	.11 [.10, .12]			
Partially metric [b]	242.96**	13	.920	.10 [.09, .11]			
Partially scalar [c]	442.64**	15	.851	.13 [.12, .14]	151.86**	–.069 [c-b]	.03 [c-b]
Laxness							
Metric [a]	325.49**	25	.955	.08 [.08, .09]			
Scalar [b]	1170.69**	29	.829	.15 [.15, .16]	505.19**	–.126 [b-a]	.07 [b-a]
Partially scalar [c]	320.02**	28	.956	.08 [.07, .09]	23.29**	.001 [c-a]	0 [c-a]
Verbal Punishment							
Metric [a]	126.61**	9	.968	.09 [.07, .10]			
Scalar [b]	194.68**	11	.949	.10 [.09, .11]	60.86**	–.019 [b-a]	.01 [b-a]
Physical Punishment							
Metric [a]	60.00**	9	.981	.06 [.04, .07]			
Scalar [b]	131.63**	11	.955	.08 [.07, .09]	58.20**	–.026 [b-a]	.02 [b-a]
Partially scalar [c]	57.83**	10	.982	.05 [.04, .07]	0.39	.001 [c-a]	–.01 [c-a]
Psychological Control							
Metric [a]	524.40**	36	.916	.09 [.08, .10]			
Scalar [b]	580.61**	41	.907	.09 [.08, .09]	84.98**	–.009 [b-a]	0 [b-a]
Positive Discipline							
Metric [a]	59.89**	16	.996	.04 [.03, .05]			
Scalar [b]	415.48**	19	.960	.11 [.10, .12]	223.30**	–.036 [b-a]	.07 [b-a]
Partially scalar [c]	71.68**	18	.995	.04 [.03, .05]	11.31**	–.001 [c-a]	0 [c-a]

Note. Model in boldface represents the final level of measurement invariance. * $p < .05$, ** $p < .01$.

Table S2

Measurement Invariance of Parenting Stress and Child Externalizing and Internalizing Behaviors Between Chinese and Dutch Families

	χ^2	df	CFI	RMSEA	$\Delta\chi^2$	ΔCFI	ΔRMSEA
Parenting Stress (n = 380)							
Metric [a]	423.52**	86	.909	.14 [.13, .16]			
Scalar [b]	394.65**	95	.919	.13 [.12, .14]	20.59**	.010 [b-a]	–.01 [b-a]
Child Externalizing and Internalizing Behaviors (n = 2514)							
Metric [a]	1294.21**	338	.915	.05 [.05, .05]			
Scalar [b]	1306.37**	356	.916	.05 [.04, .05]	58.90**	.001 [b-a]	0 [b-a]

Note. Model in boldface represents the final level of measurement invariance. * $p < .05$, ** $p < .01$.

Table S3

Correlations with Parenting Stress, Contextual Factors, and Child Problem Behaviors for Parenting Behaviors

	Mediators			Covariates				
	Parenting stress	Only-child status	Maternal working time	Mother age	Mother education	Child age	Externalizing behaviors	Internalizing behaviors
Sensitivity	–.36***/–.27***	–.01/–.01	–.09/–.06	.06**/.00	.09***/–.00	.04*/.10**	–.02/–.14	–.02/.09
Responsiveness	–.38***/–.34***	–.00/.01	–.02/.02	.05*/.01	.08***/.02	–.02/.05	–.03/–.15	–.02/.06
Affection	–.28***/–.25***	.01/.05	–.08/.02	.03/–.06	.09***/–.07*	.02/–.02	–.03/–.16*	–.01/–.03
Involvement in activities	–.21**/–.07	.06**/.06*	–.09/–.00	–.01/–.02	.14***/.07*	.03/.08**	–.02/.04	.01/.06
Exposure	–.24**/–.11	.05*/.09**	.02/.03	–.01/–.05	.08***/.01	.03/.08*	–.01/–.08	–.01/–.00
Using toys	–.18*/–.05	.10***/.22***	.07/.02	–.03/–.12***	.13***/–.00	–.04/–.17***	–.02/.01	–.03/–.02
Consistency	–.05/–.32***	.02/.08**	.03/.08*	.01/–.04	–.00/.04	–.03/–.09**	–.05*/–.29***	–.06**/–.06
Overreactivity	.42***/.48***	–.06**/–.19***	–.07/–.14***	.02/.02	–.10***/–.08*	.04*/.23***	.05*/.23**	.05*/–.02
Laxness	.16*/.20**	.01/–.01	–.09/–.04	.01/–.01	–.09***/.03	–.05*/–.04	–.02/.16*	–.02/.06
Verbal punishment	.35***/.32***	–.12***/–.17***	–.01/–.11***	.02/.05	–.01/–.12***	.11***/.22***	.04/.24**	.03/.10
Physical punishment	.33***/.36***	–.08***/–.22***	.09/–.18***	.03/–.04	–.08***/–.15***	.04*/.19***	.07**/.33***	.06**/.04
Psychological control	.31***/.31***	–.08***/–.07*	.10/–.07*	.05*/–.00	–.04*/–.06*	.09***/.18***	.06**/.33***	.07**/.10
Positive discipline	–.33***/–.11	–.01/–.04	.01/.02	.01/–.02	.14***/–.09**	.09***/.26***	–.03/–.03	–.02/.07

Note. Correlation coefficients for the Chinese/Dutch samples are presented separately.

For the Chinese sample ($N = 2339$), n(parenting stress) = 160, n(maternal working time) = 150; for the Dutch sample ($N = 1090$), n(parenting stress) = 216, n(externalizing behaviors) = 175, n(internalizing behaviors) = 175.

Spearman's Rho correlation coefficients were reported for the correlations with the only-child status.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Part 2

Parenting-by-Temperament Processes Predicting Child Social Adjustment

4

Chapter 4

Committed Compliance and Maternal Parenting Behaviors Predict Internalization of Rules and Externalizing Behaviors in Chinese Preschool Children

Author Note:

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Author Contributions:

S. Dong conceptualized the research question, and J.S. Dubas, M. Deković, and M.A.G. van Aken gave advice and feedback. S. Dong and Z. Wang coordinated the data collection. S. Dong analyzed the data and wrote the manuscript. J.S. Dubas, M. Deković, and M.A.G. van Aken provided feedback on the analyses. J.S. Dubas, M. Deković, Z. Wang, M.A.G. van Aken, and M. Wu provided feedback on the manuscript.

Abstract

This study investigated how parenting behaviors and child committed compliance predicted internalization of rules and externalizing behaviors throughout early childhood. Participants were 95 Chinese mother-child dyads. Maternal respect for autonomy and negative control were observed in free-plays at 14 and 25 months. Toddlers' committed compliance was coded in a cleanup task at 25 months. At 60 months, internalization of maternal rules and experimenter rules were observed. Externalizing behaviors were reported by mothers on the Strengths and Difficulties Questionnaire. *Research Findings*: Results showed that child committed compliance predicted higher internalization of maternal rules and lower externalizing behaviors overtime. For children with high committed compliance, respect for autonomy in toddlerhood was positively associated with internalization of maternal rules and negative control in toddlerhood was positively associated with externalizing behaviors. Conversely for children with low committed compliance, respect for autonomy was associated with lower internalization of maternal rules, whereas negative control was associated with higher internalization of experimenter rules and fewer externalizing behaviors. *Practice or Policy*: Findings support a goodness-of-fit model for the moderations of committed compliance on the relations between maternal behaviors and social adjustment, suggesting that interventions designed to promote Chinese children's social adjustment may benefit from considering the fit between early parenting and child self-control.

Keywords: internalization, externalizing behaviors, autonomy, committed compliance

Introduction

Most children are inherently motivated to follow and internalize the behavioral rules (Kochanska, 2002a). Some children, however, do not sufficiently internalize those standards of conduct and some are even at risk for developing externalizing symptoms (Camodeca & Coppola, 2016). Preschool internalization of rules and externalizing behaviors are two critical indicators of social adjustment that have been shown to exhibit cascading influences on peer relationships (Blair et al., 2015), academic achievement (Burt & Roisman, 2010), and social competence (Kochanska, Koenig, Barry, Kim, & Yoong, 2010) in childhood and adolescence. Therefore, it is important to investigate the early developmental processes of preschool internalization of rules and externalizing behaviors so that researchers and educators could help in socializing young children to eventually become well-adjusted, socially competent members of society.

Research has shown that individual differences in internalization of rules or externalizing behaviors are shaped by socialization factors, such as parenting, and individual factors, such as child behavioral characteristics, in toddlerhood (Bates, Pettit, Dodge, & Ridge, 1998; Kochanska & Aksan, 1995). However, our understanding of how toddlerhood parenting behaviors, together with child characteristics, predict preschool social adjustment remains limited for children from non-Western countries (e.g., Chinese children). Further examining these longitudinal predictions may contribute to our knowledge of cultural similarities and differences in the related developmental processes. Practically, such knowledge has the potential to assist in setting goals and making global policies for child development in the first a few years of life (e.g., Early Childhood Development Index 2030, UNICEF, 2020). Moreover, a fuller understanding in this regard may allow us to design interventions targeting these antecedents in toddlerhood and thereby promoting child social adjustment early on. This can be particularly relevant for Chinese families where the focus on early childhood social adjustment in relation to parenting behaviors and child characteristics has just gained slight research attention.

The current study, therefore, aimed at addressing three specific gaps in the literature. First, the links between social adjustment and parenting behaviors that respect or deny child autonomy have been found for school-aged children and adolescents (e.g., Pinquart, 2017a). Yet these links have been less often studied in early childhood. Particularly, little is known about the role of these parenting behaviors in

social adjustment of young children in China where traditionally such parenting behaviors are not highly valued (Liu, Chen, Zheng, Chen, & Wang, 2009). Second, although some studies have found that young children's tendency to comply with rules may contribute to later social adjustment in Western cultures (e.g., the U.S., Kochanska, Kim, & Boldt, 2013), other studies in Western cultures have not (e.g., Harden, Duncan, Morrison, Panlilio, & Clyman, 2015). Thus, it is unclear whether such developmental continuity is universal across cultures. Third, few studies have considered the interplay between early parenting and the tendency to comply with rules when examining their relevance to social adjustment. Thus, drawn from a longitudinal sample of Chinese families, this study aims at examining how parenting behaviors and child committed compliance predict internalization of rules and externalizing behaviors from toddlerhood to the preschool years.

Parenting Behaviors in Toddlerhood and Preschool Social Adjustment

Autonomy (i.e., independent actions to control and realize mental states such as wishes, intentions, and preferences; Keller, 2012) is a need important for child social adjustment and its role becomes central in toddlerhood (Côté-Lecaldare, Joussemet, & Dufour, 2016). At this age, mothers are the primary socializing agent and maternal behaviors that respect or deny child autonomy are firmly associated with the development of social adjustment. Mothers show respect to autonomy by encouraging child initiatives, providing choices, and explaining her demands (Matte-Gagné, Harvey, Stack, & Serbin, 2015). In contrast, mothers hinder toddlers' autonomy by using negatively controlling behaviors (e.g., threatening, criticism, and physical force) to pressure children to change their thoughts and behaviors (Laurin & Joussemet, 2017).

Theoretically, maternal respect for autonomy facilitates proficiencies in internalization of rules and prevents or reduces externalizing behaviors, whereas maternal negative control is detrimental to the natural proneness of internalizing rules, eventually culminating in externalizing behaviors. From a self-determination theory perspective, respect for autonomy helps children experience volition in their actions and, in turn, these actions are perceived as in accord with abiding values (Ryan, Kuhl, & Deci, 1997). Negative control, on the other hand, triggers children's internal pressure of undue loyalty to their parents and, in the long term, their regulation and integrity is undermined (Soenens & Vansteenkiste, 2010). However, mixed empirical findings have been shown on how these two parenting behaviors predict internalization of rules

and externalizing behaviors in early childhood among samples from Western cultures.

For maternal respect for autonomy, inconsistent relations with internalization of rules have been found. A positive link with internalization of rules was found in one study (Kerr, Lopez, Olson, & Sameroff, 2004) while no relation was found in another study (Kochanska & Aksan, 1995). Similarly, different associations between maternal respect for autonomy and child externalizing behaviors have also been reported. A positive association with toddlers' defiant, noncompliant behavior was found (Dix, Stewart, Gershoff, & Day, 2007), a negative association with externalizing behaviors was found (Blatt-Eisengart, Drabick, Monahan, & Steinberg, 2009), whereas another study found no association (Puff & Renk, 2014).

For maternal negative control, relatively consistent relations have been found with internalization of rules. Negative control positively predicted toddlers' nonconcern for violating rules (Kochanska, Forman, & Coy, 1999) and negatively predicted internalization of rules in the preschool to school years (Kochanska, Aksan, & Nichols, 2003). Relations with externalizing behaviors, however, were less consistent for negative control in toddlerhood. Although positive relations with externalizing behaviors concurrently and longitudinally were found in several studies (Blatt-Eisengart et al., 2009; van Aken et al., 2007b; Yan, Ansari, & Wang, 2019), no relation was found in other studies (Rubin, Burgess, Dwyer, & Hastings, 2003; van Aken, Junger, Verhoeven, van Aken, & Deković, 2007a).

Inconsistencies in the relations between respect for autonomy or negative control and child social adjustment could be partially explained by methodological issues in the studies, such as including only one parenting dimension, measuring parenting behaviors by different methods (parent report or observation), assessing parenting behaviors and child social adjustment with varying age gaps, to name a few. To elucidate relatively precise predictions of these two parenting behaviors, we coded and included both maternal respect for autonomy and negative control. The free-play task was used to maximumly mimic mother-child interactions in a naturalistic setting. Moreover, these parenting behaviors assessed at two child ages in toddlerhood were combined to increase the reliability of assessment.

Chinese Mothers' Parenting Behaviors in Toddlerhood

In regard to Chinese families, with the sociocultural milieu changing from an agrarian, planned economy into an industrialized, market economy, Chinese mothers'

socialization goals are also changing. Traditionally, Chinese mothers have been found to emphasize hierarchy in the family and children were required to be obedient and respectful for adult authority (Keller, 2012). However, with the relatively recent economic prosperity and increased number of urban Chinese parents acquiring higher levels of education, contemporary Chinese mothers are expected to, on the one hand, still instill in children conformity to family rules and maintenance of adult authority, and on the other hand, nourish autonomy in their children (Keller, 2012). This change in socialization goals calls into question what the roles of maternal respect for autonomy and negative control play in Chinese preschoolers' social adjustment. Yet the answer to this question remains unknown owing to a dearth of research.

As far as we know, only three studies have been conducted to examine these associations and they all focus on externalizing behaviors. While one study found that negative control at age 4 positively predicted externalizing behaviors one year later (Liu & Wang, 2015a), two earlier studies found that respect for autonomy at age 2 did not predict aggressive behaviors at age 4 (Chen, Chen, Wang, & Liu, 2002; Liu et al., 2009). Although the empirical evidence is too sparse to draw firm conclusions, it is possible that negative control, but not respect for autonomy, may be potentially relevant for Chinese children. But it should be noted that no studies have examined these relations for internalization of rules with Chinese children.

In brief, how respect for autonomy and negative control predict child later internalization of rules and externalizing behaviors is still unclear for Chinese families. Given that the need for autonomy becomes essential from toddlerhood on, investigating the developmental relevance of parenting behaviors that respect or deny a toddler's autonomy may be especially informative for designing interventions targeting such parenting behaviors to eventually promote child social adjustment. Moreover, respect for autonomy is gradually emphasized in Chinese society, investigating the role of this parenting behavior in the development of social adjustment may be critical to understand contemporary Chinese parenting. Notably, respect for autonomy and negative control should be examined together as these maternal behaviors might show different developmental relevance to Chinese children. Thus, the first aim of this study is to examine whether respect for autonomy and negative control in toddlerhood predict later internalization of rules and externalizing behaviors in Chinese families.

Child Compliance in Toddlerhood and Preschool Social Adjustment

In addition to early parenting behaviors, another important predictor of social adjustment is the child tendency to comply with rules. Two types of compliant behaviors have been distinguished in the literature: committed compliance and situational compliance. Committed compliance refers to autonomously following standards of conduct with little parental intervention, which is in contrast to situational compliance whereby frequent prompts are needed to get the child to comply (Kochanska & Aksan, 1995). Moreover, committed compliance is seen as a trait-like quality reflecting a child's willing stance to embrace parental agendas, which is partially rooted in temperamental characteristics of inhibition and self-control (Kochanska & Aksan, 2006; Kochanska, Coy, & Murray, 2001). In contrast, situational compliance is primarily extrinsically driven and unrelated to child temperament (Kochanska et al., 2001). Varying from situational compliance in nature, committed compliance has been recognized as a critical achievement in toddlerhood with potential to foretell later social adjustment (Kochanska et al., 2001; Kochanska, 2002a).

Supporting such predictions of committed compliance, the positive developmental continuity from committed compliance to later internalization of rules has been well-established (e.g., Kochanska et al., 2001; an exception though: Harden et al., 2015). From toddlerhood to the preschool years, a critical shift occurs from external monitoring of behavior to more self-regulated behavior in the absence of surveillance (Kochanska et al., 2001). Compared with toddlerhood committed compliance, preschool internalization of rules contains a higher level of self-relevance and is generalized to other adults, such as experimenters and teachers (Kochanska et al., 2003). Moreover, milder externalizing symptoms such as defiance and rule-breaking were often found among children with low levels of committed compliance (Kochanska et al., 2013).

Although these links have been extensively studied in Western cultures, to our best knowledge, no studies have confirmed these links in young Chinese children. It is important to examine whether the continuity from committed compliance into more internalized self-regulated behavior in the absence of adults' supervision during the toddler-to-preschool period is universal across cultures. Similarly, it is important to examine the association of committed compliance and externalizing behaviors to determine whether such a link could be found in non-Western children. We surmise that such knowledge may add to the understanding of cultural similarities and

differences in the early development of social adjustment. Therefore, the second aim is to investigate the associations between committed compliance in toddlerhood and internalization of rules and externalizing behaviors at the preschool years in Chinese children.

Interactions Between Parenting Behaviors and Child Compliance

Theorists have suggested that children react differentially to maternal parenting behaviors dependent on their different tendencies to comply with rules (Grusec, Danyliuk, Kil, & O'Neill, 2017). This implies that the predictions of maternal respect for autonomy or negative control might vary depending on child committed compliance. Our examination of such moderations is guided by a goodness-of-fit model (e.g., Bates et al., 1998). In this model, which aspect of parenting would promote or hinder a child's social adjustment would be determined by a child's level of committed compliance. Social adjustment is promoted when a "good" fit occurs between maternal behavior and child committed compliance. Otherwise, a "poor" fit occurs and social adjustment is compromised.

For a good fit, children with higher self-control thrive when parenting behaviors are supportive and autonomy-granting, whereas children with lower self-control benefit from controlling behaviors (see Kiff, Lengua, & Zalewski, 2011 for a review). Respect for autonomy would scaffold internalization of rules for children with a high level of committed compliance as they already have adequate compliance skills to have internalization being calibrated by this maternal behavior (Ryan et al., 1997). Relatedly, these children would also be less likely to reject maternal authority or agendas defiantly and aggressively (Camodeca & Coppola, 2016). In comparison, negative control would facilitate internalization of rules for children with a low level of committed compliance because their internalization would depend more on maternal external regulations as a compensatory process. Relatedly, these children would show fewer externalizing behaviors as this maternal behavior may help in correcting their noncompliant responses to maternal agendas (Kiff et al., 2011).

For a poor fit, social adjustment is undermined for children with higher self-control when their autonomy and independence is hampered by controlling parenting while the adjustment of children with lower self-control is poorer when their assertion for independence is excessively granted (Kiff et al., 2011). Negative control would hinder internalization of rules and trigger aversive and defiant responses to maternal

agendas in children with a high level of committed compliance because of a mismatch between this maternal behavior and their self-control level. In contrast, respect for autonomy would hamper internalization of rules for children with a low level of committed compliance as they are too immature to benefit from allowing their own initiatives and independence for internalization development. These children would also show more externalizing behaviors because allowing independence may be recognized as a maternal sanction of uncooperativeness and defying rules.

As far as we know, only two empirical studies have examined whether the association between respect for autonomy or negative control and child externalizing behaviors was modified by child tendency to comply with rules. Among U.S. toddlers, for children high on compliance (low resistance to control) negative control positively predicted childhood externalizing behaviors, whereas no association was found for toddlers low on compliance (high resistance to control) (Bates et al., 1998). However, among a sample of Chinese children, longitudinal associations between respect for autonomy or negative control in toddlerhood and preschool aggressive behaviors were not modified by a child's compliance level (Chen et al., 2002).

These past results may be attenuated, however, since no study focused specifically on committed compliance which, as noted earlier, represents a child's willingness to follow standards of conduct with a relatively autonomous underlying motivation. To our knowledge, no studies have examined this model for internalization of rules either. Therefore, to address this dearth of research, the third aim of the current study was to examine whether maternal respect for autonomy and negative control are associated with later internalization of rules or externalizing behaviors dependent on child committed compliance.

The Present Study

In summary, the goals of the current study are threefold. First, we examined the direct predictions of maternal respect for autonomy and negative control in toddlerhood to internalization of rules and externalizing behaviors during the preschool years. Second, we examined the longitudinal associations between committed compliance in toddlerhood and later internalization of rules and externalizing behaviors. Third, we examined how the predictions of respect for autonomy and negative control to internalization of rules and externalizing behaviors vary depending on child committed compliance.

Examining these three research questions has the potential to help in designing future interventions aiming at facilitating internalization of rules and mitigating externalizing behaviors in early childhood. For instance, our findings could possibly reveal the pattern of combinations between parenting behaviors and child committed compliance for which a high level of internalization of rules and a low level of externalizing behaviors would occur. Thus, parents would be advised to learn how to adjust their frequencies of respect for autonomy or controlling behaviors according to the exact level of child committed compliance, ultimately improving their children's social adjustment.

Method

Participants

The sample was drawn from the "BELONGS 2010" (Beijing Longitudinal Study 2010), a 7-wave longitudinal study of Chinese children and their parents that began in 2010 when children were 6 months old. The initial sample was recruited from maternity and well-baby clinics of Beijing regional hospitals or through distributing brochures in person around the university campus to families with babies aged between 3-5 months old. In the current study, we limited the sample to the children who participated at least once during the wave 3 (14.09 ± 0.84 months, n = 78), wave 4 (24.80 ± 1.13 months, n = 76), or wave 6 assessments (60.35 ± 0.72 months, n = 77).

The attrition analyses revealed that compared with those who dropped out from the project for their personal reasons (e.g., moved to another city, too busy) before wave 3 (N = 21, 7 girls and 14 boys), the included 95 children (53 girls and 42 boys) and their families tended to have a higher maternal education status, Mann-Whitney U test, $Z = 1.94$, $p = .05$. No differences were found on parental monthly income, parental ages, and paternal education status. The mothers were on average 30.89 years (SD = 3.39) and the fathers were on average 32.70 years (SD = 3.90) when recruited. With the modes of maternal monthly income between 1,500 to 6,000 yuan, paternal monthly income above 10,000 yuan and approximately 95% of parents having completed a college or postgraduate education, the included sample was mainly from the highly educated population in Beijing, China.

Procedure

There were a home visit and a laboratory visit at 14 and 25 months and each lasted

approximately 2-2.5 hours. We focused on the assessments during the home visit. At 14 months, the mother-toddler dyads participated in two 5-min free-plays, for which the female experimenter presented age-appropriate toys and videotaped maternal verbal and nonverbal behaviors. The mother was instructed to interact with the child as she normally would in the free-play tasks. At 25 months, similar free-play tasks were conducted first. After the second free-play, the experimenter introduced the cleanup task and instructed the mother to give directives to have the child clean up all the toys. The mother was told to guide (e.g., put away one toy as a demonstration), but not directly help her child with the task for a maximum of 3 min or until the child had put away all the toys. Then the mothers were given a battery of questionnaires to complete on their own, including those assessing children's receptive and productive language, and were asked to bring them back during the laboratory visit.

At 60 months, a week before the laboratory visit, the mother received a battery of questionnaires including the scales measuring child externalizing behaviors and was requested to bring them back completed during the laboratory visit. Families were invited to visit the laboratory for 2.5 hours. First, the experimenter introduced the internalized cleanup task to the mother alone. After the free-play task, the experimenter told the child that his/her mother had to fill out some questionnaires outside the room. The mother requested the child to clean up dozens of Lego toys left on the floor into a box according to the standard rules (based on different colors and whether it is a "human figure" or an "animal") during her absence. After making sure the child understood how to sort the toys, the child was left in the room alone for 5 min or until he/she had put away all the toys.

Next, the experimenter guided the child to play a ball-throwing game. In the practice session, the child had one or two trial(s) of throwing the ball(s) to a dartboard affixed on the wall at a close distance. The experimenter tempted the child by "showing" one bin with the wrapped "OK" gifts if he/she could hit the dartboard and promised to prepare an "extremely special" gift if he/she could hit the red area in the center. After the practice session, the experimenter introduced the rules of the game (details in the Measures section) and checked if the child understood the rules. The experimenter explained the meaning of the word "cheating" and emphasized that breaking the rules was "cheating", then left the child to play alone for 3 min. The rules made the game extremely difficult to win. Upon return, the experimenter "discovered" that she used "the rules for the adult," and invited each child to play again and gave a special trophy

to them.

At each wave, a DVD including videos of interactions was sent to all the families as the gift. Two master students who were blind to the hypotheses coded maternal respect for autonomy and negative control at 14 and 25 months. Another two independent master students coded committed compliance at 25 months and internalization of rules at 60 months.

Measures

Maternal behaviors at 14 and 25 months. The free-play tasks at 14 and 25 months were coded for maternal respect for autonomy and negative control by using an event sampling and episodic coding system (Liu et al., 2009). Any verbal (and accompanied nonverbal) behavior was coded as present if it matched the description of an event. The duration of each behavior was further coded by every 5-s segment (e.g., the duration of 3 s gets 1 code, 7 s gets 2 codes, and 11 s gets 3 codes).

Respect for autonomy refers to those maternal behaviors that encourage a child to initiate and maintain activities or provide choices to a child. These behaviors include suggestion, explanation, providing choices, positive reinforcement, and directions without force (Cheng, Lu, Archer, & Wang, 2018a). To be coded as respect for autonomy, mothers should use a suggestive (rather than directive or harsh) tone of voice and her verbal behavior should meet at least one of the following criteria (Cheng et al., 2018a): (1) Mother follows the child's pace and ensures that the child plays an active role in the interaction; (2) Mother intervenes or encourages child according to the child's state at the moment. For example, a child seemed hesitant about which toy fruit to play with. The mother waited patiently and encouraged gently, "Which one do you like?"

Negative control refers to maternal behaviors that discourage or interrupt a child's initiatives and ongoing activities. These behaviors include commands with force, reprimand, intrusiveness, prohibition, overt disapproval, and threatening (Liu & Guo, 2010). Negative control was coded when the mother used a coercive tone of voice and the verbal behavior matched one of two criteria (Lengua, 2009): (1) Mother interrupts the child's ongoing activities or physically restricts the child's activities; (2) Mother intervenes in the child's state following her own wishes rather than taking the child's perspective. For example, a child was pulling the truck which did not move, the mother warned strictly, "Stop it! Don't do that!"

The coding system was translated from English to Chinese. During the coding session, any discrepancies between the two coders were solved through discussion. Based on 15% of the videos, the kappa values for the overall coding scheme were .93 at 14 months and .97 at 25 months. The frequencies of respect for autonomy and negative control were counted and then averaged to each 1 min.

Additionally, we transcribed the conversation between mother-child dyads during the free-play tasks and calculated the average number of words mothers spoke with their child in each 1 min as we noticed that mothers varied considerably in this potentially confounding variable. To rule out the influences of how many words a mother spoke, the proportions were created by dividing the frequency of respect for autonomy or negative control in 1 min by the number of words a mother spoke in 1 min. We further combined respect for autonomy (r = .32, p < .01) and negative control (r = .34, p < .01) across 14 and 25 months to enhance the reliability. The proportion of each behavior at each wave was standardized. Then those standardized scores were averaged across two waves.

Child committed compliance at 25 months. In the cleanup task, a child's behavior within every 10-s segment was coded into one of six mutually exclusive codes by using the Kochanska and Aksan (1995) coding system: committed compliance, situational compliance, passive noncompliance, self-assertion, defiance, and behaviors irrelevant to the task. We used committed compliance which was coded when the child enthusiastically and continuously puts away the toys needless of maternal prompts. Based on 30% of the videos, the interrater reliability was adequate, the Cohen's κ = .78. The frequency of committed compliance was divided by the total number of the intervals to create a proportion score for analyses.

Child internalization of rules at 60 months.

Internalization of maternal rules. The internalized cleanup task (Kochanska et al., 2001) was used to measure internalization of maternal rules at 60 months. The task asked a child to take in maternal rules and concentrate on a sorting work. A child's behavior during every 10-s segment was coded into one of two categories: internalized cleanup (child puts away toys wholeheartedly) and oppositional behaviors (child plays with toys, child stops cleaning up and looks around inattentively, or child throws toys on the floor). In addition, since the latency of the first oppositional behavior, reflecting how long a child could hold back the impulse to break rules, was another important indicator of internalization, it was recorded using 1-s units (0~300 s). Interrater

reliability was established based on 20% of the videos, κ = .97. Because the latency was related to the proportion score of internalized cleanup (r = .59, p < .01), the standardized scores of these variables were aggregated into one composite.

Internalization of experimenter rules. The cheating game task (Kochanska, 2002a) was used to evaluate child internalization of rules conveyed by the experimenter at 60 months. The prohibited cheating behaviors were (a) facing the target instead of throwing backward, (b) leaving the marked area, (c) throwing with the dominant hand rather than the non-dominant hand, (d) retrieving the ball(s) after throwing (5 in total), and (e) sticking a ball manually on the dartboard. Six mutually exclusive codes included the above five codes and the code (f) behavior compatible with rules. One code was given for every 3-s segment in a total of 3 min. The latency of the first "cheating" behavior was recorded by 1-s units (0~180 s). Based on 20% of the videos, the kappa value of two coders was .91. One composite was aggregated from the standardized scores of the proportion of (f) behavior compatible with rules and the square root of the non-normally distributed latency (r = .35, p < .01).

Child externalizing behaviors at 60 months. The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) was used to measure externalizing behaviors. The 25-item SDQ is composed of four 5-item difficulties scales (hyperactivity scale, emotional symptoms scale, conduct problems scale, peer problems scale) and one 5-item strengths scale (prosocial behaviors scale). We focused on externalizing behaviors, which consist of conduct problems (e.g., "often lies or cheats") and hyperactivity problems (e.g., "easily distracted, concentration wanders"). Mothers rated each item on 0 (*not true*), 1 (*somewhat true*), or 2 (*certainly true*). The reliability for externalizing behaviors scales was acceptable, the Cronbach's α = .71, and the mean score of externalizing behaviors was used.

Covariate: Child language at 25 months. Child receptive and productive language was controlled for as this cognitive skill is relevant to the understanding of rules and externalizing behaviors. Mothers reported on the Chinese Communicative Development Inventory-Putonghua Version (PCDI; Tardif, Fletcher, Zhang, & Liang, 2008), which is a reliable measure of words vocabulary and sentences use for Chinese 14- to 26-month-olds (toddler form) (Tardif et al., 2008). With Cronbach's αs ranging from .75 to .99, the PCDI-toddler form showed satisfactory to good reliability. The significantly correlated vocabulary and sentences use (r = .75, p < .01) were standardized and averaged into one composite.

Analytic Plan

Preliminary analyses and regression models were conducted in M*plus* (Muthén & Muthén, 1998-2017) by using maximum likelihood estimation with robust standard errors (MLR), which is suitable for small samples with non-normally distributed variables. The assumption of missing completely at random (MCAR) was tenable, indicated by a nonsignificant result of Little's MCAR test (Little, 1988), χ^2 (51) = 58.80, p = .21. Missing data (less than 25.5%) were handled by a full information maximum likelihood method.

Three separate regressions were performed, using internalization of maternal rules, internalization of experimenter rules, externalizing behaviors as dependent variables. Predictors were centered prior to computing interaction terms (Cohen, Cohen, West, & Aiken, 2003). To answer the questions of whether maternal parenting behaviors and child committed compliance in toddlerhood would directly predict preschool social adjustment, we entered covariates (child gender and 25-month language), maternal respect for autonomy and negative control in toddlerhood, and 25-month committed compliance in step 1 to test the main effects of these maternal and child predictors. To answer the third question of whether child committed compliance would moderate the associations between toddlerhood maternal parenting behaviors and child preschool social adjustment, we added interactions between the two parenting behaviors and committed compliance in step 2. Significant interactions were further probed by estimating regions of significance for committed compliance where relations between maternal behavior and dependent variables were significant.

Results

The means (*M*), standard deviations (*SD*), and correlations of all the variables are shown in Table 1. Girls outperformed boys on 25-month language, Wald test $\chi^2(1)$ = 6.21, p = .01, Cohen's d = 0.53, and 60-month internalization of maternal rules, $\chi^2(1)$ = 6.10, p = .01, Cohen's d = 0.52. No gender difference was found on maternal respect for autonomy, negative control, child committed compliance, internalization of experimenter rules, and externalizing behaviors, all $\chi^2(1) < 1.36$, ps > .24.

Committed compliance at 25 months was positively associated with internalization of maternal rules and negatively associated with externalizing behaviors. Externalizing behaviors were negatively related to internalization of maternal rules. However,

internalization of maternal rules was not related to internalization of experimenter rules. Maternal respect for autonomy was not associated with negative control and these two maternal behaviors in toddlerhood were not related to any child outcomes at 60 months.

Table 1
Means (M), Standard Deviations (SD), and Correlations Among Variables

Variables	*n*	*M*	*SD*	1	2	3	4	5	6	7
14 and 25 months combined										
1. Maternal respect for autonomy	89	–0.01	0.79							
2. Maternal negative control	89	0.04	0.93	.16						
25 months										
3. Committed compliance	71	0.55	0.39	.02	.16					
4. Language	76	0.00	0.93	.11	–.05	.14				
60 months										
5. Internalization of M rules	76	0.00	0.89	.07	.22	.36**	.01			
6. Internalization of E rules	77	0.00	0.82	–.13	.14	.16	–.07	.16		
7. Externalizing behaviors	76	0.67	0.30	.07	–.05	–.33*	–.19	–.35**	–.13	

Note. * $p < .05$, ** $p < .01$. M = Maternal; E = Experimenter.

Table 2
Committed Compliance at 25 Months Moderates Associations Between Maternal Parenting Behaviors in Toddlerhood and 60-Month Internalization of Rules and 60-Month Externalizing Behaviors (N = 95)

Variables	Internalization of Maternal Rules		Internalization of Experimenter Rules		Externalizing Behaviors	
	$\beta_{step\ 1}$	$\beta_{step\ 2}$	$\beta_{step\ 1}$	$\beta_{step\ 2}$	$\beta_{step\ 1}$	$\beta_{step\ 2}$
Step 1: Main effects						
Gender	–.25**	–.31**	–.11	–.18	.02	.10
Language	–.11	–.09	–.07	–.06	–.13	–.13
Respect for autonomy	.03	.13	–.16	–.11	.12	.12
Negative control	.16	.15	.14	.20	–.06	–.16
Committed compliance	.30**	.28**	.16	.11	–.32*	–.22
Step 2: Moderation effects						
Respect for autonomy × Committed compliance		.38**		.22		–.05
Negative control × Committed compliance		–.07		–.23*		.38**
R^2	.20*	.35**	.08	.17*	.15	.26**

Note. * $p < .05$, ** $p < .01$.

The predictors in toddlerhood are tested for main effects and moderation effects on internalization of rules and externalizing behaviors in Table 2. For main effects (step 1), after controlling for gender and language, 25-month committed compliance positively predicted 60-month internalization of maternal rules and negatively predicted 60-month externalizing behaviors. Neither maternal respect for autonomy

nor negative control was predictive of internalization of rules or externalizing behaviors.

After adding the interaction terms (step 2), the relation between respect for autonomy in toddlerhood and internalization of maternal rules was moderated by committed compliance. Follow-up analyses using the region-of-significance technique revealed that for toddlers low on committed compliance (from *M* – 1.42 *SD* to *M* – 0.87 *SD*), respect for autonomy was negatively related to internalization of maternal rules; whereas for toddlers high on committed compliance (from *M* + 0.16 *SD* to *M* + 1.14 *SD*), respect for autonomy was positively related to internalization of maternal rules (see Figure 1).

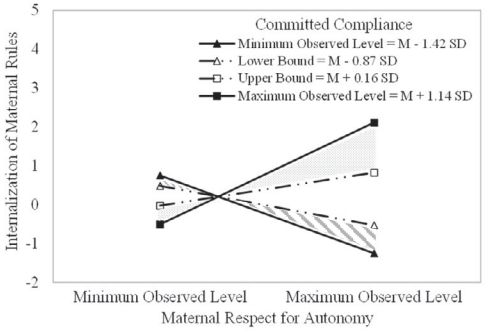

Figure 1. Committed compliance at 25 months moderates the association between maternal respect for autonomy in toddlerhood and internalization of maternal rules at 60 months.

The regions-of-significance analyses are based on the observed ranges of committed compliance at 25 months. The dot-shaded area illustrates the significant region representing a positive association between respect for autonomy and internalization of maternal rules when committed compliance is relatively high; the stripe-shaded area illustrates the significant region representing a negative association between respect for autonomy and internalization of maternal rules when committed compliance is relatively low.

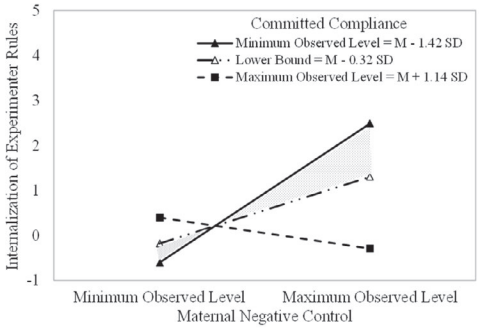

Figure 2. Committed compliance at 25 months moderates the association between maternal negative control in toddlerhood and internalization of experimenter rules at 60 months.

The regions-of-significance analyses are based on the observed ranges of committed compliance at 25 months. The dot-shaded area illustrates the significant region representing a positive association between negative control and internalization of experimenter rules when committed compliance is relatively low.

Moreover, a significant moderating effect of committed compliance was found on the relation between negative control and internalization of experimenter rules. Region-of-significance analyses revealed that when committed compliance was low

(from *M* – 1.42 *SD* to *M* – 0.32 *SD*) negative control in toddlerhood was positively associated with internalization of experimenter rules, but the association vanished when committed compliance was moderate to high (above *M* – 0.32 *SD*) (see Figure 2).

Furthermore, committed compliance significantly moderated the relation between negative control and 60-month externalizing behaviors. Subsequent region-of-significance analyses found that when committed compliance was low (from *M* – 1.42 *SD* to *M* – 1.08 *SD*), negative control was negatively related to externalizing behaviors; whereas for children with moderate to high committed compliance (from *M* + 0.47 *SD* to *M* + 1.14 *SD*), negative control was positively related to externalizing behaviors (see Figure 3).

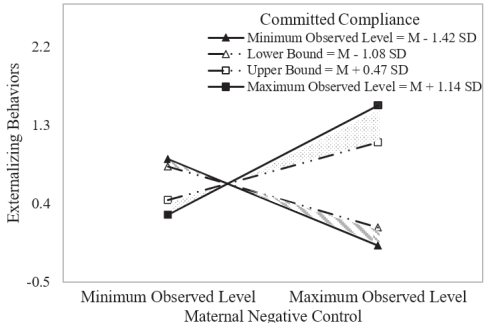

Figure 3. Committed compliance at 25 months moderates the association between maternal negative control in toddlerhood and externalizing behaviors at 60 months.

The regions-of-significance analyses are based on the observed ranges of committed compliance at 25 months. The dot-shaded area illustrates the significant region representing a positive association between negative control and externalizing behaviors when committed compliance is relatively high; the stripe-shaded area illustrates the significant region representing a negative association between negative control and externalizing behaviors when committed compliance is relatively low.

Discussion

We examined the direct and interactive predictions of maternal parenting behaviors and child committed compliance in toddlerhood to preschool internalization of rules and externalizing behaviors with a longitudinal sample of Chinese families. A positive association between committed compliance and internalization of rules overtime was found in young Chinese children. Moreover, we extended past research by including both maternal respect for autonomy and negative control to investigate their contributions to child social adjustment during the preschool years. Although there was no direct prediction of these two observed maternal parenting behaviors, several interactions with toddlers' committed compliance were predictive of later internalization of rules and externalizing behaviors.

Committed Compliance Predicts Preschool Internalization of Rules and Externalizing Behaviors

First, consistent with findings drawn from children in the Western culture (e.g., Kochanska et al., 2001), we found a positive association between committed compliance and internalization of maternal rules, partially confirming the continuity from committed compliance in toddlerhood into more internalized, rule-compatible behaviors during the preschool years in Chinese children. As shown in the literature (Kochanska, 2002a; Kochanska et al., 2010), this continuity may be facilitated by the emergence of a self-view as a good, moral individual and to some extent, this developmental process is universal across Western and non-Western cultures.

Although we expected that the prediction of toddlerhood committed compliance would extend to internalization of experimenter rules, this relation was not significant. First, it could be that complying with unfamiliar adults (such as experimenters) may take longer to establish. A second possibility is that the cheating game task primarily asks for following *prohibited* rules whereas the internalized cleanup task mainly requires the child to complete *requested* acts. In nature these tasks tap two different contexts in which children need to acquiesce in standards of conduct (Kochanska et al., 2001) and the constructs measured in such different contexts might be less relevant.

Given that the relation of these two constructs was in the same direction, but just missed significance, we still think that internalization of experimenter rules stems from an early willing stance to embrace rules conveyed by adult authorities (i.e., committed compliance; see Kochanska, 2002a). Preschoolers take in standards of conduct conveyed by not only their parents but also other adults in their daily life. This generalizability of internalization is critical for preschoolers to adjust to environments outside their home (e.g., school) and establish social connections beyond their family (e.g., teacher-child relationship). Of course, future research is needed to examine our interpretations, for example, by having the experimenters request the child to clean up toys.

In addition, we found a negative association between committed compliance and later externalizing behaviors, but it is not stable after interaction terms were added. Since externalizing behaviors were negatively associated with internalization of rules, future studies could consider testing the possibility of a cascading path from an early lack of committed compliance to later externalizing symptoms through insufficient

internalization of external rules. Overall, the current results indicate that the continuity of toddlerhood committed compliance to preschool internalization of maternal rules applies to Chinese children.

Committed Compliance Moderates Relations Between Maternal Parenting Behaviors and Preschool Internalization of Rules and Externalizing Behaviors

As to maternal parenting behaviors, although Keller (2012) suggested that considerable levels of respect for autonomy and negative control may coexist in Chinese mothers, no direct associations were found from maternal parenting behaviors in predicting internalization of rules and externalizing behaviors. This finding is more consistent with a perspective of the cultural specificity with weaker straightforward relevance of behaviors respect or deny child autonomy to Chinese children's social adjustment due to a remaining lack of cultural endorsement of autonomy (Liu et al., 2009). Those maternal parenting behaviors instead, combining with toddlers' committed compliance, predicted later social adjustment and the directions of which further supported the proposed goodness-of-fit model.

For toddlers with relatively high committed compliance, respect for autonomy was positively related to internalization of maternal rules and negative control was positively related to externalizing behaviors. For children who already have a high tendency to comply with rules (i.e., committed compliance), maternal respect for autonomy could conduce toward more active assimilation and identification with maternal values and rules (Grolnick, Deci, & Ryan, 1997). Eventually, these children are more likely to follow and take in maternal rules during her absence. In contrast, high levels of maternal negative control might hinder these children's striving for psychological autonomy and self-control, leading to disregard for rules or rejection of socialization and culminating in externalizing behaviors.

For toddlers with relatively low committed compliance, respect for autonomy was negatively related to internalization of maternal rules. This result suggests that respect for autonomy may not provide the assistance necessary for facilitating internalization of rules to these children. Children who seldom comply with requests during toddlerhood may do so because they lack adequate self-control skills to appropriately regulate impulsivity and emotions. Meanwhile, if their mothers use practices such as providing choices or encouraging initiatives without intervening in their noncompliant

behaviors, these toddlers may not be able to realize and acquire the importance of following external rules. As a consequence, they are less likely to take in adults' rules during their absence in the later developmental period.

For these children, negative control was positively associated with internalization of experimenter rules and negatively associated with externalizing behaviors. Although inconsistent with the direct prediction found in Western samples (Kochanska et al., 2003), this finding on negative control is compatible with another study focusing on Chinese immigrant preschoolers. Specifically, inhibitory control, the temperamental antecedent of committed compliance, moderated the link between maternal negative control and child prosocial behavior one year later (Yu, Cheah, Hart, & Yang, 2018). Only for children low on inhibitory control did negative control positively predict prosocial behavior (Yu et al., 2018). Negatively controlling behaviors (e.g., guilt induction) are frequently used by Chinese mothers to teach children how to conform to cultural norms such as showing respect for parents and other adults (Yu et al., 2018). Such parenting behaviors, as a compensatory mechanism, may be applied only to toddlers low on committed compliance or inhibitory control because they need those corrections as the first step to explicitly set limits for their behaviors even though such parenting behavior may thwart child autonomy (Yu et al., 2018).

Inconsistent with Bates et al. (1998), we found that if mothers used more negative control, children with low committed compliance displayed fewer externalizing behaviors. Relating to the above interpretation, maternal interventions and strict control are used to correct children's misbehaviors and make them realize the consequences of wrongdoing, thus preventing later more severe externalizing behaviors. But this compensatory process works only for children who are prone to defy owing to their limited early self-control (Kochanska et al., 2013). To sum up, negative control could, to some extent, assist young Chinese children with low committed compliance adjust well by exerting necessary control on those children. Respect for autonomy may not be ideally nurturing for them in toddlerhood because they are not yet developmentally prepared for such scaffolding.

In summary, the aforementioned directions of predictions are in line with the pattern of both the good fit and the poor fit (Kiff et al., 2011), further suggesting a contrastive effect on maternal respect for autonomy or negative control in predicting child social adjustment (Leerkes, Blankson, & O'Brien, 2009). That is, toddlers with a high level of committed compliance thrive under mothers who respect their autonomy

and have lower negative control, whereas toddlers with a low level of committed compliance do poorly under high levels of respect for autonomy who instead benefit from negative control.

Our findings, therefore, extended the literature in regard to the processes through which parenting behaviors that respect or deny autonomy exert their influences on Chinese children's social adjustment during early childhood. Our study points to the importance of understanding the developmental relevance of these maternal behaviors in Chinese families from a parenting-by-child characteristics perspective. Moreover, as far as we know, this is the first study to probe the moderation role of committed compliance. Thus, our findings support the premise that individual differences in reactions to maternal parenting behaviors are dependent on varying tendencies to comply with rules (Grusec et al., 2017) and extend the literature on the developmental relevance of compliant behaviors.

Future Research

Given the current findings, there are some future directions. First, our results on toddlers with low committed compliance, together with preschoolers low on inhibitory control in the Yu et al. (2018) study, indicate that negative control is not universally detrimental to psychological development. The future cross-cultural investigation is needed to confirm if this finding would be shown only in Chinese culture or other cultures where negatively controlling behaviors are traditionally used as an approach to teaching young children to conform to standards of conduct. Second, parenting behaviors coded from the free-play task do not directly relate to child social adjustment (see also Liu et al., 2009). This may be because respect for autonomy and negative control in varied contexts (e.g., the interference context versus the free-play context) are differentially associated with child outcomes and those behaviors coded from free-plays may only indicate attenuated developmental relevance (Matte-Gagné et al., 2015). Future studies are needed that use diverse contexts to measure and reveal the "contextual specificity" of these two maternal parenting behaviors.

Limitations

This study had limitations. First, a bidirectional association between parenting behaviors and internalization of rules or externalizing behaviors might also occur but we did not have an earlier measurement of social adjustment or a later measurement

of maternal behaviors to clarify this possibility. Future research could examine whether toddlerhood rudimentary internalization and externalizing symptoms predict preschool maternal parenting behaviors. For example, higher internalization of rules would be related to maternal responses including higher respect for autonomy and lower negative control, whereas for toddlers high on externalizing behaviors, higher maternal negative control and lower respect for autonomy would be expected. Second, our sample was relatively small and mainly from the highly educated urban population in China. A more representative sample from diverse socioeconomic backgrounds would help to generalize our findings to other groups.

Conclusion and Implications

The present study adds to the literature by confirming the developmental continuity from committed compliance to internalization of rules in Chinese children. This study also reveals that children with high committed compliance benefit from maternal respect for autonomy while children with low committed compliance benefit from maternal negative control. Thus, the findings shine a light on the unfolding developmental processes of internalization of rules and externalizing behaviors through the complex person-by-environment interactions.

Our study has at least two implications. First, since the literature is markedly inconsistent regarding what moderation roles child self-control may play in modifying links between parenting and child outcomes (Slagt, Dubas, Deković, & van Aken, 2016a), our findings imply that a goodness-of-fit model could be a theoretical perspective with potential to bespeak such roles. Second, our findings imply that the effectiveness of socializations in changing child social adjustment may depend on the extent to which a child develops sufficient self-control skills. To stimulate the maximum effectiveness of parenting interventions, parents need to acquire how to adjust their levels of respect for autonomy and negative control to match with a child's level of committed compliance. Specifically, for children whose committed compliance is still below the average level, their parents should be taught how to use controlling behaviors to help them establish the first endorsement of complying with rules, while for children whose committed compliance is above the average level, interventions should aim at teaching parents how to uphold and reinforce their child's autonomous motivation to more fully take in standards of conduct.

5

Chapter 5

Cool and Hot Effortful Control Moderate How Parenting Predicts Child Internalization in Chinese Families

Author Note:

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Author Contributions:

S. Dong conceptualized the research question, and J.S. Dubas, M. Deković, and Z. Wang gave advice and feedback. S. Dong and Z. Wang oversaw and coordinated the data collection. S. Dong analyzed the data and wrote the manuscript. J.S. Dubas and M. Deković provided feedback on the analyses and manuscript.

Abstract

Internalization of external rules is a behavioral manifestation of moral development in childhood and its development has come to be understood from the view of a complex parenting-by-temperament process. To examine this developmental process, the current research investigates how maternal parenting behaviors and child effortful control foretell internalization throughout early to middle childhood with two longitudinal samples of Chinese mother-child dyads. In study 1 (N_1 = 226), maternal respect for autonomy and negative control during free-plays at 15 months were observed. At 25 months, child cool and hot effortful control were measured with a Stroop-like categorization task and an externally imposed delay task. At 37 months, observed internalization of maternal rules was assessed. Results showed that for toddlers with high levels of cool effortful control, maternal respect for autonomy positively predicted later internalization. In study 2 (N_2 = 88), maternal respect for autonomy and negative control during free-plays at 38 months were coded. At 60 months, child cool and hot effortful control were measured with a Stroop-like inhibition task and a delay-of-gratification task. Observed internalization of maternal and experimenter rules and mother-reported internalization in everyday life were assessed at 60 and 84 months. Results showed that for children low on either cool or hot effortful control, maternal respect for autonomy negatively predicted later internalization in childhood. Together the current findings support an age-relevant goodness-of-fit model for internalization development in Chinese children throughout the first 7 years of life.

Keywords: internalization, parenting behaviors, effortful control, parenting-by-temperament effect, goodness-of-fit model

Introduction

Internalization of external rules is a behavioral manifestation of moral development in early childhood (Kochanska & Aksan, 2006). Defined as taking in values and standards as one's own, internalization undergoes substantial development in the first few years of life (Augustine & Stifter, 2015; Kochanska, Coy, & Murray, 2001) and continues to develop throughout adolescence (Laible, Eye, & Carlo, 2008). The development of internalization and individual differences in this development are of great importance for understanding why in society most members are law-abiding while some members show contempt for rules.

The early development of internalization has come to be understood from the view of complex person-by-environment transactions. Theorists suggest that socialization factors, such as parenting, combine with individual factors, such as temperament (e.g., effortful control), in carving child internalization (Kochanska & Aksan, 2006). Some longitudinal, observational studies have also illuminated this parenting-by-temperament effect on internalization (Augustine & Stifter, 2015; Kochanska & Kim, 2014). However, several research gaps remain concerning whether this developmental process applies to children from non-Western sociocultural backgrounds and to specific developmental conditions.

First, previous studies were conducted primarily with Western samples. Whether similar processes are applicable to samples from other cultures needs to be examined (e.g., Chinese families). Second, although parenting behaviors related to a child's need for autonomy (i.e., independent actions to control and realize mental states such as wishes, intentions, and preferences; Keller, 2012) have been associated with internalization during adolescence (e.g., Vansteenkiste, Soenens, Van Petegem, & Duriez, 2014), whether those parenting behaviors are predictive of internalization in childhood is less known. Third, although various sub-dimensions of effortful control have been differentiated (e.g., Zelazo & Carlson, 2012), past research has not distinguished these sub-dimensions when investigating the link between effortful control and internalization as well as the parenting-by-effortful control effects on internalization. The current research was conducted to address these important research gaps.

Maternal Parenting Behaviors and Child Internalization

Among children from Western cultures, researchers have found two parenting

behaviors that are important for internalization development—respect for autonomy (e.g., providing choices, recognizing the child's perspectives, and offering a rationale) and negative control (e.g., criticism, threatening, and physical force). Theoretically, respect for autonomy facilitates proficiencies in internalization (Grolnick, Deci, & Ryan, 1997), whereas negative control is detrimental to the natural proneness of internalization (Laurin & Joussemet, 2017). Empirically, a moderate-sized positive association of adolescent-reported maternal respect for autonomy (Vansteenkiste et al., 2014) and a moderate-sized negative association of observed maternal negative control during early childhood (Kochanska, Aksan, & Nichols, 2003) has been found with child internalization. Moreover, a positive association of respect for autonomy and a negative association of negative control were also found with the precursor of rudimental internalization—committed compliance overtime (Laurin & Joussemet, 2017). Yet the generalizability of these associations to children from non-Western cultures is still unknown.

To our knowledge, no empirical evidence has been reported on internalization of Chinese children, although cross-cultural studies on similar moral development outcomes have found mixed results. For example, Chinese children outperformed Canadian children on compliance with maternal rules in toddlerhood (Chen et al., 2003), but shared less with their peers compared with Canadian children in middle childhood (Cowell et al., 2017). Such differences could be, at least in part, explained by the differences in parenting behaviors across cultures. Indeed, Chinese mothers have been shown to display lower respect for autonomy (Liu et al., 2005) and higher negative control (Chao, 2000) compared to Western parents.

Influenced by Confucianism, Chinese parents attempt to achieve the culture-specific socialization goals such as abiding by social norms (Lǐ) and self-restraint (Yuē) (Luo, Tamis-LeMonda, & Song, 2013). These goals, through influencing culture-specific parenting styles and practices, may impact Chinese children's internalization. For instance, Chinese parents have high expectations for children's behavioral self-restraint (Chen et al., 2003) and a strong belief that children's development depends on their effort and training (Guǎn; Chao, 2000). They start to teach and train Chinese children to follow parental rules from an early age in a controlling manner (Chao, 2000). Chinese children are expected to be well prepared for internalizing standards without surveillance before entering preschool.

In support of such an idea, a cultural emphasis on strict parental discipline is found

to explain young Chinese children's orientation toward complying with authority (Yau, Smetana, & Metzger, 2009). During the transition from early to middle childhood, however, parental autonomy support, rather than negative control, is predictive of Chinese children's performance on cognitive tasks when alone (Zhang & Whitebread, 2019). Thereore, it is possible that maternal negative control may act as a behavioral guideline that could instill externally motivated internalization in young Chinese children when they only have limited self-control skills (Yu, Cheah, Hart, & Yang, 2018). To have child internalization continue to flourish, however, maternal respect for autonomy is needed to help in establishing self-endorsement of standards of conduct (Grolnick et al., 1997). Drawn from two samples of Chinese children with varied age ranges (from 15 to 37 months versus from 38 to 84 months), the first goal is to examine these longitudinal associations between these two parenting behaviors and child internalization throughout early and middle childhood. Specifically, we expected that negative control would predict child internalization in early childhood and respect for autonomy would predict child internalization from early to middle childhood.

Cool and Hot Effortful Control and Child Internalization

In addition to maternal parenting behaviors, children's differences in internalization are also partially rooted in temperamental traits (Augustine & Stifter, 2015; Kochanska & Aksan, 2006). In this study, we focused on effortful control, the macro-dimension of temperamental self-regulation referring to the ability to voluntarily inhibit, activate, or modulate attention and behaviors, and to plan, detect errors, and integrate information (Eisenberg, Smith, Sadovsky, & Spinrad, 2004). In an early series of replication studies by Kochanska and her colleagues (Kochanska et al., 1996; 2001; Kochanska & Knaack, 2003), it has been confirmed that 5%–16% of the individual differences in internalization is accounted for by observed effortful control.

More recently, however, researchers have distinguished both cool and hot dimensions of effortful control (Zelazo & Carlson, 2012). Cool effortful control demands a more abstract form of attentional regulation (Di Norcia, Pecora, Bombi, Baumgartner, & Laghi, 2015), whereas hot effortful control calls for suppressing an emotionally aroused response (Zelazo, Qu, & Kesek, 2010). The past research has suggested that hot and cool effortful control might be differentially associated with constructs relevant (e.g., externalizing behaviors) or similar (e.g., compliance,

prosocial behavior, moral behavior) to internalization, but the findings are somewhat mixed and the associations are dependent on the constructs studied.

Consistent findings have been found on associations of cool and hot effortful control with externalizing behaviors (i.e., a lack of internalization; Kochanska, Brock, & Boldt, 2017). Specifically, compared to cool effortful control, hot effortful control is more strongly related to externalizing behaviors (Backer-Grøndahl, Nærde, & Idsoe, 2019; Gusdorf, Karreman, van Aken, Dekovic, & van Tuijl, 2011; Woltering, Lishak, Hodgson, Granic, & Zelazo, 2016). Although cool and hot effortful control are differentially associated with moral development as well, the results are somewhat contradictory. Hot, but not cool, effortful control was positively related to prosocial behavior in toddlers (Di Norcia et al., 2015). In contrast, hot, but not cool, effortful control was negatively associated with moral behavior in preschoolers (Stifter, Cipriano, Conway, & Kelleher, 2009). Other studies have not found any associations between both cool and hot effortful control and compliane (Duvall, Erickson, MacLean, LaFavor, & Lowe, 2017) or donating behavior (Hao, 2017) in early childhood. Only one study focused on internalization and found a concurrent positive link between cool effortful control and mother-reported internalization in 5-year-olds (Heikamp, Trommsdorff, Druev, Hübner, & Von Suchodoletz, 2013), but hot effortful control was not examined.

Such inconsistencies may be understood in light of the different skills manefested by these two dimensions of effortful control. By nature, cool and hot effortful control involve a different mix of two inhibitory skills: strength (i.e., the ability to suppress responses that are *high in prepotency*) and endurance (i.e., the ability to suppress responses that remain *active for a long time*) (Simpson & Carroll, 2019). Cool effortful control (tapped by Stroop-like inhibition tasks) demands a higher level of inhibitory strength and a lower level of inhibitory endurance, whereas hot effortful control (tapped by delay-of-gratification tasks) demands a reverse balance of strength and endurance. As such, cool effortful control is presumably associated with on-task cognitive performance whereas hot effortful control is presumably associated with real-life long-term outcomes (Simpson & Carroll, 2019). Parent-reported externalizing behaviors may manefest such long-term accumulation of deviant behaviors. Moral development tasks are more complex in that they measure child on-task performance and tap into child acquired abilities or skills, thus requiring both inhibitory strength and endurance depending on specific task requirements.

In our research, internalization tasks also tap both the on-task performance on following rules, and the cognitive maturity of capacity to take in standards of conduct. Thus, both cool and hot effortful control might be developmentally relevant. Since no studies have included separate measures of both cool and hot effortful control and examined their associations with child internalization separately, the second goal was to extend past research by investigating these associations.

Parenting-by-Effortful Control Interactions Predict Child Internalization

Despite the existing findings on the direct associations of parenting behaviors or child temperament, how the interplay between parenting behaviors and child effortful control predicts later internalization still needs to be investigated. In the literature of moral development, two theoretical perspectives could be used to hypothesize how effortful control affects the relation between parenting and internalization: (1) the differential susceptibility model (Belsky, Bakermans-Kranenburg, & van IJzendoorn, 2007; Slagt, Dubas, Deković, & van Aken, 2016a) and (2) the goodness-of-fit model (Belsky et al., 2007).

Regarding the differential susceptibility model, a low level of effortful control may act as a marker of children's sensitivity to parenting. Drawing from this model, children with low effortful control would be more responsive to positive parenting, including respect for autonomy. They would ultimately display higher internalization than those with high effortful control when maternal respect for autonomy is at high levels. Children with low effortful control would also be more responsive to negative parenting, including negative control. They would exhibit lower internaliazation than their peers with high effortful control when maternal negative control is at high levels. Respectively, for children with high effortful control, a weaker or no link between these parenting behaviors and later internalization would be expected because they are less sensitive to the potential influences of parenting behaviors.

With respect to the goodness-of-fit model, which aspect of parenting would scaffold or hinder a child's internalization would depend on the child's level of effortful control. For children with a high level of effortful control, respect for autonomy would scaffold their internalization as they are more developmentally prepared for having their internalization calibrated by this parenting (Ryan, Kuhl, & Deci, 1997), whereas negative control would hamper internalization because of a mismatch between this parenting behavior and their self-regulation level (Kiff, Lengua, & Zalewski, 2011). For

children with a low level of effortful control, negative control would facilitate internalization because they need external control and behavioral corrections to guarantee their compliance with adults' rules (Houtepen, Sijtsema, Klimstra, Van der Lem, & Bogaerts, 2019; Kiff et al., 2011) whereas respect for autonomy would hinder internalization as they are too immature to benefit from allowing their own initiatives and independence for internalization development (Kiff et al., 2011).

The empirical research on these two models, however, has been scarce for child moral development and no consistent associations have been found among studies. One study found that effortful control modified the positive association between responsive parent-child relationship and internalization across early and middle childhood, with this association being stronger for children low on effortful control than children high on effortful control (Kochanska & Kim, 2014), thus partially supporting the differential susceptibility model. Yet in a recent meta-analysis of parenting-by-temperament interactions (Slagt et al., 2016a), effortful control was not found to indicate child sensitivity to positive or negative parenting behaviors for positive outcomes such as internalization. On other moral development outcomes, one study showed that maternal negative control positively predicted later prosocial behavior only for preschoolers with low effortful control (Yu et al., 2018), partially supporting the goodness-of-fit model, whereas another study found no moderation for effortful control on the association between negative control and later prosocial behavior in middle childhood (Slagt, Dubas, & van Aken, 2016b).

Such incongruent moderations were found on child externalizing behaviors as well. In one study, the moderation by effortful control was not in line with either the goodness-of-fit model or the differential susceptibility model, showing that only for children with high effortful control did maternal negative control negatively predict externalizing behaviors in late childhood (Lengua, 2008). But another study found no moderation on the association between negative control and externalizing behaviors for effortful control in middle childhood (Slagt et al., 2016b). Notwithstanding this inconsistency for the composite of effortful control, similar moderating roles of cool and hot effortful control have been found recently. Both cool and hot effortful control moderated the association between positive, but not negative, parenting and child externalizing behaviors during the transition from early to middle childhood (Reuben et al., 2016). Only for children with low cool and hot effortful control did positive parenting foretell lower externalizing behaviors (Reuben et al., 2016), which supports

the differential susceptibility model.

It is challenging to address such inconsistencies in the field as the aforementioned studies differ in at least three ways: the age ranges of samples, the parenting behaviors measured, and assessments of child effortful control. In the present study, we attempt to address these issues by testing those moderation effects across various developmental periods (from toddlerhood to the preschool years and from the preschool to school years), including both positive and negative parenting when probing those moderations, and differentiating between cool and hot effortful control. Our examination may help determine whether the differential susceptiability model or the goodness-of-fit model best applies to the parenting-by-effortful control effects which still remains unclear in the literature. Therefore, the third goal was to examine how maternal parenting behaviors, either positive (respect for autonomy) or negative (negative control), combine with child effortful control, either hot or cool, to predict child internalization overtime throughout early and middle childhood.

The Present Studies

Drawn from two longitudinal, observational samples of Chinese families, the current research investigated the contributions of parenting behaviors and child effortful control to later internalization. In Study 1, we examined whether respect for autonomy and negative control at 15 months and child cool and hot effortful control at 25 months predicted internalization of maternal rules at 37 months. In Study 2, we examined whether respect for autonomy and negative control at 38 months and child cool and hot effortful control at 60 months foretold an aggregated measure of internalization across 60 to 84 months.

Study 1

Method

Participants. The first sample was drawn from an ongoing project ("BELONGS 2015"; Beijing Longitudinal Study 2015) that began in 2015 when infants were 6 months. The initial sample was recruited from several maternity and well-baby clinics of regional hospitals in Beijing, China or through signing up on the project website. A total of 242 infants (119 girls and 123 boys) and their families were recruited at wave 1. In addition to the initial sample, 52 participants (23 girls and 29 boys) were recruited in later waves. Compared with the initial sample, the participants who were recruited

in any later waves did not differ in gender ratio, $\chi^2(1) = 0.42$, $p = .52$, parental education status, and parental monthly income, Mann-Whitney U test Zs < 1.76, ps > .08. Those who were recruited later were slightly older than the initial sample at wave 4 (37.85 versus 37.20 months), $t(187) = 2.20$, $p = .03$. These two groups of participants were combined given that they were generally similar.

In this study, we focused on the assessments at waves 2 (14.60 ± 0.56 months), 3 (24.78 ± 2.35 months), and 4 (37.28 ± 1.31 months). The families who participated at least once during these waves were included. The attrition analyses found that compared with those who were omitted due to attrition ($N = 68$, 31 girls and 37 boys), the included parents were older and had higher education status and monthly income, Zs > 2.23, ps < .03. The main causes of attrition included that (1) the parents indicated their decision to withdraw from the project; (2) the families left Beijing and were not able to continue participating the project; or (3) the parents were busy and they could not participate the laboratory visit. The final sample ($N = 226$, 111 girls and 115 boys) was mainly from a highly educated population in Beijing, indicated by the modes of maternal and paternal monthly income between 6,000 and 10,000 yuan and 90% of parents having completed college or postgraduate education.

Measures.

Maternal parenting behaviors at 15 months. The observational coding manual of parent-child interactions (Lengua, 2009) was used to rate parenting behaviors during mother-child free-plays at 15 months. Maternal verbal and nonverbal behaviors were considered. Two dimensions of parenting were rated on a scale ranging from 1 (*very low*) to 5 (*high*) separately for two 5-min free-play tasks. The free-play task was used as it may maximumly mimic mother-child interactions in the naturalistic setting and Chinese mothers have been found to display a range of positive and negative behaviors in this task (Liu & Guo, 2010).

Respect for autonomy includes behaviors that allow a child to initiate the interaction and decide what to do during the interaction as well as encourage a child's independent decision-making and expressions of autonomy. For example, the mother provides the child with choices by saying, "You can do this, or you can do that." *Negative control* includes prohibitions given without explanation, verbal intrusiveness and interruption, and physical intrusiveness and exclusion of the child's involvement. Such behaviors are ill-timed, inappropriate, or excessive for the child's needs. For

example, the mother grabs a toy away from the child and says, “Don’t play with this.”

After trained by an expert, two master students who were blind to the hypotheses of this study coded all the mother-child free-plays. Specifically, to reduce the bias resulting from the familiarity with the videos, an independent coding procedure was used: for each participant one coder rated respect for autonomy while another coder rated negative control and they were blind to the ratings of another dimension of parenting throughout the coding session. Based on 16% of the video sample, the intraclass correlation (ICCs) for respect for autonomy was .83, and for negative conrol was .88. Maternal respect for autonomy and negative control was calculated by averaging the ratings across two free-play tasks.

Child effortful control at 25 months.

Cool effortful control. The reverse categorization task (Carlson, Mandell, & Williams, 2004) is a Stroop-like inhibition task measuring cool effortful control. First, the experimenter demonstrated the rules by putting three larger blocks into the “big” box and three smaller blocks into the “small” box. Then children were presented with three larger and three smaller blocks and were asked to help the experimenter sort the blocks into the boxes according to their sizes. After establishing the predominant responses, the experimenter suggested playing the game with the reverse categorization rule (small blocks in the “big” box and large blocks in the “small” box). The experimenter presented one of the 12 blocks randomly with a reminder about the rule at each presentation. The accuracy of the 12 trials was used.

Hot effortful control. The externally imposed delay task (Kochanska, Murray, & Harlan, 2000) was used to measure hot effortful control. The experimenter presented an open transparent box containing an attractive singing toy tiger to the child. She asked the child to not touch the toy before she came back. Upon the child’s indication of understanding, she left the room for a maximum of 3 min or until 30 s after the child touched the toy. The mother could stay in the room, but was instructed to provide no hints. The latency of touching (1~180 s) was divided by 180 and the proportion score was used.

Internalization of maternal rules at 37 months. The 5-min internalized cleanup task (Kochanska et al., 2001) was used, which requires a child to adhere to maternal rules and concentrate on a tedious sorting work. A child’s behavior during every 10-s segment was coded into one of two broad categories: (a) internalized cleanup and (b) oppositional behaviors. Additionally, the latency of the first

oppositional behavior was recorded using 1-s units (0~300 s). Based on 25% of the videos, the kappa value was .95 between two coders. The proportion scores of internalized cleanup and oppositional behaviors were calculated by dividing each frequency by the number of total segments. Adapted from the method used in Kochanska et al. (2003), the standardized scores of (a) internalized cleanup, (b) (reversed) oppositional behaviors, and (c) the latency were averaged to create a composite for analyses.

Analytic plan. Preliminary analyses and moderation analyses were conducted in M*plus* (Muthén & Muthén, 1998-2017) using maximum likelihood estimation with robust standard errors (MLR). The missing completely at random (MCAR) assumption was tenable, as the Little's MCAR test was nonsignificant (Little, 1988), χ^2 (33) = 42.26, p = .13. Missing data were handled by a full information maximum likelihood method (FIML). A moderation model was estimated, which included the two maternal parenting behaviors, child cool and hot effortful control, and their unique interaction. Interactions were calculated by multiplying the centered parenting behavior with the centered effortful control. Significant interaction terms were further probed by depicting regions of significance.

Results and Summary

Preliminary analyses. The means (*M*), standard deviations (*SD*), and correlations among variables are presented in Table 1. No gender difference was found on any variables, Wald test, all $\chi^2(1) < 2.78$, *p*s > .09. Respect for autonomy was positively related to hot effortful control, but not cool effortful control, whereas negative control was negatively associated with both cool and hot effortful control. However, neither maternal parenting behaviors nor child effortful control was associated with internalization of maternal rules. Because the correlation between respect for autonomy and negative control was relatively high, $r = -.57$, $p < .001$, to reduce the potential multicollinearity risk, we estimated a latent variable in the subsequent moderation model to capture the covariance of these two observables (Grewal, Cote, & Baumgartner, 2004).

Table 1
Means (M), Standard Deviations (SD), and Correlations Among Variables in Study 1

Variables	*n*	*M*	*SD*	1	2	3	4	5
1 Respect for autonomy 15 months	173	3.37	0.83					
2 Negative control 15 months	173	3.42	0.66	–.57**				
3 Cool effortful control 25 months	178	0.50	0.33	.10	–.20*			
4 Hot effortful control 25 months	186	0.35	0.39	.20*	–.23**	.13		
5 Internalization of maternal rules 37 months	145	0	0.87	.14	–.11	.09	.09	

Note. * $p < .05$, ** $p < .01$.

Table 2
25-Month Cool or Hot Effortful Control Moderates the Relations between 15-Month Maternal Parenting Behaviors and 37-Month Internalization of Maternal Rules

	Internalization of Maternal Rules	
Predictors	*B*	β
Main effects:		
Respect for autonomy	0.11	.10
Negative control	–0.05	–.04
Cool effortful control	0.14	.05
Hot effortful control	0.10	.04
Moderation effects:		
Respect for autonomy × Cool effortful control	0.76*	.22*
Respect for autonomy × Hot effortful control	–0.43	–.14
Negative control × Cool effortful control	0.33	.08
Negative control × Hot effortful control	–0.57†	–.18*
R^2		.09

Note.† $p = .05$, * $p < .05$.

Moderation analyses. In Table 2, a moderation model accounting for the covariance between respect for autonomy and negative control is estimated ($N_1 = 226$, $R^2 = .09$, post-hoc power = .94). No direct predicitons of maternal parenting behaviors or cool and hot effortful control were found. Two significant interaction terms were found for internalization of maternal rules: respect for autonomy × cool effortful control and negative control × hot effortful control. Follow-up analyses using the region-of-significance technique revealed that for toddlers high on cool effortful control (from $M + 0.61\ SD$ to $M + 1.52\ SD$), respect for autonomy positively predicted internalization of maternal rules, but this relation was not significant for toddlers with low cool effortful control (from $M - 1.55\ SD$ to $M + 0.61\ SD$) (see Figure 1). Unexpectedly, no significant associations between negative control and internalization of maternal rules were found within the observed range of hot effortful control (from

M – 0.89 *SD* to *M* + 1.65 *SD*; see Figure 2)[1]. Thus, results indicate a moderation effect by cool effortful control on the positive link between respect for autonomy and child internalization. However, the moderation effect by hot effortful control on the negative link between negative control and child internalization is tentative considering that the observed range of hot effortful control at this developmental period is not within the regions found to be significant[2].

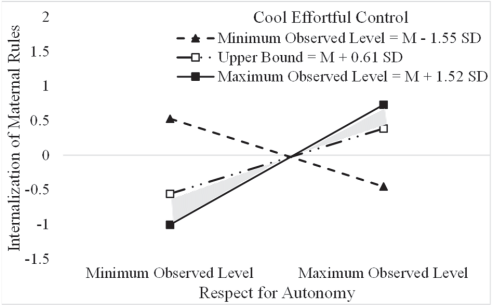

Figure 1. 25-month cool effortful control moderates the association between 15-month maternal respect for autonomy and 37-month internalization of maternal rules.

The regions-of-significance analyses are based on the observed ranges of cool effortful control. The dot-shaded area illustrates the significant region representing a positive relation between maternal respect for autonomy and internalization when cool effortful control is high.

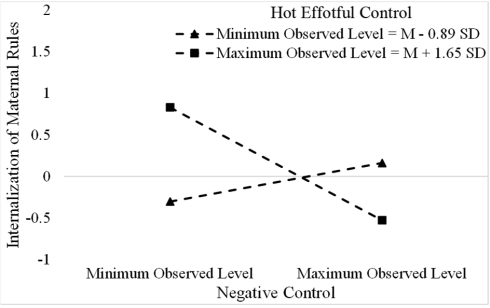

Figure 2. 25-month hot effortful control moderates the association between 15-month maternal negative control and 37-month internalization of maternal rules.

Negative control did not predict internalization of maternal rules within the observed range of hot effortful control. At the minimum observed level of hot effortful control, $B = 0.14$, $p = .46$; at the maximum observed level of hot effortful control, $B = –0.42$, $p = .06$.

Summary. In Study 1 we examined the contributions of maternal respect for autonomy and negative control as well as child cool and hot effortful control to internalization during the first 3 years of life. First, none of the two maternal parenting behaviors directly predicted internalization of maternal rules. This result is in contrast to our expectation yet consistent with the notion that parenting behaviors that are

[1] We probed this interaction effect by testing the simple slopes for hot effortful control at levels larger than the observed range (i.e., $M \pm 2\ SD$). Results indicate that when hot effortful control is at a high level ($M + 2\ SD$), negative control negatively predicts internalization of maternal rules, $B = -0.50$, $p < .05$, whereas when hot effortful control is at a low level ($M - 2\ SD$), negative control does not predict internalization of maternal rules, $B = 0.39$, $p = .18$. This pattern of moderation is in line with a goodness-of-fit model.

[2] After we re-ran the model with more strictly statistical control for the potential multicollinearity by examining the moderation effects separately for cool and hot effortful control and fixing the covariance between interaction terms (e.g., between respect for autonomy × cool effortful control and negative control × cool effortful control) to zero, the region-of-significance analyses yielded similar results.

related to child autonomy may not directly link to Chinese children's socioemotional outcomes due to a lack of cultural endorsement of autonomy (Liu, Chen, Zheng, Chen, & Wang, 2009).

Instead, the interplay between respect for autonomy and cool effortful control was predictive of later internalization. For toddlers high on cool effortful control, respect for autonomy positively predicted internalization, whereas for toddlers low on cool effortful control, no association was found. The finding is not in line with the differential susceptibility model[1]. Rather, this finding is consistent with the pattern of a goodness-of-fit model which purports that children with high, but not low, effortful control would benefit from maternal respect for autonomy, presumbly because toddlers with high effortful control already acquire adequate cognitive skills to have their internalization scaffolded by this parenting behavior. Respect for autonomy then helps these toddlers conduce toward more active assimilation and identification with maternal values and rules (Grolnick et al., 1997).

Additionally, negative control-by-hot effortful control effect was found on internalization of maternal rules and the pattern of the simple slopes at the maximum versus minimum levels of hot effortful control resembles a goodness-of-fit model[2]. Yet within the observed range of hot effortful control, maternal negative control was not significantly associated with child internalization. Consequently, we are cautious about this interaction effect and question its meaningfulness for our participants. Two tentative interpretations are offered for this result.

First, it is possible that effortful control matters for internalization development but only when both cool and hot effortful control have reached a relatively similar developmental level. It has been found that the development of hot effortful control lags behind cool effortful control (Simpson & Carroll, 2019; Zelazo & Carlson, 2012), such that cool effortful control may take on the regulatory role in toddlerhood with the assistance of maternal respect for autonomy while hot effortful control may also play a role strong enough to be detected for internalization in later developmental periods (e.g., the preschool to school years).

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[1] We also calculated the proportion of interaction (PoI) which can be used to judge whether the interaction effect is consistent with the differential susceptibility model (Roisman et al., 2012). The PoI for this respect for autonomy-by-cool effortful control interaction is 0.71 (the crossover point = −0.19), which does not meet the requirement of the differential susceptibility model (PoI ranges from 0.40 to 0.60; Roisman et al., 2012).

[2] The PoI for this negative control-by-hot effortful control interaction is 0.62 (the crossover point = 0.17), which also does not meet the requirement of the differential susceptibility model (Roisman et al., 2012).

Alternatively, it is possible that in line with Heikamp et al. (2013), cool effortful control may be the only dimension in effortful control that is relevant to internalization development throughout early and middle childhood. Cool effortful control, assessed by the Stroop-like inhibition task, taps into children's ability to cognitively inhibit the predominant response (violating rules to do what children desire to do) for the sake of a subdominant response (acting in accord with standard rules). It reflects how children use "top-down" control over their behaviors, which is crucial for success in internalization tasks (Heikamp et al., 2013). Hot effortful control may be more relevant to long-term real-life outcomes (Simpson & Carroll, 2019; e.g., externalizing behaviors) or in tasks that are highly incentivized (Zelazo et al., 2010) rather than tasks that require "top-down" control and an understanding of rules. Thus, this interaction effect by hot effortful control in Study 1 is most likely a chance finding.

Given the above interpretations, the second study was conducted to examine which explanation is more plausible and whether we can replicate the findings on children from the preschool to school years. To comprehensively capture internalization in childhood, another two measures (internalization of experimenter rules and mother-reported internalization in everyday life) were added to Study 2. Moreover, as parenting behaviors in macro-level coding are evaluated in the context of child responses and dependent on the content of the behaviors, which thus could be deliberately planned (Mesman, 2010), a micro-coding scheme of parenting was used in Study 2 to obtain the nuanced predictions of maternal parenting behaviors to child internalization. Parenting behaviors in micro-level coding reflect more intuitive parenting which allows for a more objective assessment of the relations between parenting and child behaviors (Mesman, 2010). Based on the findings of Study 1, a special focus was put on the respect for autonomy-by-effortful control effect on later internalization for the second sample.

Study 2

Method

Participants. The second sample was drawn from the "BELONGS 2010" (Beijing Longitudinal Study 2010). The present study used data from waves 5 to 7. In addition to the initial sample, 15 participants (7 girls and 8 boys) with similar ages were recruited in later waves. Compared with the initial sample, the participants who were recruited in any later waves did not differ in gender ratio, $\chi^2(1) = 0.20$, $p = .66$, ages at

wave 7, $t(74) = 1.57$, $p = .12$, parental education status, and parental monthly income, $Zs < 1.30$, $ps > .20$. Therefore, these participants were added to the initial sample.

The final sample consisted of 88 children (52 girls and 36 boys), whose families participated at least once during waves 5 (37.81 ± 1.03 months), 6 (60.32 ± 0.74 months), or 7 (83.58 ± 2.12 months). The attrition analyses revealed that compared to those who were omitted due to attrition ($n = 35$, 11 girls and 24 boys), the included sample had a higher maternal education status, $Z = 2.64$, $p = .01$, and a different gender ratio, $\chi^2(1) = 7.67$, $p = .01$. No differences were found on paternal education status, parental monthly income, and parental ages. The 88 children and their families were also mainly from the highly educated population in Beijing.

Measures.

Maternal parenting behaviors at 38 months. An event sampling and episodic coding system was used to code maternal parenting behaviors during two 5-min free-plays (Liu et al., 2005; 2009). Any verbal (and accompanied nonverbal) behavior was coded if it matched the description of an event. The duration of those behaviors was further coded by every 5-s segment (e.g., the duration of 7 s gets 2 codes, and 11 s gets 3 codes). Given the reasons similar to Study 1, free-play tasks were selected and used in Study 2 as well.

Respect for autonomy refers to those maternal behaviors that encourage a child to initiate and maintain activities or provide choices to a child. Respect for autonomy was conded when mothers used a suggestive (rather than harsh) tone of voice and her verbal behavior met at least one of two criteria (Cheng, Lu, Archer, & Wang, 2018a): (1) Mother follows a child's pace and ensures that a child plays an active role in the interaction; (2) Mother intervenes or encourages a child according to a child's state at the moment. *Negative control* refers to those maternal behaviors that discourage or interrupt a child's initiatives and ongoing activities. Negative control was coded when the mother used a coercive tone of voice and the verbal behavior matched one of two criteria (Liu & Guo, 2010): (1) Mother interrupts a child's ongoing activities or physically restricts a child's activities; (2) Mother intervenes in a child's state following her own wishes instead of taking a child's perspective.

After establishing the interrater reliability with an expert based on 15% of the videos, $\kappa = .95$, a coder coded the rest of the videos. Any discrepancies were solved by discussing with the expert. The total frequencies of respect for autonomy and negative

control were counted and averaged to each 1 min. Additionally, we transcribed maternal conversation during the free-plays and calculated the number of words mothers spoke with her child in each 1 min as mothers varied considerably in this potentially confounding variable. To rule out the possible confounding effects, the proportions of parenting behaviors were created by dividing the frequency of each behavior in 1 min by the amount of words a mother spoke in 1 min.

Child effortful control at 60 months.

Cool effortful control. The computerized Silly Sound Stroop-like inhibition task (Willoughby, Blair, Wirth, & Greenberg, 2012) was used to measure cool effortful control. In the practice session, the experimenter presented the picture of a cat and a dog on the left and right half of the screen followed by the sound of a cat or dog. The child was instructed to touch the animal picture matching with the sound to establish predominant responses. Next, the idea was introduced that, in this task, dogs made the sounds of cats and vice versa. Then children were presented with 18 Stroop-like trials and the accuracy of these trials was used.

Hot effortful control. The delay-of-gratification task (Funder, Block, & Block, 1983) was adapted to measure hot effortful control. The experimenter brought an extremely alluring cake and a small common candy on a serving tray and placed them in front of the child. The child was asked to choose a gift he or she could have, and most of them chose the cake by pointing or naming it. The experimenter asked the child to not touch anything on the tray before she came back, otherwise, she would not give him or her the gift. The child was then left alone for a maximum of 15 min (1~900 s) or until he or she touched the cake or candy. The proportion score of the latency to touch was created by dividing the latency by 900.

Child internalization at 60 and 84 months.

Internalization of maternal rules. The internalized cleanup task (Kochanska et al., 2001) was used. Similar to Study 1, a child's behavior during every 10-s segment was coded into one of two broad categories: (a) internalized cleanup and (b) oppositional behaviors. Additionally, the latency of the first oppositional behavior was recorded using 1-s units (0~300 s). Based on 20% of the videos at each age, the kappa values were .97 between two coders at 60 months and on average .86 among three coders at 84 months.

Internalization of experimenter rules. The "cheating" game task (Kochanska et al., 1996) was administered which requires a child to internalize the rules conveyed by an

experimenter. This ball- or shuttlecock-throwing game taps whether children could follow and take in the prohibitions of the game during the absence of the experimenter. In the practice session, the child had one or two trial(s) of throwing the ball or shuttlecock while facing the target at a close distance. The experimenter tempted the child by "showing" one bin with the wrapped gifts if he or she could hit the target. Next, the experimenter told the child the prohibited behaviors that he or she should not do when playing the game, explained the meaning of the word "cheating", and emphasized that breaking the rules was cheating, then left the child to play alone for 3 min.

The prohibited cheating behaviors were (a) facing the target, (b) leaving the marked area, (c) throwing with the dominant hand, (d) retrieving the ball(s) or shuttlecock(s) after throwing (5 in total), and (e) sticking a ball manually or putting a shuttlecock into the bin manually. Six mutually exclusive codes were the above five cheating behaviors and the code (f) behavior compatible with rules. One code was given for every 3-s segment and the latency of the first cheating behavior was recorded by 1-s units (0~180 s). Based on 20% of the videos at each age, the kappa values were .91 between two coders at 60 months and on average .92 among three coders at 84 months.

Internalization in everyday life. The mean score of the 20-item internalized conduct scale from the *My Child* questionnaire (Kochanska, DeVet, Goldman, Murray, & Putnam, 1994) was used to measure child spontaneous self-correction and compliance without surveillance in daily life. A sample item is "Clearly hesitates before doing something forbidden, even when alone." Mothers reported on a Likert-type scale, ranging from 1 (*extremely untrue, not at all characteristic*) to 7 (*extremely true, very characteristic*). This scale had good reliability: Cohen's αs were .85 at 60 months and .88 at 84 months.

Data aggregation. Similar to Study 1, all the indicators of the oppositional or cheating behaviors were reversely coded and then their standardized scores were averaged with the corresponding standardized scores of internalized cleanup or behavior compatible with rules. At both 60 and 84 months, we calculated averaged standardized scores for internalization of maternal or experimenter rules and a standardized score for internalization in everyday life. Next, a principal component analysis (PCA) was applied to these three scores at each wave. At 60 months, two factors were found and the first factor captured internalization (eigenvalue 1.37, 45.6% of the variance, all factor loading > .56). At 84 months, one factor was found (eigenvalue 1.20, 40.0% of the variance, all factor loading > .45). Because the

internalization factors at 60 and 84 months were correlated, $r = .47$, $p < .001$, we standardized and averaged them into one composite.

Results and Summary

Preliminary analyses. Preliminary analyses and regression analyses were conducted in M*plus* using MLR. Given a nonsignificant result of the Little's MCAR test (Little, 1988), χ^2 (13) = 7.52, $p = .87$, missing data were handled by FIML. The means, standard deviations, and correlations among variables are presented in Table 3. Girls outperformed boys on cool effortful control, $\chi^2(1) = 4.19$, $p = .04$, Cohen's $d = 0.45$. No gender difference was found on maternal parenting behaviors, hot effortful control, and internalization in childhood. Notably, none of the correlations was significant although there was a trend for a positive correlation between internalization in childhood and 60-month cool ($r = .25$, $p = .06$) and hot effortful control ($r = .21$, $p = .06$).

Table 3
Means (M), Standard Deviations (SD), and Correlations Among Variables in Study 2

Variables	*n*	*M*	*SD*	1	2	3	4	5
1 Respect for autonomy 38 months	76	1.61	0.50					
2 Negative control 38 months	76	0.10	0.11	.17				
3 Cool effortful control 60 months	77	0.86	0.15	–.17	–.06			
4 Hot effortful control 60 months	77	0.60	0.41	.02	.14	.08		
5 Internalization in childhood	81	–0.03	0.92	–.12	.10	.25	.21	

Table 4
60-Month Cool or Hot Effortful Control Moderates the Relations between 38-Month Maternal Parenting Behaviors and Child Internalization in Childhood

	Internalization in Childhood	
Predictors	*B*	β
Main effects:		
Respect for autonomy	–0.14	–.08
Negative control	0.96	.12
Cool effortful control	0.65	.11
Hot effortful control	0.35	.16
Moderation effects:		
Respect for autonomy × Cool effortful control	1.74^{**}	$.21^{\dagger}$
Respect for autonomy × Hot effortful control	0.93^{*}	$.22^{*}$
Negative control × Cool effortful control	3.92	.08
Negative control × Hot effortful control	–1.57	–.08
R^2		$.21^{*}$

Note. † $p = .05$, * $p < .05$, ** $p < .01$.

Moderation analyses. In Table 4, a moderation model is estimated (N_2 = 88, R^2 = .21, post-hoc power = .93). No direct predicitons of maternal parenting behaviors or cool and hot effortful control were found. The interaction of respect for autonomy × hot effortful control predicted internalization in childhood. Further probing this interaction with the region-of-significance technique revealed that for preschoolers with low hot effortful control (from M – 1.48 SD to M – 0.64 SD), respect for autonomy was linked negatively with internalization in childhood, whereas for preschoolers with moderate to high hot effortful control (from M – 0.64 SD to M + 0.97 SD), this association was not significant (see Figure 3a). In addition, the interaction of respect for autonomy × cool effortful control predicted internalization in childhood at a marginally significant level (p = .05). Similar to hot effortful control, for preschoolers with low cool effortful control (from M – 4.12 SD to M – 0.90 SD), respect for autonomy was negatively related to internalization in childhood whereas for preschoolers with moderate to high cool effortful control (from M – 0.90 SD to M + 0.92 SD), no relation was found (see Figure 3b). Therefore, results indicate the moderation effects by both cool and hot effortful control on the relations between respect for autonomy and child internalization[1] and the pattern of both moderations is in line with the goodness-of-fit model[2].

Summary. In Study 2 we examined how maternal parenting behaviors and child effortful control during the preschool years predicted internalization across the preschool to school years. Consistent with the results in Study 1, no main effects were shown for the two parenting behaviors while interactions between respect for autonomy and child effortful control significantly predicted later internalization. Again, the moderations in Study 2 did not meet the requirement of the differential susceptibility model. Instead, the findings are in line with the pattern of a goodness-of-fit model, as children with low effortful control showed lower, instead of higher, internalization when maternal respect for autonomy increased, whereas the association between respect for autonomy and child internalization was not significant

[1] Because the sample size was small, we re-ran the moderation model separately for cool and hot effortful control. The interaction term of respect for autonomy × hot effortful control significantly predicted internalization in childhood, β = .27, p < .01. The interaction term of respect for autonomy × cool effortful control also significantly predicted internalization in childhood, β = .26, p = .03.

[2] The PoI for the respect for autonomy-by-cool effortful control interaction is 0.01 (the crossover point = –0.17), and the PoI for the respect for autonomy-by-hot effortful control interaction is 0.31 (the crossover point = –0.32), both of which do not meet the requirement of the differential susceptibility model (Roisman et al., 2012).

for children with high effortful control. Cool and hot effortful control at the preschool years were found to yield a similar moderation effect on the relation between respect for autonomy and child internalization, suggesting that both dimensions of effortful control matter for later internalization when they are at the similar developmental level.

For preschoolers low on either cool or hot effortful control, respect for autonomy was negatively associated with later internalization, whereas for preschoolers with moderate to high effortful control, no associations were found. A possible explanation is that preschoolers with low effortful control lack sufficient self-control to appropriately regulate impulsivities and emotions and thus, they might depend more on maternal external control rather than their own self-regulation for internalization. Respect for autonomy negatively predicted their internalization, which might indicate a lack-of-fit between their temperamental trait and parenting behaviors (Kiff et al., 2011). The comparable results have also been found among adolescent boys in regard to their rule-breaking behaviors (Houtepen et al., 2019).

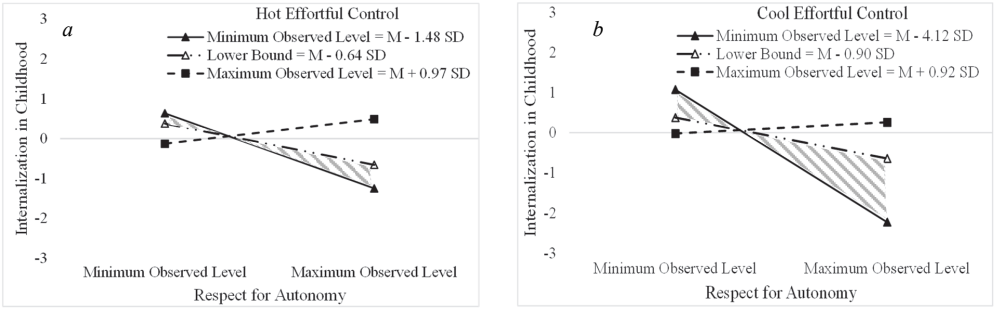

Figure 3. 60-month effortful control moderates the association between 38-month maternal respect for autonomy and internalization in childhood.

The regions-of-significance analyses are based on the observed ranges of hot or cool effortful control. The stripe-shaded areas illustrate the significant region representing a negative relation between respect for autonomy and internalization when effortful control is low.

General Discussion

Drawn from two longitudinal samples of Chinese mother-child dyads, this investigation reveals how parenting behaviors and child effortful control foretell later internalization throughout early to middle childhood. Although no direct prediction from maternal parenting behaviors or child effortful control to internalization development was found, several respect for autonomy-by-effortful control interactions were predictive of this development. During toddlerhood, cool effortful control

modified the link between respect for autonomy and later internalization. During the preschool-to-school years, both cool and hot effortful control modified the links between respect for autonomy and later internalization. Therefore, together with previous studies with U.S. children (Augustine & Stifter, 2015; Kochanska & Kim, 2014), a parenting-by-temperament process of internalization development is supported across the two studies reported here, suggesting that such process may commonly apply to children from Western and non-Western cultures.

Yet given the specific conditions on which significant interactions are shown, the current research reveals some specificities related to this parenting-by-temperament process. First, we found age differences for cool and hot effortful control as to when they affect the association between respect for autonomy and child internalization. Although the interplay between respect for autonomy and cool effortful control could already foretell internalization development during toddlerhood, the interplay with hot effortful control is not predictive of internalization until the preschool years. Thus, the developmental relevance of hot effortful control to internalization might reach its maximum following cool effortful control, which is in line with past results (Simpson & Carroll, 2019; Zelazo & Carlson, 2012). In addition, correlations between cool and hot effortful control were low in both studies which may suggest that these two dimentions of effortful control are less coherent in early childhood. This is in line with the theoretical justification that these two tasks demand inhibitory strength and endurance in counter directions and these dimensions represent two unique aspects of effortful control (Simpson & Carroll, 2019). Therefore, our findings indicate the importance of disentangling various dimensions of effortful control as they might be differentially connected to internalization during varied developmental phases.

Second, moderations by effortful control between the two studies are compatible with a contrastive effect (Belsky et al., 2007; Leerkes, Blankson, & O'Brien, 2009), in which the significant associations between respect for autonomy and internalization were in opposite directions for children with varying levels of effortful control. This result is possibly related to the developmental process of effortful control from toddlerhood (Study 1) to the preschool years (Study 2). During toddlerhood, while most children are not developmentally mature to internalize external rules, toddlers with high effortful control are already cognitively prepared for being scaffolded. Thus, maternal respect for autonomy could foster their internalization by allowing them to establish self-endorsement of maternal values and rules (Grolnick et al., 1997).

During the preschool years, effortful control develops dramatically, with most preschoolers being able to use "top-down" control over their behaviors and regulate their impulsivities making them more likely to follow adults' rules. As a result, maternal respect for autonomy during the preschool years may no longer facilitate internalization development in middle childhood. Rather, preschoolers low on effortful control may require maternal behavioral corrections and limit-setting to help them achieve the same level of internalization as their peers. If mothers only support their independence and autonomy, they might not be able to comply with adults' rules when out of surveillance or might even exhibit rule-breaking behaviors (Houtepen et al., 2019).

These specific results in the current research suggest that how effortful control moderates the association between positive parenting (i.e., respect for autonomy) and positive outcomes (i.e., internalization) may depend on *how* effortful control is measured (cool vs. hot), *when* effortful control is measured (toddlers vs. preschoolers), and *what* sociocultural backgrounds children are from (non-Western vs. Western). Given those specific conditions, we found partial support for a goodness-of-fit model as to how respect for autonomy combines with child effortful control to predict later internalization. This is consistent with the result in a recent meta-analysis that effortful control is not a marker of differential susceptibility (Slagt et al., 2016a), although more replication studies are needed to confirm the current findings.

Unexpectedly, negative control did not play any roles in internalization development. This result is inconsistent with previous studies (e.g., Kochanska et al., 2003; Yu et al., 2018). From a developmental perspective, a possible explanation is that negative control might predict child internalization when combined with other temperamental and behavioral traits (e.g., fearfulness; Kochanska et al., 2001). Another interpretation is related to sample characteristics. As the participating families were mainly from the highly educated urban population of China, it is easier to foster a positive mother-child relationship in these families. Maternal negative control was generally in mild forms and children from these families were more likely to hold a relatively benign interpretation about their mothers' occasional negative control as caring and reflecting involvement (Pomeranz & Wang, 2009). Thus this parenting behavior may on the one hand, thwart the thriving for independence and autonomy yet on the other hand, fulfill the need for closeness and relatedness. As a result, a compensatory process exists and its association with child internalization is

nonsignificant.

Moreover, this result might be culture-specific, bringing up the issue about how to understand parental control in contemporary China with the dramatic transformation of Chinese society in the past 40 years. Derived from the Confucianism ideology, we expected that Chinese mothers would raise their children to take in standards of conduct in a controlling manner. But descriptive data showed that compared with respect for autonomy, mothers did not display a higher level of negative control during toddlerhood and used much fewer negatively controlling behaviors in the preschool years. Thus, it is possible that negative control may be less developmentally relevant to child internalization owing to the culturally decreasing acceptance of teaching the child to comply with adults' rules through thwarting the child's autonomy and independence.

In addition, the associations between respect for autonomy and negative control were not congruent across the two studies possibly because different coding schemes were used. This result adds to the current discussion about the differences of parenting behaviors in micro-level coding and macro-level coding (see Mesman, 2010). Micro-level coding may capture these two parenting behaviors irrespective of child behaviors more possibly because this approach uses a predefined set of behaviors and is relatively neutral. Thus, they reflect two independent dimensions of parenting and they are less likely to be correlated (see also Laurin & Joussemet, 2017). In macro-level coding, those behaviors are coded with a consideration of a wider range of contextual cues and dynamics of parent-child interactions. As a result, they shared the overlapping contents of child responses and tended to be negatively correlated.

Based on the current findings, there are several future directions. First, research on the parenting-by-effortful control interactions has been scarce in general (see Slagt et al., 2016a for a review). Future studies are called for to advance understanding the moderation effect by effortful control on the association between parenting and moral development. Second, because cool and hot effortful control is found to play a differential role during varied developmental periods, future research needs to take child age into account when examining how cool or hot effortful control predicts moral development. Third, further examining the links between respect for autonomy or negative control and socialization goals or parenting attitudes could help advance understanding the functional meanings of those parenting behaviors in the current Chinese social context. Fourth, parenting behaviors coded from the free-play task do not directly relate to child internalization, possibly because respect for autonomy and

negative control in different contexts (e.g., the teaching context versus the free-play context) are differentially associated with child development and these parenting behaviors coded from free-plays tend to be less developmentally relevant (Matte-Gagné, Harvey, Stack, & Serbin, 2015). Future studies are needed that use diverse contexts to measure and reveal the "contextual specificity" of these two parenting behaviors. Relatedly, future research may also consider examining whether similar patterns of predictions would be found for different forms of internalization (e.g., observed internalization of rules versus parent-reported internalization in everyday life).

This research has limitations. First, we only used one task to measure cool and hot effortful control. More tasks for a comprehensive assessment of effortful control are needed in future studies. Second, most families were from urban China with a relatively high educational background and financial security. A more representative sample is required to generalize the present findings. For example, the sample including parent-child dyads from rural areas of China may be particularly helpful for clarifying our different assumptions of the developmental relevance of parental negative control in contemporary Chinese families.

Conclusion

This study demonstrates a complex parenting-by-temperament process of internalization development. We find that in toddlerhood maternal respect for autonomy positively predicts later internalization for toddlers high on cool effortful control. During the preschool to school years, maternal respect for autonomy negatively predicts later internalization for preschoolers low on either cool or hot effortful control. Together these results add to our understanding of how socialization factors combine with child individual factors to shape moral development throughout the first 7 years of life.

6

Chapter 6

Goodness of Fit in the Chinese Context of Socialization in the First Three Years

Author Note:

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Author Contributions:

S. Dong conceptualized the research question, and J.S. Dubas, M. Deković, and Z. Wang gave advice and feedback. Z. Wang oversaw and coordinated the data collection. S. Dong analyzed the data and wrote the manuscript. J.S. Dubas and M. Deković provided feedback on the analyses and manuscript.

Abstract

Based on the goodness-of-fit theory, the current research examined how parental socialization expectations and socialization practices in infancy predicted child social adjustment in the preschool year dependent on child characteristics in toddlerhood with a longitudinal sample of Chinese families. Participants were 272 Chinese mother-child dyads. Maternal socialization goals of child autonomy and obedience were assessed at 6 months of age. Maternal respect for autonomy and negative control were observed in free-plays at 15 months using both macro- and micro-coding schemes. Mothers reported child compliance and inhibitory control at 25 months and rated child externalizing behaviors at 37 months. Results showed that for children with low levels of compliance or high levels of inhibitory control, obedience socialization goals predicted more externalizing behaviors, whereas for children with high levels of compliance or low levels of inhibitory control, obedience socialization goals predicted fewer externalizing behaviors. Moreover, for children with high levels of inhibitory control, higher levels of respect for autonomy in macro-coding or lower levels of negative control in macro-coding foretold fewer externalizing behaviors. Conversely for children with low levels of inhibitory control, lower levels of respect for autonomy in macro-coding or higher levels of negative control in macro-coding forecasted fewer externalizing behaviors. Together, our findings demonstrate that socialization expectations, socialization practices, and child characteristics are jointly predictive of social adjustment across early childhood and all the significant interactions are characterized by the pattern of a contrastive effect, therefore congruently supporting the goodness-of-fit hypotheses.

Keywords: parenting behaviors, socialization goals, compliance, inhibitory control, goodness of fit

Introduction

The goodness-of-fit model, originally proposed by Thomas and Chess (1977), hypothesizes that the interaction effects of environmental factors and child characteristics are meaningful in foretelling individual differences in developmental outcomes over and above the additive effects of environment and child alone (Sanson, Hemphill, & Smart, 2004). Goodness of fit represents "the consonance between organism and environment, showing that the organism's capacities, characteristics, and styles of behaving are in accord with the properties of the environment and its expectations and demands" (Chess & Thomas, 1999, p. 3). The contrasting phenomenon—poorness of fit—represents "the discrepancies and dissonance between the capacities of the organism and environmental opportunities and demands" (Chess & Thomas, 1999, p. 3). Theoretically, goodness of fit and poorness of fit coexist in a representative sample of children, with goodness of fit forecasting optimal development in a progressive direction and poorness of fit predicting later pathological functioning (Chess & Thomas, 1999; Lengua, Gartstein, & Prinzie, 2019). The core of this model lies in the predictive power of specific combinations between a particular environmental factor and a certain child characteristic in a sociocultural group (Chess & Thomas, 1999). When applied to socialization contexts, such combinations are investigated through two approaches (Seifer et al., 2014): the expectation-behavior approach (i.e., socialization goals-by-temperament) and the behaviors matching approach (i.e., socialization practices-by-temperament).

Especially during the first three years of life, such socialization-by-temperament interactions are essential for understanding the emergence of individual differences in social adjustment. Yet this line of research has been rare for non-WEIRD (Western, Educated, Industrialized, Rich, and Democratic) samples in general (Chen, 2018). Because considerable differences exist in the socialization environment between sociocultural groups, whether existing findings on such interactions drawn from WEIRD samples also apply to non-WEIRD families needs to be studied. For example, unlike U.S. families, due to a low level of cultural endorsement of autonomy, parenting behaviors that show respect for a child's autonomy (encourage child initiatives, provide choices, and explain demands; Matte-Gagné, Harvey, Stack, & Serbin, 2015) are not as often used by Chinese parents (Wu et al., 2002) and not straightforwardly linked with Chinese children's early social adjustment (Dong et al., 2021c; Liu, Chen, Zheng, Chen, & Wang, 2009). In contrast, the use of parental negative control (power assertion

through threatening, criticism, and physical force; Laurin & Joussemet, 2017) is relatively acceptable in Chinese families (Liu & Wang, 2015b; Olson et al., 2011) and Chinese children hold a relatively benign perception of such parenting behaviors as legitimate and necessary for cultivating social norms (Luo, Tamis-LeMonda, & Song, 2013). Nonetheless, similar to U.S. children, parental negative control tends to be related to poorer social adjustment in Chinese children (Olsen et al., 2011).

It, however, is less known how the cultural specificities of socialization factors sculpt the socialization-by-temperament processes in contemporary Chinese families. To address this gap, we drew from a longitudinal sample of Chinese families with young children and examined specifically how maternal socialization expectations (i.e., socialization goals of child obedience and autonomy) and socialization practices (i.e., respect for autonomy and negative control) in infancy interact with child characteristics (i.e., self-control indexed by compliance and inhibitory control) in toddlerhood to calibrate child social adjustment (i.e., externalizing behaviors) in the early preschool years.

Self-Control as Individual Differences in Responsiveness to Socialization

In regard to temperamental traits that may fit the goodness-of-fit thinking, self-control has been demonstrated to be a promising candidate according to theoretical reviews (Kiff, Lengua, & Zalewski, 2011; Lengua et al., 2019). During the second year, toddlers typically start to refine the proficiencies of two rudimentary self-control skills that may impact multi-facets of social adjustment later in life: compliance and inhibitory control (Kochanska, Murray, & Coy, 1997; Kopp, 1982). Compliance and inhibitory control are closely connected but represent different aspects of self-control (Kochanska et al., 1997), with compliance presumably reflecting children's ability to generate appropriate behaviors (i.e., behavioral control) whereas inhibitory control presumably reflecting children's abilities to voluntarily regulate cognitive processes and emotional or motivational arousals to achieve goals (i.e., cognitive and affective control) (Denham, Warren-Khot, Bassett, Wyatt, & Perna, 2012).

As to the relevance of self-control in Chinese families, in line with the Confucian principle of self-restraint (Yuē), Chinese children are expected to learn how to control themselves (i.e., inhibitory control) and follow rules voluntarily (i.e., compliance) at an early age (Luo et al., 2013). Chinese parents possess relatively extreme interpretations of child characteristics consistent versus inconsistent with cultural values (Lamm &

Keller, 2007), including child self-control. Children who meet the parents' expectation for self-control are viewed as highly favorable while those who do not are viewed as a disappointment. Correspondingly, different, or even contrasting, associations between a certain socialization factor and child social adjustment may occur to children with varying levels of self-control.

Socialization Goals-by-Temperament Processes in the Chinese Culture

The first factor that possibly interacts with child self-control to influence social adjustment is parental socialization goals. Socialization goals are culturally specific (and common) beliefs regarding children's ideal development and acquisition of skills (Putnick, 2019). Derived from the expectation-behavior matching approach (Seifer et al., 2014), interactions between socialization goals (e.g., the expectation of a child to be compliant) and child self-control (e.g., the level of compliance of a child) directly tap the fit (or a lack thereof) between environmental expectations and child actual characteristics in a given socialization context and are thus firmly tied to the concept of goodness of fit.

Parental socialization goals have been broadly clustered into two categories (Keller et al., 2006): relational socialization goals (highlighting obedience and caring for others) and autonomous socialization goals (highlighting self-confidence and assertiveness). In early childhood, Chinese parents have been shown to value relational socialization goals modestly (e.g., lower than Mexican parents but similar to U.S. parents) and autonomous socialization goals less favorably (e.g., lower than most other sociocultural groups; Gartstein & Putnam, 2018, pp. 86–96). This is in line with Kagitcibasi's idea (2005) about the shifts in cultural values in countries that have experienced dramatic socio-economic reforms, such as China. Namely, relatedness and interdependence are not as emphasized as it used to be, whereas children's personal autonomy is beginning to enter parental beliefs of childrearing. As a result of such shifts in these socialization goals, neither of them was found to be directly associated with Chinese children's inhibitory control (Gartstein & Putnam, 2018, pp. 157–164).

Despite a lack of direct associations, the consonance or dissonance between parental socialization goals and child levels of self-control may have the potential to predict social adjustment. As far as we know, however, such interaction effects have never been examined with Chinese families. Although child self-control is generally predictive of higher social adjustment, the specific level of outcomes following from the

development of self-control may be dependent on the socialization goals in that sociocultural context (Chen, 2018). Specifically, when parents emphasize obedience as a socialization goal, children with high levels of compliance and/or inhibitory control would be consonant with this goal and behaving in accord with parental expectations. This, in turn, might predict higher social adjustment. In contrast for children with low levels of compliance and/or inhibitory control, obedience socialization goals may predict poorer social adjustment due to the discrepancies between parental expectations for self-restraint and these children's style of behaving.

The pattern of match/mismatch with child self-control, however, may be different for autonomous socialization goals. Children with low levels of self-control would fit well with autonomous socialization goals. This is because the characteristics that these children commonly exhibit in toddlerhood, such as assertiveness (e.g., negotiation and saying "no" to parental requests; Wang & Dong, 2019) and the ability to defy (Dix, Stewart, Gershoff, & Day, 2007), indicate their expressions of the need for autonomy, such that there is a match between parental expectations for child autonomy and these children's characteristics. In contrast, autonomous socialization goals may be mismatched with children who have high levels of compliance and/or inhibitory control and may link to poorer social adjustment as these children may show too much self-restraint, creating the dissonance between parental expectations and children's actual styles of behaving.

Socialization Practices-by-Temperament Processes in the Chinese Culture

The second factor that possibly influences social adjustment together with child self-control is parental socialization practices. In the previous studies, the negative control-by-self-control interactions and the respect for autonomy-by-self-control interactions have been found to predict child social adjustment among Chinese families. For children with high levels of child compliance (Dong et al., 2021c) or inhibitory control (Dong, Dubas, Deković, & Wang, 2021b; Ren, Zhang, Yang, & Song, 2018), higher levels of respect for autonomy or lower levels of negative control facilitate social competence (Ren et al., 2018) and reduce the risk of developing problem behaviors (Dong et al., 2021c). In contrast, for children with low levels of child compliance (Dong et al., 2021c) or inhibitory control (Dong et al., 2021b; Ren et al., 2018; Yu, Cheah, Hart, & Yang, 2018), higher levels of negative control or lower levels of respect for autonomy preclude the risk of developing problem behaviors (Yu et al.,

2018) or promote social competence (Dong et al., 2021b).

These past findings have provided the initial support to the goodness-of-fit model in the Chinese socialization context. For the negative control-by-self-control interaction, positive (i.e., poorness of fit) versus negative (i.e., goodness of fit) associations with externalizing behaviors are likely for children with *high* versus *low* levels of self-control. Conversely for the respect for autonomy-by-self-control interaction, positive versus negative associations with externalizing behaviors are likely for children with *low* versus *high* levels of self-control. Therefore, they both are congruent with the pattern of a contrastive effect, showing that there are reverse associations between parenting and child outcomes for children with varying levels of characteristics.

The Current Research

The current research aims at evaluating two approaches of the goodness-of-fit model in the Chinese cultural context of early socialization. Goodness of fit is indexed by fewer, and poorness of fit is indexed by more, externalizing behaviors. The first aim is to make an advance of the knowledge on the socialization goals-by-temperament processes in Chinese families. Specifically, we examined how maternal expectations including obedience and autonomous socialization goals interact with the indicators of child self-control including compliance and inhibitory control to foretell externalizing behaviors. Of note, socialization goals were assessed before mothers knew the self-control level of their child, such that socialization goals themselves are independent of child self-control. For the examination of this approach, we hypothesized that obedience socialization goals would predict fewer externalizing behaviors for children with high levels of self-control and more externalizing behaviors for children with low levels of self-control. In contrast, autonomous socialization goals would predict more externalizing behaviors for children with high levels of self-control and fewer externalizing behaviors for children with low levels of self-control.

The second aim, focusing on the socialization practices-by-temperament processes, is to replicate the contrastive effects that have been found previously (e.g., Dong et al., 2021b, c) for the combinations between maternal respect for autonomy or negative control and child self-control when predicting social adjustment in Chinese children. To extend past literature, we used mother-reported indicators of child self-control in daily life and differentiated parenting behaviors that were coded using micro- and

macro-coding schemes.

In our previous studies (Dong et al., 2021b, c) we used observations exclusively to measure individual differences in compliance and inhibitory control. However, child performance on these tasks may be context-dependent to some degree. Other child characteristics such as positive mood or fearfulness (Aksan & Kochanska, 2004; Kochanska & Aksan, 1995) could be confounded with our observations of self-control during the laboratory visit. Examining the moderating roles of parent-rated child self-control may complement the past results and reveal the reliability of the goodness-of-fit model. This is because parent-rated assessments are evaluated across various daily contexts, which provide greater ecological validity for predictions (as compared to standardized laboratory tasks) (Stifter, Willoughby, & Towe-Goodman, 2008).

Furthermore, parental respect for autonomy and negative control can be coded at the micro- (i.e., the predefined specific parental behaviors or conversation pragmatics at the level of utterances or in very small-time segments) and macro-level (i.e., the overall intensity and quality of observed parental behaviors throughout interactions) (Murray et al., 2015). A micro-coding scheme is relatively neutral and taps intuitive parenting behaviors irrespective of child influences more possibly (Mesman, 2010). In contrast, a macro-coding scheme considers not only individual differences in observed behaviors but also dynamics of parent-child interactions. Parenting behaviors coded in this way share the overlapping contents of child responses (Mesman, 2010). As far as we know, only one study included these two types of coding (although the constructs measured were only a proximal for respect for autonomy) and showed that only negative control in macro-coding in middle childhood forecasted more externalizing behaviors in adulthood (Murray et al., 2015). This result suggests that respect for autonomy and negative control coded using these different schemes may not necessarily reflect the same socialization practices. However, no studies have examined whether these parenting behaviors may potentially differentially interact with child self-control to predict later social adjustment and in the present research we strived to elucidate this question.

Given these two points concerning the assessments of child self-control and parenting behaviors, we hypothesized that respect for autonomy would predict fewer externalizing behaviors for children with high levels of mother-reported self-control and more externalizing behaviors for children with low levels of mother-reported self-control. In contrast, negative control would predict more externalizing behaviors for

children with high levels of mother-reported self-control and fewer externalizing behaviors for children with low levels of mother-reported self-control. Yet it is possible that these interaction effects would be shown for these two parenting behaviors in macro-coding more likely than they in micro-coding.

Method

Participants

The participants were drawn from an ongoing project, BELONGS 2015 (Beijing Longitudinal Study 2015), that began in 2015 when infants were 6 months old. The project was approved by Peking University First Hospital Ethics Committee. The initial sample was recruited from several maternity and well-baby clinics of regional hospitals in Beijing, China or through signing up on the project website. A total of 242 infants (119 girls and 123 boys) and their families were initially recruited. In addition to the initial sample, 52 participants (23 girls and 29 boys) were recruited in later waves. As reported in our previous article (Dong et al., 2021b), the participants who were recruited in any later waves were generally similar with the initial sample on demographic variables. Therefore, they were combined (N = 294) to increase the power of analyses.

In this study, we focused on the assessments at Wave 1 (6.27 ± 0.36 months), Wave 2 (14.61 ± 0.57 months), Wave 3 (24.77 ± 2.35 months), and Wave 4 (37.28 ± 1.30 months). The families who participated at least once at these waves were included (n = 272, 130 girls and 142 boys). A total of 22 participants (10 boys and 12 girls) were excluded because they had no data on any variables of interest. This is owing to the fact that their mothers did not respond to the questionnaires at Waves 1, 3, and 4 (but they participated at least once in the laboratory visits during these waves), and they did not participate in the laboratory visit at Wave 2 (but their mothers responded to the mailed questionnaires at this wave). The excluded and included samples did not differ in child gender ratio, $\chi^2(1) = 0.37$, $p = .54$, child age at Wave 1, Welch test $F(1, 18.32) = 0.32$, $p = .58$, maternal age, Welch test $F(1, 11.85) = 2.68$, $p = .13$, maternal education levels and monthly income, Mann-Whitney U test, Zs < 1.07, ps > .28. The included 272 children were from highly educated urban families in China, as indexed by more than 90% of parents having completed college or higher education and by the modes of maternal and paternal monthly income between 6,000 and 10,000 yuan.

Measures

Maternal Socialization Goals at 6 Months

The Socialization Goals Questionnaire (Keller et al., 2006) was used to assess maternal socialization goals for their child in the first three years of life. Mothers were asked to rate their agreement with 10 statements on a 6-point Likert-type scale ranging from 1 (*completely disagree*) to 6 (*completely agree*). Two subscales found in Kärtner, Keller, and Chaudhary (2010) were chosen: autonomous socialization goals (5 items; e.g., "develop self-confidence") and obedience socialization goals (2 items; e.g., "obey elderly people"). The reliability was good, for the autonomous socialization goals scale, the Cronbach's $\alpha = .72$, and for the obedience socialization goals scale, $\alpha = .88$. The average scores of these two subscales were used.

Maternal Respect for Autonomy and Negative Control at 15 Months

Macro-coding scheme. We used the observational coding manual of parent-child interactions (Lengua, 2009; Dong et al., 2021b) to evaluate maternal respect for autonomy and negative control in macro-coding. A scale ranging from 1 (*very low*) to 5 (*very high*) was used to rate two 5-min mother-child free-play tasks. *Respect for autonomy* includes behaviors that allow the child to initiate the interaction and encourage the child to express autonomy or make decisions independently. For instance, the mother asks the child, "Which toy do you like?" *Negative control* includes rejections and prohibitions given without explanation, verbal intrusiveness and interruption, and physical intrusiveness and exclusion of the child's involvement. These behaviors are ill-timed, inappropriate, or excessive for the child's needs. For instance, the mother warns the child, "No, this is mine. Go to play yours!"

Two master students, who were blind to the hypotheses of this research, were trained to code all the mother-child free-plays. An independent coding procedure was adopted. For each participant, one coder rated respect for autonomy and another coder rated negative control and these coders were blind to the ratings of another parenting behavior throughout the coding session. Based on 16% of the video sample, the intraclass correlations (ICC) between two coders were .83 for respect for autonomy and .88 for negative control. Ratings were given for maternal behaviors per 1 min and respect for autonomy and negative control in macro-coding were calculated by averaging the ratings across the two free-play tasks.

Micro-coding scheme. We used the event sampling and episodic coding system (Liu et al., 2009; Dong et al., 2021c) to evaluate maternal respect for autonomy and

negative control in micro-coding. Any verbal (and accompanied nonverbal) behavior was coded if it matched the description of an event. After identifying the events, the duration of those behaviors was further coded by every 5-s segment (e.g., the duration of 7 s gets two codes, the duration of 11 s gets three codes). *Respect for autonomy* refers to behaviors that encourage the child to initiate and maintain activities of their own or provide choices to the child, which are expressed in a suggestive tone of voice. These behaviors should meet at least one of two criteria: (a) the mother follows the child's pace and ensure that the child plays an active role in the interaction, and (b) the mother motivates or encourages the child according to the child's state at the moment. *Negative control* refers to behaviors that discourage or interrupt the child's initiatives and ongoing activities, which are expressed in a coercive tone of voice. These behaviors should meet one of two criteria: (a) the mother interrupts the child's ongoing activities or physically restricts the child's activities, and (b) the mother intervenes in the child's state following the mother's own wishes instead of taking the child's perspective.

Three coders, who were blinded to the hypotheses of this research, were trained to code maternal respect for autonomy and negative control in micro-coding (none of them had got accessed to the data of these parenting behaviors in macro-coding). Based on 20% of the video sample, they established good interrater reliability, κs ranging from .91 to .94. The total frequencies of respect for autonomy and negative control were counted and averaged to each 1 min. Because we noticed that mothers differed considerably in the number of words they spoke with the child, we used all the coded behaviors (including respect for autonomy, negative control, encouragement of connectedness, and discouragement of connectedness; Liu et al., 2009) in each 1 min as a proximal of the number of words. The proportions of respect for autonomy and negative control were calculated by dividing the frequencies of these behaviors by the frequency of all the coded behaviors. These proportions were used in the analyses.

Child Self-Control at 25 Months

Compliance. Mothers rated child compliance on the Chinese version of the Infant-Toddler Social and Emotional Assessment (CITSEA; Briggs-Gowan & Carter, 1998; Zhang et al., 2009). The compliance subscale has 7 items (e.g., "Puts toys away after playing") and mothers responded to these items on a 3-point scale (0 = *not true or rarely*, 1 = *sometimes true or sometimes*, 2 = *very true or often*). The reliability of the compliance subscale was relatively low, α = .58, but it is comparable with the reliability level found in the original validation study (α = .63; Zheng et al., 2009). The

mean score of this subscale was used.

Inhibitory control. Mothers rated child inhibitory control on the short form of the Early Childhood Behavior Questionnaire (ECBQ-SF; Putnam, Gartstein, & Rothbart, 2006). The questionnaire has been used with Chinese toddlers in the previous research (Gartstein & Putnam, 2018). The inhibitory control subscale has 6 items and mothers responded to these items on a 7-point Likert-type scale ranging from 1 (*never*) to 7 (*always*). When the description of an item does not apply to the child, mothers could choose 0 (*does not apply*) and these items are treated as missing values. The reliability of the inhibitory control subscale was acceptable, α = .60. The mean score of this subscale was used.

Child Externalizing Behaviors at 37 Months

Mothers rated child externalizing behaviors on the CITSEA (Briggs-Gowan & Carter, 1998; Zhang et al., 2009). The 18-item externalizing behaviors scale was composed of aggressiveness, peer aggressiveness, and impulsivity subscales. All items were rated on the 3-point scale (0 = *not true or rarely*, 1 = *sometimes true or sometimes*, 2 = *very true or often*). The reliability of the externalizing behaviors scale was good, α = .85. The mean score of this scale was used.

Analytic Plan

Preliminary analyses and regression models were conducted in M*plus* (Muthén & Muthén, 1998–2017) using maximum likelihood estimation with robust standard errors (MLR). The assumption of missing completely at random (MCAR) was tenable, indicated by a nonsignificant result of Little's MCAR test (Little, 1988), $\chi^2(137) = 149.88$, $p = .21$. The average missing rate for all variables was 27.4% and missing data were handled by a full information maximum likelihood method. According to the smallest effect size that we found previously ($R^2 = .09$; Dong et al., 2021b), at least 167 participants are needed to obtain the power of .80 and the sample size of our research ($N = 272$) was sufficient.

Moderation models were conducted separately for 6-month socialization goals (autonomous or obedience socialization goals) and 15-month parenting behaviors (respect for autonomy or negative control) because we are interested in the pattern of the unique interactions of child self-control with different socialization expectations and different socialization practices. The moderators in these models were 25-month child compliance and inhibitory control. Interaction terms were calculated by

multiplying the centered socialization factors with the centered indicators of child self-control. Significant interaction terms were further probed by depicting regions of significance.

Results

Preliminary Analyses

The means, standard deviations, and correlations among variables are presented in Table 1. Boys displayed more externalizing behaviors than girls, Wald test $\chi^2(1) = 10.93$, $p < .001$, Cohen's $d = 0.41$. No gender difference was found on maternal socialization goals, parenting behaviors, child compliance, and inhibitory control, all $\chi^2(1) < 3.67$, ps $> .05$. Mothers rated autonomous socialization goals higher than obedience socialization goals, paired t test, $t(196) = 12.72$, $p < .001$, $d = 0.91$. In micro-coding, mothers used respect for autonomy more often than negative control, $t(191) = 60.12$, $p < .001$, $d = 4.34$. However, in macro-coding, mothers had a similar level of respect for autonomy and negative control, $t(185) = -0.82$, $p = .41$.

With respect to correlations with child variables, obedience socialization goals predicted more child externalizing behaviors. As expected, respect for autonomy and negative control in macro-coding, but not in micro-coding, forecasted child externalizing behaviors, with the prediction being negative for respect for autonomy while being positive for negative control. Moreover, autonomous socialization goals were positively correlated with child compliance. None of the parenting behaviors were linked to child compliance or inhibitory control. In addition, child compliance and inhibitory control was positively correlated, and they were both linked to fewer externalizing behaviors.

As for correlations among socialization factors, a positive correlation was found between autonomous and obedience socialization goals. Obedience socialization goals predicted lower respect for autonomy in macro-coding and higher negative control in macro-coding. Furthermore, respect for autonomy was negatively related to negative control, in both macro- and micro-coding. Respect for autonomy in macro- and micro-coding was positively correlated, but negative control in macro- and micro-coding was not correlated.

Table 1
Means (M), Standard Deviations (SD), and Correlations Among Variables

	1	2	3	4	5	6	7	8	9
6 Months:									
1 Autonomous socialization goals									
2 Obedience socialization goals	.18*								
15 Months:									
3 Respect for autonomy macro	.05	–.18*							
4 Negative control macro	.05	.23**	–.56**						
5 Respect for autonomy micro	.03	–.04	.24**	–.23**					
6 Negative control micro	–.03	.09	–.10	–.02	–.40**				
25 Months:									
7 Child compliance	.23*	–.05	.09	–.04	.10	–.10			
8 Child inhibitory control	.12	–.14	.13	.03	.10	–.05	.39**		
37 Months:									
9 Child externalizing behaviors	–.12	.22*	–.18*	.31**	–.04	.09	–.31**	–.29**	
M	5.03	3.96	3.34	3.42	0.65	0.03	1.14	3.87	0.51
SD	0.70	1.10	0.82	0.69	0.11	0.05	0.31	0.77	0.31
n	198	197	187	186	192	193	168	158	184

Note. * $p < .05$, ** $p < .01$.

Socialization Goals-by-Self-Control Interactions Predict Externalizing Behaviors

Subsequently, we examined how 6-month maternal *autonomous socialization goals* interacted with 25-month child compliance and inhibitory control to predict 37-month externalizing behaviors (see Table 2). Child inhibitory control was negatively related to externalizing behaviors. However, neither autonomous socialization goals nor the interactions with child compliance or inhibitory control were predictive of externalizing behaviors.

We next tested how 6-month maternal *obedience socialization goals* interacted with 25-month child compliance and inhibitory control to predict 37-month externalizing behaviors (see Table 2). For the main effects, child compliance and inhibitory control negatively predicted externalizing behaviors. Obedience socialization goals were positively linked with externalizing behaviors. Moreover, two significant interaction effects were found. Using the regions-of-significance technique to probe the interaction effect of obedience socialization goals with child compliance revealed that for children with low to moderate levels of compliance (from $M - 2.82$ *SD* to $M + 0.10$ *SD*), obedience socialization goals predicted more externalizing behaviors, whereas for children with high levels of compliance (from $M + 1.70$ *SD* to $M + 2.82$ *SD*), obedience socialization goals predicted fewer externalizing behaviors (see Figure 1). With respect to the interaction effect of obedience socialization goals with

child inhibitory control, an unexpected reverse pattern was found. For children with low levels of inhibitory control (from *M* – 3.75 *SD* to *M* – 2.39 *SD*), obedience socialization goals foretold fewer externalizing behaviors, whereas for children with moderate to high levels of inhibitory control (from *M* – 0.09 *SD* to *M* + 2.57 *SD*), obedience socialization goals foretold more externalizing behaviors (see Figure 2). Therefore, these two interaction effects were both congruent with the pattern of a contrastive effect.

In all, these results indicated that maternal obedience socialization goals, but not autonomous socialization goals, were relevant to child externalizing behaviors over time. Specifically, individual differences in externalizing behaviors were explained by the direct prediction of obedience socialization goals and the interactive predictions of obedience socialization goals with child self-control. However, child compliance and inhibitory control played a different moderating role in the interaction effects.

Table 2
Child Self-Control Moderates the Associations Between Socialization Goals and Child Externalizing Behaviors

	Externalizing Behaviors 37 Months		
Predictors	*B*	*SE*	β
Autonomous socialization goals as the predictor:			
Gender	–0.09*	0.045	–.15*
Autonomous socialization goals 6 months	–0.03	0.038	–.06
Child compliance 25 months	–0.16	0.101	–.16
Autonomous socialization goals × Compliance	0.22	0.134	.12
Child inhibitory control 25 months	–0.08*	0.041	–.21*
Autonomous socialization goals × Inhibitory control	–0.00	0.059	–.00
R^2			.16*
Obedience socialization goals as the predictor:			
Gender	–0.12**	0.045	–.20**
Obedience socialization goals 6 months	0.05*	0.020	.17*
Child compliance 25 months	–0.22*	0.090	–.22*
Obedience socialization goals × Compliance	–0.26**	0.085	–.26**
Child inhibitory control 25 months	–0.08*	0.040	–.21*
Obedience socialization goals × Inhibitory control	0.12**	0.044	.29**
R^2			.25**

Note. * $p < .05$, ** $p < .01$.

To check the robustness of these interaction effects, we also run the moderation model with only one socialization factor, one indicator of child self-control, and their interaction term being entered in addition to child gender. The significance levels of these interaction effects remain unchanged except for a minor change in the interaction effect of obedience socialization goals with child inhibitory control, $B = 0.07$, $SE = 0.039$, $\beta = .17$, $p = .06$.

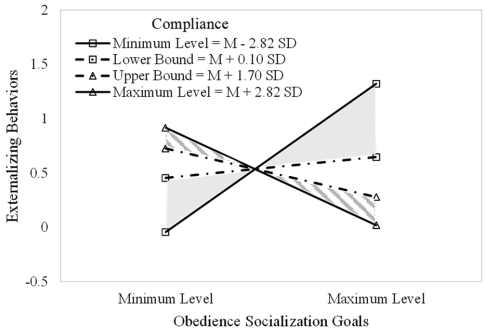

Figure 1. 25-month child compliance moderates the association between 6-month maternal obedience socialization goals and 37-month child externalizing behaviors.

Stripe-shaded area illustrates that for children with high levels of compliance, maternal obedience socialization goals are negatively associated with child externalizing behaviors. Dot-shaded area illustrates that for children with low levels of compliance, maternal obedience socialization goals are positively associated with child externalizing behaviors.

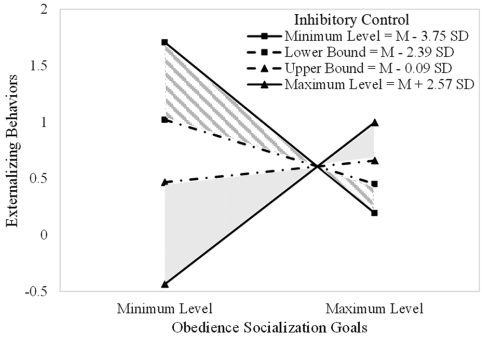

Figure 2. 25-month child inhibitory control moderates the association between 6-month maternal obedience socialization goals and 37-month child externalizing behaviors.

Stripe-shaded area illustrates that for children with low levels of inhibitory control, maternal obedience socialization goals are negatively associated with child externalizing behaviors. Dot-shaded area illustrates that for children with high levels of inhibitory control, maternal obedience socialization goals are positively associated with child externalizing behaviors.

Socialization Practices-by-Self-Control Interactions Predict Externalizing Behaviors

Next, we tested how 15-month maternal *respect for autonomy* in macro- versus micro-coding interacted with 25-month child compliance and inhibitory control to predict 37-month externalizing behaviors (see Table 3). For the main effects, respect for autonomy in macro-coding and child inhibitory control negatively predicted externalizing behaviors. Moreover, the interaction between respect for autonomy in macro-coding and inhibitory control was predictive of externalizing behaviors. Follow-up analyses using the region-of-significance method showed that for children with extremely low levels of inhibitory control (from $M - 3.75$ *SD* to $M - 3.46$ *SD*), respect for autonomy was positively associated with externalizing behaviors. Conversely for children with moderate to high levels of inhibitory control (from $M - 0.12$ *SD* to $M + 2.57$ *SD*), respect for autonomy was negatively associated with externalizing behaviors (see Figure 3).

Lastly, we examined how 15-month maternal *negative control* in macro- versus micro-coding interacted with 25-month child compliance and inhibitory control to

predict 37-month externalizing behaviors (see Table 3). For the main effects, negative control in macro-coding positively predicted child externalizing behaviors, whereas child compliance and inhibitory control negatively predicted externalizing behaviors. We also found a significant interaction effect of negative control in macro-coding with inhibitory control on externalizing behaviors. Probing this interaction effect with the region-of-significance method illustrated that for children with low levels of inhibitory control (from M – 3.75 SD to M – 1.88 SD), negative control predicted fewer externalizing behaviors, whereas for children with moderate to high levels of inhibitory control (from M – 0.51 SD to M + 2.57 SD), negative control foretold more externalizing behaviors (see Figure 4). This interaction effect was comparable with that of the obedience socialization goals-by-inhibitory control interaction.

Together, these results showed that maternal parenting behaviors in macro-coding, but not in micro-coding, were related to child later externalizing behaviors. Individual differences in externalizing behaviors were predicted by respect for autonomy in macro-coding and negative control in macro-coding both directly and interactively with child inhibitory control, but not with child compliance. The significant respect for autonomy-by-inhibitory control and negative control-by-inhibitory control interaction effects were consistent with the pattern of the contrastive effect.

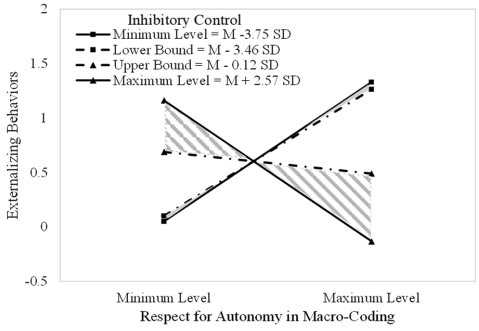

Figure 3. 25-month child inhibitory control moderates the association between 15-month maternal respect for autonomy in macro-coding and 37-month child externalizing behaviors.

Stripe-shaded area illustrates that for children with high levels of inhibitory control, respect for autonomy is negatively associated with child externalizing behaviors. Dot-shaped area illustrates that for children with low levels of inhibitory control, respect for autonomy is positively associated with child externalizing behaviors.

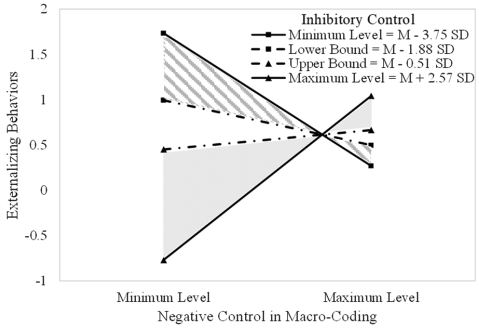

Figure 4. 25-month child inhibitory control moderates the association between 15-month maternal negative control in macro-coding and 37-month child externalizing behaviors.

Stripe-shaded area illustrates that for children with low levels of inhibitory control, negative control is negatively associated with child externalizing behaviors. Dot-shaded area illustrates that for children with high levels of inhibitory control, negative control is positively associated with child externalizing behaviors.

Table 3
Child Self-Control Moderates the Associations Between Parenting Behaviors and Child Externalizing Behaviors

	Externalizing Behaviors 37 Months		
Predictors	*B*	*SE*	β
Respect for autonomy as the predictors:			
Gender	–0.10*	0.043	–.16*
Respect for autonomy-macro 15 months	–0.07*	0.029	–.18*
Respect for autonomy-micro 15 months	0.01	0.010	.04
Child compliance 25 months	–0.15	0.103	–.15
Respect for autonomy-macro × Compliance	0.02	0.169	.01
Respect for autonomy-micro × Compliance	0.10	0.115	.10
Child inhibitory control 25 months	–0.08*	0.040	–.20*
Respect for autonomy-macro × Inhibitory control	–0.14*	0.064	–.25*
Respect for autonomy-micro × Inhibitory control	0.02	0.047	.04
R^2			.21**
Negative control as the predictors:			
Gender	–0.08	0.043	–.14
Negative control-macro 15 months	0.13**	0.027	.30**
Negative control-micro 15 months	0.02	0.213	.03
Child compliance 25 months	–0.18†	0.092	–.18*
Negative control-macro × Compliance	–0.10	0.114	–.07
Negative control-micro × Compliance	–0.06	0.213	–.03
Child inhibitory control 25 months	–0.10*	0.039	–.25*
Negative control-macro × Inhibitory control	0.19**	0.048	.30**
Negative control-micro × Inhibitory control	0.003	0.094	.00
R^2			.31**

Note. † $p = .05$, * $p < .05$, ** $p < .01$.

To check the robustness of these interaction effects, we also run the moderation model with only one socialization factor, one indicator of child self-control, and their interaction term being entered in addition to child gender. The significance levels of all the interaction effects remain unchanged.

Discussion

The current research examined how goodness of fit and poorness of fit manifested in the Chinese cultural context during the first three years of socialization. First, we examined how the combinations between maternal socialization goals (i.e., autonomous and obedience socialization goals) at 6 months and child self-control (i.e., compliance and inhibitory control) at 25 months were predictive of externalizing behaviors at 37 months. Second, we examined how the combinations between maternal socialization practices (i.e., respect for autonomy and negative control) at 15 months and the indicators of child self-control at 25 months were predictive of 37-month externalizing behaviors. We found that obedience socialization goals were associated with more externalizing behaviors. This association was further moderated by child compliance and inhibitory control. We also found that respect for autonomy

and negative control in macro-coding predicted child externalizing behaviors. These longitudinal associations were moderated by child inhibitory control.

Socialization Goals-by-Self-Control Interactions Predict Externalizing Behaviors

The first aim of this study was to extend the understanding on the goodness-of-fit processes concerning the predictive power of the combinations between parental expectations and child self-control for social adjustment. Our hypothesis of this predictive power was partially supported. Specifically, high levels of child compliance fitted well with maternal expectation for an obedient child and this combination was linked to fewer externalizing behaviors. In contrast, low levels of child compliance fitted poorly with this maternal expectation and this combination was related to more externalizing behaviors.

A possible interpretation for this result is that a positive, reciprocal relationship is formed in the mother-child dyads when mothers value child obedience and at the same time, children act in accordance with this maternal expectation. When children's behaviors keep up with maternal expectation, the mothers tend to think highly of these children and treat them as competent and trustworthy social partners (Kochanska, 2002b). In turn, these children may perceive maternal expectation for obedience as legitimate and are likely to internalize such values (Kochanska, 2002b). In such a relationship, children are less likely to defy or act out aggressively. In contrast, children with low levels of compliance are not in synchrony with maternal expectation for obedience. Mothers may evaluate these children as socially immature and uncooperative. In turn, these children may find maternal expectation for obedience less attainable and may lack self-endorsement of these goals that mothers keenly value. In such a relationship, mother-child conflicts may show up, eventually cumulating into the situation that children use externalizing behaviors to deny maternal authority when mothers are prone to impose a goal for child obedience (Mulvaney, Mebert, & Flint, 2007).

Unexpectedly, we found that when mothers put an emphasis on child obedience, children with high levels of inhibitory control were more likely to show externalizing behaviors, whereas children with low levels of inhibitory control were less likely to do so. This interaction effect contrasted with our hypothesis and the interaction effect of obedience socialization goals with child compliance, yet it was comparable with the

negative control-by-inhibitory control interaction shown here.

But why were different moderating roles found for child compliance and inhibitory control? We offer a preliminary explanation concerning the conceptual differences in child compliance and inhibitory control. Compliance is incubated in social interactions with others (e.g., mothers), which taps children's differences in the ability to regulate behaviors on the one hand, and on the other hand, the levels of child responsiveness in a relationship. As such, the quality of mother-child relationships might be relevant to the extent to which a child decides to comply (Kochanska, 2002b; Kochanska & Aksan, 1995). Maternal socialization goals established at 6 months of age may set an early stage for this quality, and directly interact with child compliance at 25 months to predict child later social adjustment.

In contrast, inhibitory control is, by and large, biologically determined (Miyake & Friedman, 2012), which taps only a child's abilities to regulate cognitions and emotions. Unless mothers make a behavioral effort to help the child to improve their proficiencies, children's differences in inhibitory control are less malleable (Halse, Steinsbekk, Hammar, Belsky, & Wichstrøm, 2019). Possibly, it is not early socialization goals *per se*, but the socialization practices translated from these socialization goals, that interact with child inhibitory control to calibrate social adjustment. In support of this possibility, first, obedience socialization goals were positively associated with negative control. Second, obedience socialization goals and negative control were both positively associated with child externalizing behaviors. Third, negative control was assessed later than obedience socialization goals and child inhibitory control was assessed later than these two socialization factors. Mothers who stress on obedience socialization goals may use negative control to construct the socialization context of the child, which parenting behavior may, in turn, interacts with child inhibitory control to sculpt later social adjustment. As such, what we found for the obedience socialization goals-by-inhibitory control interaction possibly just reflects the negative control-by-inhibitory control interaction.

These results imply that the expectation-behavior matching process in the goodness-of-fit model might go through multiple pathways to rectify child social adjustment. First, the fit between parental expectation and child self-control level (i.e., compliance) may determine the quality of parent-child relationships and this quality signifies the predictive power of the combination of parental expectations with child characteristics. Second, because socialization goals could be translated into specific

socialization practices (Putnick, 2019), the fit between parental expectation (especially the expectation for an obedient child) and child self-control level (i.e., inhibitory control) just features the fit between related socialization practices and child characteristics. Therefore, the behaviors matching process may also signify the predictive power of the expectation-behavior matching process.

Socialization Practices-by-Self-Control Interactions Predict Externalizing Behaviors

The second aim of this study was to replicate our previous findings (Dong et al., 2021b, c) on how the interplays between respect for autonomy or negative control and child self-control predict social adjustment over time, comparing macro- and micro-coding of parenting and using maternal reports on child characteristics. The results are in line with our hypotheses and those previous findings that show a contrastive effect for the respect for autonomy-by-inhibitory control interaction (Kiff et al., 2011) and the negative control-by-inhibitory control interaction (Lengua et al., 2019). Specifically, children with high levels of inhibitory control benefitted from more maternal respect for autonomy or less negative control, showing fewer externalizing behaviors than their counterparts experiencing less respect for autonomy or more negative control. While children with low levels of inhibitory control were hindered by high levels of maternal respect for autonomy or low levels of negative control but benefitting from more negative control or less respect for autonomy, displaying fewer externalizing behaviors. These findings extend the literature and reveal that such moderating roles of child self-control are similar for individual differences assessed using observational tasks (Dong et al., 2021b) and parental reports (the current study).

Of note, these significant moderations were shown only for mother-reported inhibitory control, but not for mother-reported compliance. This difference in these two indicators of self-control (albeit their moderate positive correlation) is possibly because parent-reported compliance does not distinguish various compliant responses. In the observational tasks, two compliant behaviors are differentiated (Kochanska & Aksan, 1995)—committed compliance (willingly and enthusiastically regulate behaviors in accordance with parental rules) and situational compliance (passively comply with rules after frequent parental prompts)—and only committed compliance reflects self-control in the behavioral domain (Kochanska & Aksan, 1995; Dong et al., 2021c). Mother-reported compliance might tap child responses belonging to not only

committed compliance but also situational compliance (which are externally driven, rather than self-regulated).

Associations for Socialization Goals, Parenting Behaviors, and Child Self-Control

Although not the primary aims of this research, some correlations are also worth noting. First, we found a positive association between autonomous and obedience socialization goals, which corresponds to the notion in Kagitcibasi (2005) that contemporary Chinese families may value both autonomy and relatedness in childrearing. However, autonomous socialization goals were not related to maternal respect for autonomy and negative control, which is somewhat surprising, since these two parenting behaviors represent the tendencies of mothers to grant or hinder the child's autonomy. Possibly, although mothers in our research were aware of the importance of child autonomy and independence, they lacked practical knowledge about using practices to cultivate this quality in their child while still maintaining parental authority and a close relationship with their child (see Way et al., 2013).

Second, autonomous socialization goals were not related to child inhibitory control. This is consistent with the Gartstein and Putnam (2018) results on Chinese families. Autonomous socialization goals, however, predicted higher levels of child compliance. In contrast, obedience socialization goals predicted more externalizing behaviors. These results evince that parental shift in beliefs about socialization may play a role in shaping the associations between socialization factors and child socioemotional development. In contemporary urban Chinese families, obedience socialization goals no longer relate to child optimal development (but with maladjustment instead), whereas autonomous socialization goals are seemingly favorable for child competence.

Third, our findings suggested that parenting behaviors in macro- and micro-coding did not indicate the exact same socialization context. As expected, respect for autonomy and negative control predicted child externalizing behaviors, both directly and interactively with child inhibitory control, but only when macro-coding was used. These parenting behaviors in micro-coding were not related to externalizing behaviors. Such a result is consistent with the Murray et al. (2015) study on older children and corresponds to the premise (Morawska, Basha, Adamson, & Winter, 2015) that "...global ratings (macro-coding) may be more appropriate to assess the subtle behavior variations of non-clinical samples...global ratings may simply be more

sensitive than microanalytic coding (micro-coding) in a playtime context (free-plays)." When using the macro-coding scheme to evaluate parenting behaviors in the free-play context, the dynamics of mother-child interactions are considered in addition to parental differences in the styles of parenting. Such comprehensive evaluations may grant greater developmental relevance of parenting behaviors in macro-coding as compared with those in micro-coding.

Limitations and Future Directions

Our research has several limitations to be borne in mind. First, we relied only on maternal reports on socialization goals, child self-control, and externalizing behaviors. Future research should use a multi-informant approach to increase the reliability of assessments. Relatedly, respect for autonomy and negative control were not examined for fathers and grandparents who are critical caretakers of young children in urban Chinese families. Future studies should test whether the goodness-of-fit model is also applicable to the interaction effects of child self-control with paternal and grandparental parenting behaviors. Moreover, the compliance scale used was not able to differentiate committed compliance and situational compliance, thus potentially causing the inconsistent results for child compliance and inhibitory control. There is a need to develop a valid scale to capture committed compliance solely. Additionally, we only included urban Chinese families and the generalizability of our results needs to be confirmed with samples from other sociocultural backgrounds. Lastly, we only examined the goodness-of-fit processes for child externalizing behaviors at a certain age, instead of its changes across ages. This research gap needs to be addressed, which can add more evidence to support the goodness-of-fit perspective on person×environment interactions.

Conclusion

Drawing from a longitudinal sample of Chinese children and their families, we examined in the first three years of development how maternal autonomous and obedience socialization goals interact with child compliance and inhibitory control to predict externalizing behaviors. When mothers emphasize obedience as a socialization goal, children with high levels of compliance display fewer externalizing behaviors, whereas children with low levels of compliance exhibit more externalizing behaviors. These findings contribute to the knowledge about the predictive power of the

combinations between early socialization goals (in infancy) and child characteristics (in toddlerhood) for child social adjustment (in the early preschool years).

Moreover, we investigated how maternal respect for autonomy and negative control in both macro- and micro-coding (in infancy) interact with child compliance and inhibitory control to predict externalizing behaviors. Results show that there is goodness of fit for the combinations between high levels of child inhibitory control and high levels of maternal respect for autonomy in macro-coding as well as low levels of maternal negative control in macro-coding. Goodness of fit is also shown for the combinations between low levels of child inhibitory control and high levels of maternal negative control in macro-coding as well as with low levels of maternal respect for autonomy in macro-coding. These findings add to the literature on the specificities of parenting behaviors in macro- versus micro-coding and the robustness of the moderating roles of child temperamental characteristics.

Together, our findings demonstrate that socialization expectations, socialization practices, and child characteristics are jointly predictive of social adjustment across early childhood and all the significant interactions are characterized by the pattern of a contrastive effect, therefore congruently supporting the goodness-of-fit hypotheses. These findings have the potential to be applied to future interventions. Replicated evidence has indicated that the effectiveness of socializations in changing child social adjustment is dependent on the extent to which a child displays sufficient self-control skills. Specifically, for children whose self-control is above the average level, parents need to acquire how to uphold these children's autonomous motivation and create a democratic family atmosphere. For children whose self-control is still below the average level, parents should learn how to use controlling behaviors to set limits on these children and help them co-regulate their behaviors.

7

Chapter 7

Revisiting Goodness of Fit in the Cultural Context: Moving Forward from Post-Hoc Explanations

Author Note:

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Abstract

The goodness-of-fit model, proposing that developmental outcomes result from the combination of environmental factors and child factors, has contributed substantially to the knowledge of person×environment interactions. However, which pattern of person×environment interactions characterizes this model remains unclear, making it difficult to compare with other models (e.g., the differential-susceptibility model). In this article, we summarize the methods to test the goodness-of-fit model and propose that the pattern of a contrastive effect best summarizes both goodness of fit and poorness of fit, thus having the potential to characterize the goodness-of-fit conceptualization. This proposal is supported by empirical evidence from various studies on socialization-by-temperament interactions and outlined with several methodological considerations. Furthermore, we propose that some socialization-by-temperament interactions are culturally specific, an issue acknowledged by the goodness-of-fit model, but not by other models. Cultural specificities are demonstrated using the interactions between controlling parenting and shyness among rural Chinese children as an example.

Keywords: goodness of fit, socialization-by-temperament interactions, cultural specificities, contrastive effect

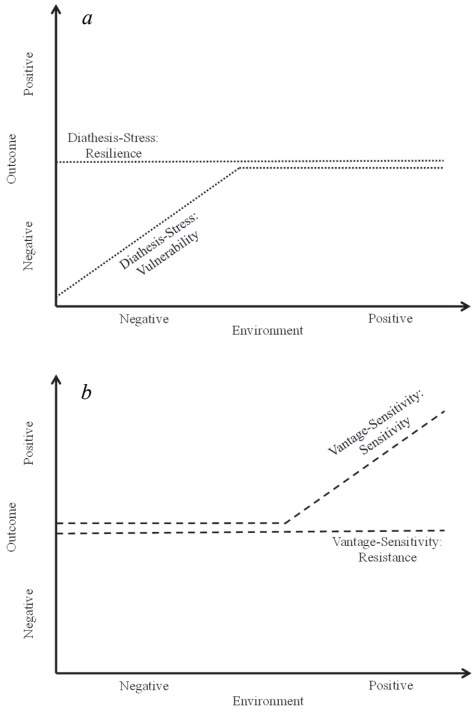
Introduction

After half a century of development, the goodness-of-fit model has been prospering, as indexed by more than 6,000 citations of the original work by Thomas and Chess (1977) (based on Google Scholar, September 24, 2021). This model proposes that the interaction effects of environmental factors and child factors are meaningful in foretelling individual differences in development over and above the additive effects of environmental and child factors solely (Sanson, Hemphill, & Smart, 2004). Goodness of fit represents "the consonance between organism and environment, showing that the organism's own capacities, characteristics, and styles of behaving are in accord with the properties of the environment and its expectations and demands" (Chess & Thomas, 1999, p. 3). In contrast, poorness of fit represents "the discrepancies and dissonances between the capacities of the organism and environmental opportunities and demands" (Chess & Thomas, 1999, p. 3). Optimal development in a progressive direction results from goodness of fit, while pathological functioning follows from poorness of fit (Chess & Thomas, 1999; Lengua, Gartstein, & Prinzie, 2019; Windle & Lerner, 1986).

The initial concept of goodness of fit was outlined as a result of the New York Longitudinal Study and the study on Puerto Rican working-class families, in which Thomas and Chess (1977) tracked the temperamental characteristics of young children and analyzed how these children thrived and fitted in their environments. They noted that overarching clusters of child temperament, cultural norms, and parental practices jointly determine whether these children would develop problem behaviors (Thomas & Chess, 1977). The goodness-of-fit thinking provides foundations for the later prominent theories including the diathesis-stress model (vulnerable children are hindered more by stressful environments than are resilient children; Sameroff, 1983; Zuckerman, 1999), the differential-susceptibility model (susceptible children do better in positive environments but worse in negative ones relative to non-susceptible children; Belsky, 1997; Belsky, Bakermans-Kranenburg, & van IJzendoorn, 2007), and the vantage-sensitivity model (sensitive children benefit more from supportive environments than resistant children; Pluess & Belsky, 2013).

Comparing the goodness-of-fit model with those other models, one can recognize its strengths including comprehensiveness and flexibility, such that the match/mismatch between multiple elements in one's developmental environment (e.g., parents' personality, expectations, and parenting behaviors) and multiple aspects of individual differences (e.g., child personality, temperament, performance, and

behaviors) can be examined and understood within the goodness-of-fit framework (Chess & Thomas, 1991). However, one may also easily notice that this model is too general in its prediction and suffers from a dearth of clear operationalization. Thus far it is unclear which pattern of person×environment interactions would support the goodness-of-fit hypotheses. With the rise of other models with well-defined patterns to characterize such interactions (see Figure 1), the goodness-of-fit model has been more or less marginalized. In the recent literature, researchers only return to the goodness-of-fit model to interpret results in a post-hoc manner when failing to support other models (e.g., Suor, Sturge-Apple, Davies, & Jones-Gordils, 2019), rather than use the goodness-of-fit model to construct testable hypotheses to test against other models.



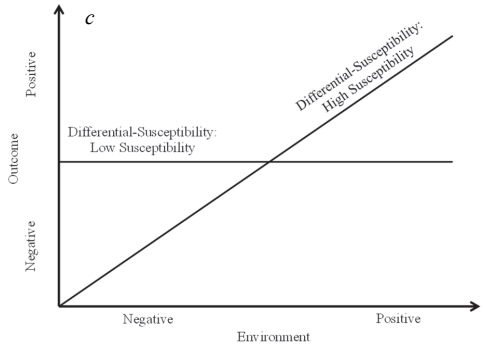


Figure 1. Graphical illustration of the diathesis-stress model (a), the vantage-sensitivity model (b), and the differential-susceptibility model (c).
The differential-susceptibility model is partly overlapping with the diathesis-stress model (negative environment and negative outcome) and the vantage-sensitivity model (positive environment and positive outcome). These figures present the strong versions of these models which assume that less sensitive/susceptible individuals are not responsive to the influences of environment (Zhang, Sayler, Hartman, & Belsky, 2021).

Yet the usefulness of the goodness-of-fit model should not be undervalued. The diathesis-stress, vantage-sensitivity, and differential-susceptibility models commonly hypothesize that highly susceptible individuals are more responsive to various positive or/and negative environmental influences, while less susceptible individuals are not responsive to those same influences (Zhang, Sayler, Hartman, & Belsky, 2021).

However, this pattern is not always the case for person×environment interactions. There are at least two other situations at odds with this pattern. First, it is possible that children with high and low levels of a particular characteristic are both impacted by an environmental factor, only that these impacts are in opposite directions. Second, it is possible that whether and how children with a certain level of a characteristic are influenced by a particular environmental factor is dependent on the sociocultural background of these children. The first case explicitly illustrates a pattern of person×environment interactions with the potential to characterize the goodness-of-fit model. The latter case is well-located within the theme of cultural specificities in person×environment interactions, which has been explicitly acknowledged by the goodness-of-fit thinking (Chess & Thomas, 1991), but less so by the other models.

Although goodness of fit could be studied at a variety of levels, in the current paper we mainly focus on the effects of socialization-by-temperament interactions on child competence and adjustment. We first summarize the methods to test the goodness-of-fit model. Notably, a pattern of the interaction that could capture both goodness of fit and poorness of fit, thus best summarizing the goodness-of-fit conceptualization, is introduced. We discuss how this operationalization could be used in empirical investigation. Finally, we elaborate on the cultural specificities of socialization-by-temperament interactions and illustrate how the goodness-of-fit thinking could advance our knowledge in this regard.

Methods to Test the Goodness-of-Fit Model

In the literature, two categories have been differentiated when operationalizing the concept of goodness of fit: subjective and objective (Seifer et al., 2014). Subjective appraisals of goodness of fit are beyond the scope of this paper and we refer our readers to Seifer et al. (2014) for the perspective of parents or Mabbe, Soenens, Vansteenkiste, and De Pauw (2020) for the perspective of children. As for the objective category, person-centered and variable-centered methods are mainly employed. The person-centered method has been originally used to describe child temperament profiles and their fit or a lack of fit with parenting behaviors (Thomas & Chess, 1977). Typically, researchers classify children based on temperament or personality profiles and analyze whether there is a match/mismatch between socialization factors and each subgroup of children based on the potential group differences in child later outcomes. For example, compared with the combination of low parenting stress and temperamentally

easy children, the combination of high parenting stress and temperamentally difficult children led to more child aggression, thus indicating poorness of fit for difficult children (Dalimonte-Merckling & Brophy-Herb, 2019).

Although this body of research has contributed substantially to the understanding of goodness of fit (and how this model differs from other models), we primarily focus on the variable-centered method and its corresponding analyses because this method is comparable with other models that test person×environment interactions. The variable-centered method contains two approaches: the expectation-behavior matching approach (Windle & Lerner, 1986) and the behaviors matching approach (Bates, 1989). For the expectation-behavior matching approach, the discrepancies between the expected levels of characteristics or behaviors and the actual levels of characteristics or behaviors are estimated and treated as an indicator of goodness of fit and then used to predict child outcomes (Windle & Lerner, 1986). For example, mothers rated the expectations for child temperament and their children's actual temperamental traits, and the correlation of these two ratings (the goodness-of-fit index) was predictive of children's social skills, with a better fit predicting higher social skills (Churchill, 2003).

For the behaviors matching approach, researchers have focused on examining the interaction effects of socialization factors with child characteristics on adaptive and pathological functioning (Kiff, Lengua, & Zalewski, 2011; Lengua et al., 2019). Mostly, studies have examined how specific parenting behaviors interact with child temperament to foretell competence (e.g., Suor et al., 2019) and social adjustment over time (e.g., Leerkes, Blankson, & O'Brien, 2009). For instance, authoritarian parenting predicted higher social competence for children with low levels of temperamental reactivity but forecasted lower social competence for children with high levels of reactivity (Gagnon et al., 2014).

As noted earlier, due to a lack of predefined patterns of the interactions as such, most of these previous studies only used the goodness-of-fit perspective as a post-hoc explanation for the simple slope results probed from these interactions when failing to support other models (e.g., Gagnon et al., 2014; Suor et al., 2019). To address this issue, two directions are believed to be critical for the refinement of this model: (1) clarifying what pattern of person×environment interactions is aligned with the goodness-of-fit conceptualization; (2) clarifying specificities of socialization factors (e.g., parenting behaviors) and child factors (e.g., temperamental traits) in a given sociocultural

context when generating hypotheses.

Examining Person×Environment Interactions Using the Goodness-of-Fit Model

To identify what person×environment interactions are aligned with the goodness-of-fit model, we return to the original goodness-of-fit theory (Chess & Thomas, 1991; 1999), which highlights that problem behaviors occur for some children because their characteristics do not keep step with opportunities and stresses parents create. Other children, in contrast, learn from the same opportunities or successfully challenge themselves to deal with the same stresses. In this sense, the same socialization factor may match the needs of some children but mismatch those of others. This developmental phenomenon is manifested as a contrastive effect (Belsky et al., 2007; Leerkes et al., 2009). Graphically, the pattern of the contrastive effect (see Figure 2) can be clearly distinguished from the patterns of interactions in support of the diathesis-stress model, the vantage-sensitivity model, or the differential-susceptibility model (see Figure 1). Conceptually, different from these latter three models, the contrastive effect shows that children both high and low on a particular characteristic are significantly responsive to the influence of a certain environmental factor, although in reverse directions.

The contrastive effect indicates the coexistence of goodness of fit and poorness of fit. This effect is not rare in the literature on socialization-by-temperament interactions. For example, when predicting dysregulation, infants high on reactivity benefitted from maternal sensitivity to distress and infants low on reactivity were hindered by this parenting, whereas infants low on reactivity benefitted from maternal sensitivity to nondistress and infants high on reactivity were hampered by this type of parenting (Leerkes et al., 2009). Comparatively, for adolescents with high levels of reactivity, negative parenting predicted more aggressive and rule-breaking behaviors, whereas for adolescents with low levels of reactivity, negative parenting forecasted fewer aggressive and rule-breaking behaviors (Tung et al., 2019). The contrastive effect has also been shown for the combinations of socialization factors with other temperamental traits. For children with high levels of self-control, autonomy granting is a match, precluding the development of problem behaviors, whereas for children with low levels of self-control, autonomy granting is a mismatch, which may hamper their adjustment (see Kiff et al., 2011; Lengua et al., 2019 for reviews). Moreover, the

contrastive effect has also been found for positive developmental outcomes. With regard to cognitive competence, difficult children were facilitated by maternal flexibility, whereas easy children were hindered by maternal flexibility (Dilworth-Bart, Miller, & Hane, 2012). For social skills, sibling conflicts were beneficial for children low on negative emotionality, while detrimental to children high on negative emotionality (Morgan, Shaw, & Olino, 2012).

Together, this body of literature attests that goodness of fit and poorness of fit indeed coexists in many cases of the combinations between socialization factors and child characteristics, suggesting that the contrastive effect is a competitive candidate pattern to characterize the person×environment interaction in support of the goodness-of-fit conceptualization. Such evidence challenges a mindset in the field that overlooks the role of socialization factors when examining the predictions of socialization-by-temperament interactions, because the associations between socialization factors and child competence or adjustment are not unidirectional (thus should not simply be treated as universal for all children). Instead, the level of socialization factors and the level of child temperament are both meaningful for understanding the eventual level of child outcomes.

Methodological Considerations for the Contrastive Effect

Given this proposed operationalization of the goodness-of-fit model, the conventional methods to probe person×environment interactions need some updates to better serve the purpose of testing against different models. Several methodological considerations should be borne in mind. First, non-restricted distributions of socialization factors and child factors are essential for revealing a contrastive effect (but also for justifying any person×environment interactions). This is because goodness of fit and poorness of fit is most likely to appear together when there are significant differences in socialization expectations or parenting behaviors in conjunction with significant children's differences in characteristics, capacities, or styles of behaving. When one of the factors in the interactions is restricted in its distribution, it would be less likely to find support for both goodness of fit and poorness of fit, instead only one or the other would be found.

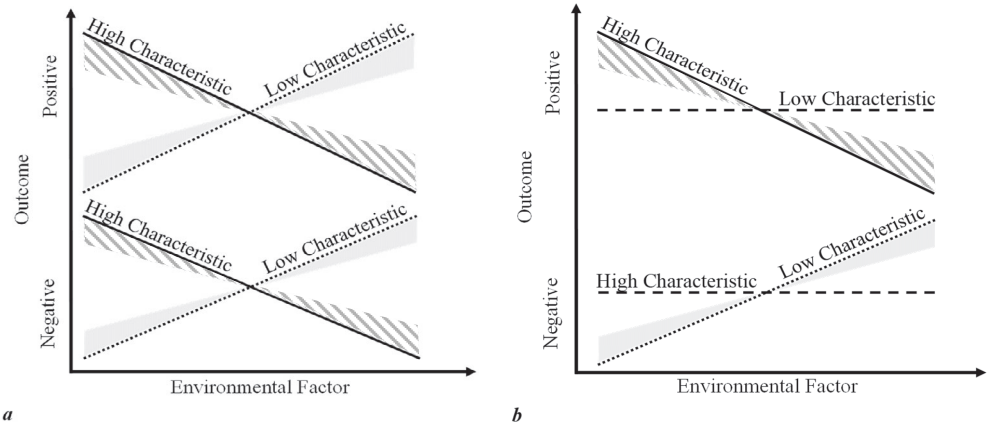


Figure 2. Strict (a) and less strict (b) versions of the goodness-of-fit model.

The dotted line and dot-shaded area illustrate goodness of fit between the environmental factor and low levels of the child characteristic (predicting more positive outcomes or fewer negative outcomes). The solid line and strip-shaded area illustrate poorness of fit between the environmental factor and high levels of the child characteristic (predicting fewer positive outcomes or more negative outcomes). Stripped lines illustrate nonsignificant associations between the environmental factor and positive and negative outcomes for some children. In the strict version of the model (a), both goodness of fit and poorness of fit is shown in each person×environment interaction and the contrastive effect is shown on both positive and negative outcomes. In the less strict version of the model (b), either goodness of fit or poorness of fit is shown in each person×environment interaction, but together the two person×environment interaction effects indicate the pattern of a contrastive effect.

Second, there are two ways in which the contrastive effect could be interpreted, in either a strict manner or a less strict manner (Figure 2). Strictly speaking, when probing the interaction between a specific socialization factor and a specific child factor, *both* goodness of fit *and* poorness of fit should be shown to support the goodness-of-fit hypotheses. Namely, the individual interaction effect directly indicates that some children benefit from this socialization factor and show more competence (or less maladjustment), whereas some children are hindered by this socialization factor and show less competence (or more maladjustment). Regarding a less strict manner, however, it is possible that *either* goodness of fit *or* poorness of fit is found at different developmental phases, for different outcomes, and when using different methods of assessment. In this case, researchers are encouraged to include and report together the findings that clearly indicate goodness of fit *and* poorness of fit. Otherwise, it is not possible to differentiate the goodness-of-fit model from the vantage-sensitivity model or the diathesis-stress model.

Third, the Johnson-Neyman technique of regions-of-significance (see Finsaas &

Goldstein, 2021) is advised for probing person×environment interactions, especially for illustrating the contrastive effect. The regions of interests are within the minimum and maximum of predictors (i.e., socialization factors) and moderators (i.e., child factors). Compared with the often-used simple slope method that only estimates associations drawn from constant values of a moderator, the regions-of-significance method enables researchers to depict all the plausible associations between the socialization factor and child outcomes at all the (reasonable) levels of the child factor (Finsaas & Goldstein, 2021). As such, the regions-of-significance method is comprehensive and sensitive for revealing the possible coexistence of regions showing positive and negative associations. Moreover, this method guarantees that person×environment interactions investigated are not probed with hypothetical participants (i.e., when the predefined constant values are beyond the observed range of a moderator).

Specificities of Child Characteristics and Socialization in the Sociocultural Context

For the second clarification regarding specificities, of importance is to identify the culturally specific perceptions, interpretations, and normativeness of socialization factors and child factors (Chen, 2018; Davidov, 2021). This should be taken as a prerequisite for understanding how a socialization factor would fit with a child factor in a particular sociocultural group. Sometimes the same pattern of socialization-by-temperament interactions is supported across cultures. For example, similar to findings with children from Western cultures (Kiff et al., 2011; Lengua et al., 2019), recent Chinese studies have found that the autonomy granting-by-self-control interactions are in line with the pattern of the contrastive effect, with children high on self-control benefitting from, while children low on self-control being hindered by, autonomy granting (Dong, Dubas, Deković, & Wang, 2021b; Dong et al., 2021c; Ren, Zhang, Yang, & Song, 2018). Moreover, young Chinese children with low levels of self-control benefit from controlling parenting to some extent (Dong et al., 2021c; Yu, Cheah, Hart, & Yang, 2018), while controlling parenting is less favorable for children with high levels of self-control (Dong et al., 2021c), illustrating a contrastive effect for controlling parenting-by-self-control interactions (see also Kiff et al., 2011).

But sometimes the pattern of socialization-by-temperament interactions could be culturally specific. Here we use the interaction between controlling parenting and

shyness in predicting rural Chinese children's problem behaviors as an example. Chinese parents from rural areas rely on the values of traditional Chinese (Confucianism based collectivistic) culture and emphasize non-assertiveness, self-restraint, obedience, and family hierarchy (Chen, 2019). Their values systems are different from urban Chinese parents among whom the values of Western, individualistic cultures are co-emphasized including taking social initiatives and self-expressiveness (Chen, 2019).

The use of controlling parenting as a socialization approach is congruent with traditional Chinese ideologies (e.g., parents' authority) and collectivistic values (e.g., family hierarchy) and relatively acceptable among rural Chinese parents (Liu, Harkness, & Super, 2020). This normativeness of controlling parenting has been found to modify the strength of its impacts (Lansford et al., 2005; Smetana, 2017), with the aversive impacts being rather weak in the sociocultural groups that perceive controlling parenting as normal (Lansford et al., 2005). Indeed, rural Chinese children have been shown to view controlling parenting as more common and less harmful (Helwig, To, Wang, Liu, & Yang, 2014). These children may even interpret such parenting as expressions of parental love and care (Smetana, 2017).

Shyness, characterized by excessive wariness and self-consciousness when encountering social novelty and social evaluation (Rubin, Coplan, & Bowker, 2009), is seen as adaptive and benign among rural Chinese children. Such characteristics are consistent with the expectations that these children and their parents hold for a socially mature, well-adjusted individual in their group. Indeed, shyness has been found to be positively related to social adjustment among these children (Chen, Wang, & Cao, 2011). In contrast, shyness predicted increasing levels of maladjustment in urban Chinese children (Bullock et al., 2018).

Given these specificities, it is reasonable to hypothesize that for rural Chinese children, controlling parenting may preclude problem behaviors for shy individuals, whereas may lead to problem behaviors for non-shy individuals. Shy children's non-assertiveness matches parental expectation for self-restraint and controlling parenting effectively facilitates their respect for parental authority and builds up closer family bonding, such that these children are protected against developing problem behaviors. Non-shy children's assertiveness and fearlessness, in contrast, may be perceived by parents as hard-to-manage and unacceptable. Controlling parenting is not effective in eliciting the optimal arousal in these children to self-correct misbehaviors. Rather,

controlling parenting exacerbates conflicts in parent-child relationships, stimulating the emergence of problem behaviors. In contrast for urban Chinese children, shyness is a risk factor for problem behaviors especially when encountering controlling parenting (Bullock et al., 2018), comparable with the detrimental influences of such a combination found with samples from Western cultures (e.g., Zarra-Nezhad et al., 2014). This example demonstrates the importance of specifying socialization factors and child factors within a given sociocultural context when generalizing hypotheses for the target person×environment interaction.

Conclusions and Recommendations for Future Research

In this article, we summarized the methods to test the goodness-of-fit model with a primary focus on the variable-centered method. We showcased the importance of specifying cultural-specific perceptions, interpretations, and normativeness of socialization factors and child factors when examining and understanding person×environment processes. Notably, we demonstrated the coexistence of goodness of fit and poorness of fit in various socialization-by-temperament interactions and proposed that the contrastive effect best summarizes this goodness-of-fit conceptualization. To make this operationalization clear, we provided the methodological considerations of the contrastive effect to help researchers justify whether or not a person×environment interaction supports the goodness-of-fit hypotheses. With such refinement of the theory, we believe that the goodness-of-fit model will continue prospering, elevating it from being used only as a post-hoc explanation of findings.

In closing, we call for studies to examine the match/mismatch of socialization goals and child characteristics (i.e., the expectation-behavior matching approach), which has been rarely studied in the literature. This is a promising direction for understanding why cultural (and individual) differences in child development emerge early in life. Moreover, future research should test the goodness-of-fit model with other models, particularly concerning whether person×environment interactions targeted are universal or specific. Cultural meanings of socialization factors have been proposed to moderate associations between socialization factors and child adjustment across studies (Davidov, 2021). Cultural meanings of temperamental characteristics have also been proposed to determine associations between child temperament and developmental outcomes in a sociocultural group (Chen, 2018). Correspondingly, of

importance for elucidating the predictive effect of a socialization-by-temperament interaction is to analyze the unique perception, thus the unique function, of socialization factors and child temperamental trait within a sociocultural group. The goodness-of-fit model will be a powerful theoretical tool for advancing our knowledge in this regard.

8

Chapter 8

General Discussion

Roughly estimated, in 2019, there are 54 million children under five years of age residing in urban areas of mainland China, outnumbering the sum of young children in Europe and North America (UNDESA, 2019). Despite the enormous number of urban Chinese families, many features of these families, including maternal parenting behaviors, remain under-documented and unexplored. The overarching aims of this dissertation are threefold. The first aim is to measure and describe how urban Chinese mothers use a broad spectrum of parenting behaviors with young children. The second aim is to analyze similarities and differences between Chinese and Dutch mothers in these early parenting behaviors. The third aim is to scrutinize, in the Chinese cultural context of socialization, how maternal parenting behaviors including respect for autonomy and negative control predict child social adjustment across childhood dependently on children's dispositional differences in self-control.

Research questions related to these three aims were addressed in five empirical studies, using four samples and employing cross-cultural, longitudinal, and observational methods. Drawn from the findings that addressed the third aim of this dissertation and from the past literature on parenting-by-temperament interactions, a synopsized review was conducted to provide refinements to the goodness-of-fit model. In the present, final chapter, the findings from the previous chapters are compared and summarized. Finally, strengths and limitations, directions for future research, and implications for practices are discussed.

Summary of the Main Findings

Characteristics of Parenting Behaviors in Chinese Mothers with Young Children

This dissertation investigated maternal parenting behaviors in the cultural context. **Chapter 2** depicts the within-group variations in parenting behaviors for Chinese mothers with 1- to 4-year-olds and **Chapter 3** demonstrates the between-group variations in parenting behaviors for Chinese and Dutch mothers with young children. Together they bespeak the characteristics of how urban Chinese mothers parent their young children. These mothers tend to be supportive (indexed by being highly sensitive, responsive, and affectionate), stimulative (indexed by regularly engaging the child into activities, often inviting the child to social interactions, and frequently using different toys with the child), and authoritative (indexed by using positive disciplines customarily). Dutch mothers were found to employ these parenting behaviors to a

similar degree.

This cross-cultural similarity corresponds to the notion that Western ideologies have engendered profound impacts on Chinese mothers' beliefs about which parenting behaviors can cultivate qualities of children that are adaptive for thriving considering the heightened competition and life pressure in the society (Chen, Bian, Xin, Wang, & Silbereisen, 2010; Way et al., 2013). **Chapter 2** reveals that these three parenting behaviors (i.e., support, stimulation, and positive discipline) are positively intercorrelated, and they all are associated with higher maternal education levels. Such a pattern provides direct support to Keller's (2012) idea that individuals' level of formal education, as the engine of change, makes parents from non-Western urban families (e.g., the Chinese mothers in this dissertation) more likely to exercise parenting behaviors that are commonly adopted by parents from Western, middle-class families (e.g., the Dutch mothers in this dissertation). In this sense, the higher the education level Chinese mothers attain, the more frequently they use supporting behaviors, stimulating behaviors, and positive discipline, and thus the more similar Chinese mothers are to Dutch mothers in how to parent a child.

Furthermore, contemporary urban Chinese mothers are generally lenient and not likely to use harsh discipline in early childhood (see also Cheah, Leung, Tahseen, & Schultz, 2009). Nonetheless, congruous with Keller's (2012) assumptions, Chinese mothers are still different from Dutch mothers in the parenting behaviors that are important for instilling in their children conformity with family values and respect for adult authority. Specifically, **chapter 3** shows that psychological control, but not verbal punishment and physical punishment, remains more acceptable in Chinese families than in Dutch families. Although the use of psychological control is already not very common and dependent on maternal education level, a non-negligible mean-level difference exists across these two cultures. Psychologically controlling behaviors such as shaming (Fung, 1999; Wu et al., 2002) and guilt induction (Wang, Bernas, & Eberhard, 2008) are traditionally regarded as critical approaches to drawing children's attention to wrongdoings and helping children learn a lesson from such experiences. The continuity of an emphasis on psychological control, as opposed to the Dutch mothers who do not have such traditions, signifies one aspect of cultural specificity on using parenting behaviors for contemporary Chinese mothers.

Another aspect of cultural specificity concerns the use of maternal structuring behaviors, which was first observed in **chapter 2** regarding the functions of certain

items. Specifically, one item did not load on laxness and another item did not load on consistency. Coincidentally, when developing another self-report measure of Chinese parenting behaviors, researchers have found that two items tapping the similar parenting behaviors are not applicable to Chinese parents either ("I follow through with a consequence (e.g., take away a toy) when my child misbehaves" as an indicator of (low) laxness and "I deal with my child's misbehavior the same way all the time" as an indicator of consistency; Guo, Morawska, & Filus, 2017). After interviewing mothers, Guo et al. (2017) have explained that such practices are interpreted by Chinese mothers as the inflexibility of managing a child's misbehaviors, instead of a way to organize the environment for the child (i.e., structuring behaviors). This may also explain the nonsignificant loadings of the two similar items found in **chapter 2**.

This cultural specificity was further shown in **chapter 3** concerning mean-level differences in structuring behaviors. Specifically, Chinese mothers were laxer and less consistent in enforcing rules and punishment compared to Dutch mothers. Apparently, this is also because these two parenting behaviors are interpreted as parental inflexibility, and thus are exercised more (laxness) *or* less (consistency) often by Chinese mothers. Such a unique interpretation for laxness and consistency distinguishes urban Chinese mothers from mothers in Western cultures for whom the importance of consistent parenting has long been emphasized (e.g., Campbell, 1995; Gardner, 1989). This unique interpretation also distinguishes contemporary Chinese mothers from older generations of Chinese mothers who value Confucius's notion of "yán bì xìn, xíng bì guǒ (one must be true to their word and determined in their work)" as a vital socialization goal that is achieved through parental role modeling (i.e., establishing rules of conduct and being consistent in enforcing rules; Luo, Tamis-LeMonda, & Song, 2013).

The aforementioned findings on structuring behaviors need to be understood in light of the contemporary family structure in China. Roughly estimated, 70% of elderly females participate in taking care of grandchildren in urban China (Chinese National Survey Data Archive, 2021, September 15). The prevalent situation of intergenerational coparenting requires contemporary Chinese mothers to flexibly adjust their behaviors. Their parenting behaviors are partially dependent on what has been done by grandparents and to what extent grandparents agree with the use of these behaviors, such as making requests for certain child behaviors or delivering punishment to the child (Hoang & Kirby, 2020).

Notably, this dissertation also examined how Chinese mothers use respect for autonomy and negative control in the free-play context. These results of parenting behaviors coded from observation tasks complement the findings above which are based on maternal reports. Consistent with previous studies (Liu et al., 2005), **chapters 4, 5, and 6** show that Chinese mothers employ respect for autonomy quite often in their interactions with the 1- to 3-year-olds. This finding is in synchrony with several seminal views on how social changes happening in developing countries such as China shape individuals' endorsement of specific practices (e.g., Chen, 2015; Kagitcibasi, 2017; Keller, 2012). Relatively frequent use of behaviors that show respect to the child's need for autonomy and independence found in Chinese mothers supports the premise that "values of autonomous-related qualities and mixed behavioral styles…may become increasingly common in both Western and non-Western societies" (Chen, 2015; p. 57).

Along with an endorsement of maternal respect for autonomy is a low frequency of maternal negative control, as indicated by the descriptive results in **chapters 4, 5, and 6**, in particular for negative control coded using a micro-coding scheme. Nonetheless, it should be acknowledged first that the free-play task, in spite of its efficacy for maximumly mimicking the naturalistic setting of parent-child interactions, is not the perfect task to purposefully stimulate the occurrence of maternal controlling behaviors (Morawska, Basha, Adamson, & Winter, 2015). That being said, a low level of observed negative control is congruent with the low mean score of maternal harsh discipline shown in **chapters 2 and 3**. This means that the portrayal of Chinese mothers as strict and authoritarian in some literature (e.g., Lin & Fu, 1990) is not accurate, at least not for urban Chinese mothers with young children. Recalling the discussions in **chapter 1** on how social changes influence the norms of using parenting behaviors, Chinese mothers' strictness is mostly applied to the occasions when mothers need to assist Chinese children in achieving educational success (Wei, Sze, Ng, & Pomerantz, 2020) and correcting misbehaviors (Wang & Liu, 2014) during the school years. Before the age of understanding (i.e., 6 years old), parental lenience is usually warranted for Chinese children and a low level of parental control is executed in response to young children's wrongdoings (Cheah et al., 2009; Tamis-LeMonda et al., 2008).

Psychological, Contextual, and Methodological Factors Related to Parenting Behaviors of Chinese Mothers

In addition to revealing the descriptive features of parenting behaviors of contemporary Chinese mothers, in this dissertation, psychological, contextual, and methodological factors that may explain individual variance in these parenting behaviors were also investigated.

Psychological factors. With respect to psychological factors, maternal emotional (i.e., parenting stress; **chapters 2 and 3**) and cognitive (i.e., socialization goals; **chapter 6**) antecedents were examined for the associations with parenting behaviors. For emotional antecedents, maternal parenting stress was found to be related to less maternal support, stimulation, structure, and positive discipline and more harsh discipline, at both the within-group level (**chapter 2**) and the between-group level (**chapter 3**). These findings lend support to the theoretical models which hypothesize that parenting stress is directly associated with certain parenting behaviors, with the associations being negative for the planful, child-centered, positive parenting behaviors and being positive for the reactive, parent-centered, negative parenting behaviors (Abidin, 1992; Deater-Deckard, 1998).

It is particularly noteworthy that cultural variance between Chinese and Dutch mothers in parenting stress fully explained the group differences in authoritarian parenting behaviors including overreactivity and physical punishment. This result is consistent with the previous study (Su & Hynie, 2011) and reifies the mechanism of parenting stress directly leading to certain parenting behaviors at a between-group level. Of critical implication from such a finding is that mean-level differences found between sociocultural groups in parenting behaviors, especially in reactive, parent-centered, negative parenting behaviors, are possibly not a "true" cultural distinction in how often these behaviors are used. Such differences may be merely a product of cultural differences in parenting stress. Since parenting stress potentially *causes* these parenting behaviors, elucidating the sources of parenting stress is a critical step to make sense of why mothers choose to use these parenting behaviors, instead of other parenting behaviors, when their stress level escalates.

Regarding cognitive antecedents, in **chapter 6** maternal socialization goals of child autonomy and obedience were examined for their relevance to observed respect for autonomy and negative control. The two socialization goals indicate distinctive relevance to parenting behaviors. Specifically, during infancy when Chinese mothers

emphasize child obedience as a socialization goal, they are less likely to show respect to the child's autonomy and more likely to use controlling behaviors to change the child's behaviors and thoughts. This result is consistent with Rao, McHale, and Pearson (2003) who found that parents who attach importance to filial piety (child obedience as a manifestation) are prone to assert parental authority and to de-emphasize democratic family atmosphere.

In contrast, autonomous socialization goals were not related to maternal respect for autonomy and negative control, albeit their theoretical connections (e.g., Keller, 2012). This result is unexpected as first, obedience and autonomous socialization goals were positively correlated and second, researchers have suggested that contemporary Chinese mothers would consider child autonomy when using childrearing practices because they highly value social initiatives and independence as socialization goals (Fong, 2007; Liu et al., 2005). This lack of association between autonomous socialization goals and maternal respect for autonomy and negative control is possibly owing to a lack of practical knowledge about how to translate autonomous socialization goals into specific parenting behaviors (see the discussion in **Chapter 6** and Way et al., 2013).

An alternative interpretation concerns the case that the developmental goals of autonomy and relatedness (i.e., child obedience) are "functionally dependent on one another" (Tamis-LeMonda et al., 2008). It is possible that in the Chinese cultural context of socialization, mothers may perceive child relatedness as a path to child autonomy. Accordingly, Chinese mothers may focus on obedience socialization goals first, which, to a large extent, determine whether and how often certain parenting behaviors are used. In this phase, autonomous socialization goals, although also recognized by mothers, have less to do with the use of these parenting behaviors. Only when obedience socialization goals are preliminarily achieved can the associations of autonomous socialization goals with maternal parenting behaviors become central and detectable. Therefore, in contrast to those assessed when the child is 6 months old (as was the case in **chapter 6**), maternal autonomous socialization goals assessed when children are in toddlerhood, the first phase of autonomy development, might show significant associations with maternal respect for autonomy and negative control. Of course, this interpretation needs to be examined in the future research.

Contextual factors. With regard to the effects of contextual factors, in **chapter 3** I examined how variations in parenting behaviors are explained by policy-related

factors (the only-child policy in China) and factors related to lifestyles (maternal working hours). The number of children (one versus more than one) was associated with less stimulation and more harsh discipline, showing that contemporary Chinese mothers are in general more lenient and indulgent towards only children. This finding is consistent with the previous studies on parenting styles in which Chinese mothers were more authoritative (Lin, Liao, & Li, 2021; Lu & Chang, 2013) and more permissive (Lin et al., 2021) towards only children than children with siblings. The result on maternal stimulation is also in line with the recent study with a representative sample of Chinese families, which has found that only-child families have a better home learning environment (i.e., more stimulating activities and materials) than families with more than one child (Xie, Wu, & Liang, 2021).

Possibly, because mothers are eager to compensate only children for the missing opportunities to interact with a sibling (Falbo, 2012), they purposefully spend time in parent-child activities and invest in toys to play with these children. Additionally, the mothers of only children may be dependent on their only child later in life, so that they want to establish a firm emotional bonding with the child from early childhood. These mothers are less likely to use harsh disciplinary behaviors that might undermine parent-child relationships (Gershoff, 2002). Of note, the results in favor of only-child families on employing stimulating behaviors and avoiding harsh discipline consolidate the impression based on the previous quantitative and theoretical reviews that only-child families actually have better parent-child relationships than families with more than one child (Falbo, 2012; Falbo & Polit, 1986).

Methodological factors. Two methodological factors are worth mentioning as they are relevant to the current findings on maternal parenting behaviors. The first concerns the consistency between different methods for measuring parenting behaviors. As mentioned above, a low frequency of harsh controlling behaviors is consistently shown for contemporary Chinese mothers, either by maternal reports in **chapters 2 and 3** or by observation in **chapters 4 and 5**[1]. This finding adds to the knowledge of the consistency between observed and reported negative parenting (Hendriks, van der Giessen, Stams, & Overbeek, 2018). Yet because the CECPAQ does not assess autonomy-supportive behaviors, its coherence with observed maternal

[1] For an exploration of the data from Sample 4 "BELONGS 2015", the association between observed maternal negative control at wave 2 and mother-reported harsh discipline in the CECPAQ-CV at wave 4 was examined. A moderate-level positive association was found between these two variables, which is consistent with the conclusion in Hendriks, van der Giessen, Stams, and Overbeek (2018).

respect for autonomy cannot be evaluated in this dissertation.

The second relevant factor, specifically for the observation method, can be found in **chapter 6**. This concerns the consistency between two coding schemes for respect for autonomy and negative control (Murray et al., 2015): the macro-coding scheme, which evaluates the overall intensity and quality of observed parental behaviors throughout interactions, and the micro-coding scheme, which evaluates the predefined specific parental behaviors or conversation pragmatics at the level of utterances or in very small-time segments. Respect for autonomy in the macro- and the micro-levels of coding was moderately positively correlated. This finding is not surprising given that community samples often use supportive parenting behaviors consistently (Morawska et al., 2015). Because a community sample of families from a highly educated, middle-class population was used in **chapter 6**, maternal respect for autonomy is easily identified as it is expressed relatively frequently and overtly.

Negative control in the macro- and the micro-levels of coding, however, was not correlated. The incoherence for negative control may be explained by the differences between the macro- and the micro-coding schemes in what specific practices are evaluated. For the micro-coding scheme, clearly defined overt behaviors that discourage or interrupt the child's initiatives and ongoing activities are counted and these behaviors are mostly verbally expressed. In contrast, for the macro-coding scheme, not only parental verbal behaviors are evaluated, but other subtle and implicit ways of asserting parental power are also considered, such as offering excessive guidance and instructing the child in an ill-timed manner. Those implicit practices were not considered in the micro-coding scheme, and thus were not coded. Presumably, the less likely mothers are to adopt overt negative controlling behaviors, the weaker the correlation is between negative control coded using the macro- and the micro-coding schemes.

This is the case for contemporary Chinese mothers. These mothers seldom use negative control in an explicit way, thus showing a very low frequency of this behavior in the micro-level of coding. Whilst using overt negative control less often, they are prone to employing a subtle and implicit way to use negative control, thus showing a mid-range score on the rating scale for negative control in the macro-level of coding. Therefore, the association between negative control in the micro- and the macro-level of coding was too weak to be detected in the current research. Such a phenomenon is also compatible with the mean-level differences found between Chinese and Dutch

mothers on verbal punishment and psychological control in **chapter 3**. Compared to Dutch mothers, Chinese mothers use verbal punishment slightly less often but psychological control considerably more often. This is because Chinese mothers accentuate interpersonal harmony as an overarching theme of family relationships (Xu, Xie, Liu, Xia, & Liu, 2007), such that they attempt to avoid direct conflicts with their young child but using more implicit, mentally manipulative ways to assert their influences on the child.

Direct Associations Between Maternal Parenting Behaviors and Child Social Adjustment

This dissertation also investigated how maternal parenting behaviors predict child social adjustment directly and interactively with children's dispositional differences in self-control. With respect to direct associations, in **chapter 2**, maternal support, stimulation, structure, and positive discipline, assessed by mothers' self-reports, were associated with fewer child externalizing behaviors and internalizing behaviors, whereas maternal harsh discipline was associated with more child externalizing behaviors and internalizing behaviors. In **chapter 6**, using a combination of observation and mother-report, maternal respect for autonomy forecasted fewer child externalizing behaviors, whereas maternal negative control forecasted more externalizing behaviors. These findings are consistent with a large corpus of literature on the same associations drawn with families from Western cultures (see Pinquart, 2017a and Pingquart, 2017b for meta-analytic reviews). Therefore, this dissertation adds more convergent evidence to support the conclusion that the functional relevance of parenting behaviors to child problem behaviors (i.e., social maladjustment) is similar for Western families and contemporary urban Chinese families (although the strengths of these associations somewhat vary across different sociocultural groups) (Pinquart & Kauser, 2018; Wang & Chang, 2010).

For positive outcomes of social adjustment, internalization of rules more specifically, the situation is different. In **chapters 4 and 5**, maternal respect for autonomy and negative control in toddlerhood did not directly predict child internalization of rules across early and middle childhood. This finding is inconsistent with self-determination theory (Grolnick, Deci, & Ryan, 1997; Ryan & Deci, 2000) which hypothesizes that fulfilling or thwarting the individual's need for autonomy directly affects his or her willingness to internalizing external rules. Of relevance to

such a result is a perspective of the cultural specificity regarding weaker straightforward predictions of behaviors that support or deny child autonomy to Chinese children's social adjustment owing to an ambiguous attitude towards child autonomy (Liu, Chen, Zheng, Chen, & Wang, 2009).

Relating to those associations with child externalizing behaviors, it seems that Chinese mothers already recognize the importance of respect for autonomy and negative control for the emergence of early problem behaviors, but these mothers are still reluctant to connect these parenting behaviors to the processes of establishing a child's self-endorsement of external regulations. A caution about using respect for autonomy and negative control to facilitate child internalization of rules is possibly due to the situations that negative control was once believed to be the major approach to serving the aim to helping children take in social rules in traditional Chinese families (how mothers were taught when they were young) while more recently autonomy-supportive behaviors are advised by mainstream social media and governments (e.g., Ministry of Education of the People's Republic of China, 2015) for achieving this goal (how mothers are expected to teach their young children). Contemporary Chinese mothers sense a detachment between personal experience and learned knowledge, thus likely to express ambiguous information to the child when using either respect for autonomy or negative control to promote child internalization of rules.

Processes of Maternal Parenting Behaviors Impacting Child Social Adjustment: The Perspective of Goodness-of-Fit Model

Despite a lack of direct associations between maternal respect for autonomy or negative control and child internalization of rules, the interaction effects of these two parenting behaviors with child self-control have been found on child later social adjustment outcomes in several studies reported in this dissertation. Specifically, in **chapter 4** it was found that for toddlers with high levels of observed committed compliance, maternal respect for autonomy in toddlerhood positively predicted internalization of rules, whereas maternal negative control in toddlerhood positively foretold externalizing behaviors. In contrast for toddlers with low levels of observed committed compliance, maternal respect for autonomy negatively predicted internalization of rules, whereas maternal negative control forecasted more internalization of rules and fewer externalizing behaviors. In **chapter 5** it was found that for toddlers with high levels of observed cool effortful control, maternal respect

for autonomy positively predicted internalization of rules. Conversely for preschoolers with low levels of observed cool and hot effortful control, maternal respect for autonomy negatively predicted internalization of rules. Furthermore, **chapter 6** showed that for toddlers with high levels of mother-reported inhibitory control, maternal respect for autonomy negatively predicted child externalizing behaviors one year later, whereas maternal negative control positively predicted child externalizing behaviors. Again, conversely for toddlers with low levels of mother-reported inhibitory control, maternal respect for autonomy was positively associated with child externalizing behaviors whereas maternal negative control was negatively associated with child externalizing behaviors.

Together, these results congruently indicate that in terms of the development of social adjustment, maternal autonomy-supportive behaviors are beneficial, while maternal controlling behaviors are detrimental, for young children who have high levels of self-control, whereas maternal-autonomy supportive behaviors are detrimental, while maternal controlling are beneficial, for young children who have low levels of self-control. Such a pattern of the parenting-by-self-control interaction effects is coherent with the reviews of research on the similar interactions for families from Western cultures (Kiff, Lengua, & Zalewski, 2011; Lengua, Gartstein, & Prinzie, 2019). The pattern itself is in line with the pattern of a contrastive effect, showing that associations between parenting and child outcomes are in opposed directions for children with varying levels of dispositional traits (Belsky, Bakermans-Kranenburg, & van IJzendoorn, 2007; Leerkes, Blankson, & O'Brien, 2009).

Yet this developmental phenomenon has rarely been systematically summarized. **Chapter 7** offers one of the first synopsized reviews for the existing studies that have found the contrastive effect for the socialization-by-temperament interactions. Because such interactions indicate the coexistence of goodness of fit and poorness of fit, an important premise of the goodness-of-fit conceptualization (Chess & Thomas, 1991), in **chapter 7** the contrastive effect was proposed to characterize the goodness-of-fit model. To make this operationalization clear, the methodological considerations were introduced in order to help researchers justify whether or not a socialization-by-temperament interaction supports the goodness-of-fit model. Specifically, I discussed the importance of non-restricted distributions of socialization factors and child factors for revealing the contrastive effect. I also introduced a strict and a less strict ways to interpret the contrastive effect. I further suggested that the regions-of-significance

method should be used to probe the targeted socialization-by-temperament interaction. Moreover, I demonstrated the necessity of analyzing culturally specific perceptions and evaluations of socialization factors and child factors when generalizing hypotheses about socialization-by-temperament interactions. These cultural specificities may determine how goodness of fit and poorness of fit manifests in a sociocultural group. These refinements of the goodness-of-fit model will hopefully improve future examinations of person×environment developmental processes.

Strengths and Limitations

The current dissertation has many strengths that enable it to take us one step closer to understanding the characteristics and functions of early parenting behaviors in contemporary urban Chinese mothers. Comprehensive longitudinal and cross-cultural datasets as well as the state-of-the-art statistical techniques were used to shed light on the research questions regarding how these mothers use parenting behaviors with young children and through which processes specific parenting behaviors calibrate children's optimal and suboptimal social adjustment. In terms of cultural features of parenting behaviors, large samples of Chinese mothers and Dutch mothers were compared after establishing measurement invariance for assessment tools. In terms of person×environment processes for parenting behaviors, two longitudinally observational samples of Chinese families were examined together, which helps to address a replication crisis in the field (Open Science Collaboration, 2015). Furthermore, the evidence and knowledge of cultural commonalities and specificities in using parenting behaviors and in interpreting child temperament as well as culturally universal and specific patterns of parenting-by-temperament interactions are incorporated into a synopsized review to revamp the goodness-of-fit model, a theory with profound and fundamental influences in the field.

Several limitations, however, should be borne in mind when judging the conclusions. The first limitation has to do with the representativeness of the samples in this dissertation, which is also a general issue in the field (Nielsen, Haun, Kärtner, & Legare, 2017; Rad, Martingano, & Ginges, 2018). Although by focusing on Chinese families, this dissertation represents an attempt to address this serious concern, these included families are more or less "Westernized", "Modernized", and "Urbanized". They are highly educated, middle-class samples residing in metropolitan areas of China. Within such families, mothers are relatively warm, supportive, democratic, and

child-centered, and it is relatively easy to foster positive and mutually responsive mother-child relationships.

These families, albeit living in a country distinct from WEIRD counties, are themselves the WEIRDest people in China whose developmental milieu is even compatible with many families in Western cultures. For example, in 2020 the GDP per capita in Beijing was $25,578 (National Bureau of Statistics of China, 2021, September 16), close to that in Spain ($27,057) and much higher than the average level of this index in China ($10,500) (World Bank, September 16, 2021). More than 90% of the mothers recruited in the studies of this dissertation completed college or postgraduation education. This proportion is higher than that of the included Dutch mothers (62%; **chapter 3**) and much higher than the average proportion for China's population (15% for the country overall, 42% for the citizens in Beijing; National Bureau of Statistics of China, 2021, May 11). Given these sample characteristics, the results in this dissertation may be limited to relatively well-educated urban Chinese families and it remains to be seen whether they can be generalized to families with other socioeconomic backgrounds (e.g., rural Chinese families; see **chapter 7** for such discussions).

The second limitation concerns a lack of multi-informant and multi-method data in **chapters 2 and 3** as they used exclusively maternal reports. The conclusions on the descriptive features of maternal parenting behaviors can be cross-validated if it was possible to observe and record how Chinese mothers and Dutch mothers use specific parenting behaviors with their children in their daily interactions. For other empirical chapters, the conclusions on the functions of maternal parenting behaviors can be strengthened if it was possible to have the ratings from other caregivers (e.g., fathers and grandparents) on child social adjustment.

Relatedly, the third limitation is that this dissertation only examined the parenting behaviors of Chinese mothers, but not Chinese fathers. Research has shown that maternal and paternal parenting behaviors are oftentimes dependent on each other (Cabrera, Volling, & Barr, 2018). In the majority of the cases fathers play an important role in the child's life and the relative importance for child social adjustment is not the same for some maternal and paternal parenting behaviors (e.g., structuring behaviors; Okorn, Verhoeven, & van Baar, 2021). Thus, to fully understand children's differences in social adjustment, not only maternal parenting behaviors but also paternal parenting behaviors should be considered and examined (Cabrera et al., 2018).

The fourth limitation in this dissertation, but also common in observational studies of families (Davis-Kean & Ellis, 2019), concerns a small sample size (especially studies that used data from "BELONGS 2010"). Small sample size means that the statistical power to detect a true effect is low, which reduces the degree of trustworthiness for significant results (Davis-Kean & Ellis, 2019). As existing datasets were used in the dissertation, a reasonable way to address the concern of the small sample size is to use multiple estimation techniques (i.e., using conceptually connected child outcomes to examine the same developmental processes, such as in **chapter 4** examining parenting-by-self-control interaction effects on both externalizing behaviors and internalization of rules) and multiple datasets (e.g., in **chapter 5** examining parenting-by-self-control interaction effects with two samples of Chinese families) (Duncan, Engel, Claessens, & Dowsett, 2014). Nevertheless, the effect sizes found in this dissertation need to be interpreted with a consideration of the sample sizes.

Fifth, participants had missing values on the variables examined, which potentially brings bias to the estimates of coefficients (e.g., the moderation effects in the regression models; Zhang & Wang, 2017). Although there is no perfect method to address all the conditions of missingness, the fact that all the current longitudinal studies had the missing-completely-at-random (MCAR) condition guarantees a relatively unbiased estimation when the full information maximum likelihood method (FIML) was employed (Enders, 2001). However, there were large differences in the proportions of missing data among variables in **chapter 3**. It is unclear whether FIML is the best approach to address this issue and if the answer is yes, then to what extent FIML can handle such a condition.

A final limitation is that, specifically to the parenting-by-self-control interaction effects, only two dimensions of parenting behaviors (i.e., respect for autonomy and negative control) were examined and it remains unclear whether and how child self-control plays similar moderation roles in the predictions of other parenting behaviors. A meta-analytic review has concluded that compared to other temperamental traits, the moderating role of child self-control is studied less often (Slagt, Dubas, Deković, & van Aken, 2016a). Therefore, there is a need to continue this line of research to delineate a comprehensive picture of how children with different levels of self-control react to (but also actively construct) parental socialization.

Future Directions

On the basis of the findings in this dissertation, some unresolved questions deserve future research attention. Four of such questions are discussed below.

Q1: Why do contemporary Chinese mothers parent in this way?

One question that needs to be answered is what cognitions or motivations determine how and why a specific parenting behavior is used. As summarized in Holden and Smith (2019; pp. 685–697), such explanations can be found by qualitatively and quantitatively assessing parenting cognitions. These include two categories of parenting cognitions. The first category is present-oriented cognitions including maternal perceptions of own parenting and child behaviors, maternal beliefs about parental socialization, responsibilities, and normative and deviant childhood development, and maternal childrearing values. The second category is future-oriented cognitions including maternal expectations for parental roles and child achievement, maternal concerns about childcare, education, and family obligations, and maternal goals for child competence and skills.

Researchers may consider examining to what extent within- and between-group differences in parenting behaviors are accounted for by the foregoing parenting cognitions. Specifically for within-group differences, a complex cognitive-behavioral process may exist. Mothers have the beliefs that certain child behaviors are culturally adaptive and necessary so that they set socialization goals for these child behavioral outcomes and use parenting behaviors in a certain way to help achieve these goals, namely, maternal beliefs → goals → parenting behaviors. In addition to such "standard model" of parenting (Bornstein, Putnick, & Suwalsky, 2018) where cognitions generate parenting behaviors, it is also possible that after using certain parenting behaviors, mothers appraise the effectiveness of these parenting behaviors (e.g., by evaluating child responses) and adjust their socialization goals, such that parenting behaviors may also predict later parenting cognitions.

For between-group variance in parenting behaviors, it is important to investigate whether there are cultural differences in parenting cognitions and to what extent such differences in parenting cognitions account for cultural variations in parenting behaviors (Bornstein, 2019; pp. 11–13). This may assist in understanding the nature of parenting behaviors. For example, some parenting behaviors may be, by and large, explained by culturally different parenting cognitions, thus being truly "culturally specific", while others may be mainly explained by contextual triggers such as

experiencing high levels of parenting stress.

Q2: Are functions of parenting behaviors culturally universal or specific?

The second question concerns the commonalities and specificities of relations between parenting behaviors and child social adjustment. Although some researchers have shown that the strengths of associations between parenting behaviors and child social adjustment depend on the cultural normativeness of parenting behaviors (Lansford et al., 2018), other researchers have noted that the strengths of relations between parenting styles and child social adjustment are similar across cultures (Pinquart & Gerke, 2019; Pinquart & Kauser, 2018). This mixed pattern of results is reconciled in a recently developed theory arguing that whether there is room for cultural moderation lies in *the meaning of a parenting behavior* (Davidov, 2021).

Parenting cognitions including beliefs, expectations, and values, albeit directly related to parenting behaviors, are less likely to modulate the associations between parenting behaviors and child social adjustment. Rather, the in-the-moment cognitions, emotions, and behaviors are said to play such a moderating role (Davidov, 2021). These include, but are not limited to, the emotions expressed by the parent as the behavior is enacted, whether parental behaviors are erratic in nature or predictable, and whether parental behaviors are accompanied by other behaviors (e.g., punishment is accompanied by reasoning) (Davidov, 2021). These in-the-moment emotions, cognitions, and behaviors determine how children perceive and experience a specific parenting behavior, thus further determining to what extent *that* parenting behavior can affect children's behaviors and thoughts. Therefore, assessing and examining such in-the-moment psychological factors delivered along with parenting behaviors is promising for elucidating whether the functions of parenting behaviors for influencing child social adjustment are culturally universal or specific.

Q3: How do parental expectations interact with child temperament to influence the development of social adjustment?

The third question is an old one but in urgent need of new answers. The question concerns the match/mismatch between parental expectations and child temperament and its prediction to child social adjustment over time. In the classic literature on the goodness-of-fit model, researchers assessed parental expectations for child temperament and children's actual temperamental traits and used these two ratings to calculate the goodness-of-fit index such as correlations of ratings (Churchill, 2003) or mean-level differences between ratings (Lerner, 1983). Yet such goodness-of-fit

indices are only weakly related to child social adjustment, even given that many studies used cross-sectional instead of longitudinal designs (Windle & Lerner, 1986). The methodology of calculating goodness-of-fit indices in these ways has also been criticized as it does not fully capture the matching process of individuals and environmental factors (Windle & Lerner, 1986).

In **chapter 6** of this dissertation, an alternative process was proposed and tested, that is, examining the interaction effects of parental expectations and child temperamental traits on child social adjustment. This investigation on the interaction effect of autonomous and compliance socialization goals with child self-control is inspired by Chen (2018) who noted that although child self-control is generally beneficial for social adjustment, the strength of the prediction of self-control is affected by culture, such as socialization goals emphasized in a sociocultural group. Such empirical examples just appear in the literature. For example, An and Eggum-Wilkens (2019) found that the interaction effects of individualistic and collectivistic cultural orientations with child shyness are predictive of child depressive symptoms. Researchers should continue this line of research because, as indicated in **chapter 7** of this dissertation, this is an important future direction for understanding the expectation-behavior matching processes of the goodness-of-fit theory.

Q4: How does grandparental coparenting impact maternal parenting behaviors?

On top of the former three relatively general questions, the fourth question is specific to contemporary urban Chinese families. In dual-earner urban Chinese families, it is quite common that grandparents are the joint caregivers of a young child. For instance, in the "BELONGS 2010" and "BELONGS 2015", 69% and 75% of young children were taken care of by their grandparent(s) on working days. Grandparenting is likely to be viewed as a social responsibility in Chinese families (Luo et al., 2020) and grandparents are not only involved in daily instrumental childcare routines but also help discipline, teach, and socialize values and norms to the grandchildren (Hoang & Kirby, 2020). Owing to the prominent role that grandparents play in childrearing, maternal use of (at least some) parenting behaviors is possibly associated with grandparent-parent relationships (Hoang & Kirby, 2020).

Accordingly, some findings in this dissertation (e.g., the results on maternal laxness and consistency in **chapters 2 and 3**) were interpreted in light of grandparent-parent coparenting. Yet I had no empirical data to test these explanations.

It has been said that within- and between-group variance in maternal parenting behaviors would be firmly related to coparenting the mother receives from her extended family (Feinberg, 2003). In a review of qualitative studies, Hoang and Kirby (2020) supported this point and showed that grandparenting entails great challenges to mothers regarding how she disciplines her child. Specifically, grandparents may interfere with maternal use of disciplinary behaviors, criticize the way that punishment is delivered, and refuse to step back or cooperate with mothers (Hoang & Kirby, 2020). Yet the dynamics of grandparenting and maternal parenting are less explored in quantitative studies. Existing evidence has only found that grandparental coparenting is related to maternal cognitive (e.g., parenting efficacy; Li & Liu, 2019), emotional (e.g., parenting stress; Luo et al., 2020), and interpersonal (e.g., marital relationship; Li & Liu, 2020) correlates of parenting behaviors. Future research should seek answers to how intergenerational coparenting directly impacts maternal parenting behaviors.

Contributions to Knowledge and Implications for Theories and Practices

This dissertation makes several contributions to knowledge. First, the research in the dissertation confirms that the CECPAQ-CV is reliable and valid for measuring early parenting behaviors for Chinese mothers. Researchers now have a comprehensive and precise parent-reported assessment tool to tap a broad range of Chinese parenting behaviors. Second, using surveys with large samples and repeated observations on mother-child interactions, this dissertation reveals the characteristics of how contemporary Chinese mothers use a variety of parenting behaviors with young children, especially infants and toddlers. This has never been systematically illustrated before. Third, through comparing Chinese mothers with Dutch mothers, cultural specificities on consistency, laxness, and psychological control are demonstrated for Chinese mothers and only-child status and parenting stress are shown to explain group variations in parenting behaviors. Fourth, the studies of the dissertation also clarify how children's differences in self-control moderate associations between parenting behaviors and child social adjustment across early and middle childhood. Specifically, children with high levels of self-control benefit from more maternal respect for autonomy and less maternal negative control, whereas children with low levels of self-control benefit from less maternal respect for autonomy and more maternal negative control. Fifth, the dissertation revamps the goodness-of-fit model and denotes that the pattern of a contrastive effect (i.e., children who differ in temperament levels are all

responsive to parenting behaviors, although in the opposite directions) has the potential to characterize person×environment interactions in support of the goodness-of-fit theory. Evidence and rationales are offered to support the idea that the contrastive effect best summarizes the coexistence of goodness of fit and poorness of fit. Methodological considerations for probing person×environment interactions are provided to help researchers determine whether the goodness-of-fit model is supported.

These findings have important theoretical implications. First, for any sociocultural group, the characteristics of parenting behaviors may constantly change. How and why Chinese mothers use parenting behaviors with young children in the way shown in the current dissertation can be traced to not only the traditional Chinese cultural values of socialization but also the unique values of socialization related to the sociodemographic and psychological context of contemporary Chinese families. Second, the functions of parenting behaviors may be dependent on the child's level of temperamental traits. Children differ in their abilities to self-regulate cognitions, emotions, and behaviors, and thus differ in the needs for external regulations from parents. Correspondingly, whether and how specific parenting behaviors yield detectable effects on child social adjustment is attenuated for every child.

The findings of the parenting-by-self-control interaction effects also have meaningful practical implications. It seems from these findings that intervention programs for improving parenting quality or child self-control solely may not generate the largest effect on changing child social adjustment. Rather, designing a family-based intervention plan that focuses on the combinations of parenting and child self-control is more promising in this regard (McClowry, Rodriguez, & Koslowitz, 2008). Ideally, parents should be able to accurately evaluate the child's unique needs based on his or her self-control level, adjust their parenting behaviors flexibly and thoughtfully, and deliver sensitive and responsive strategies specifically tailored to the child's self-control abilities (Iverson & Gartstein, 2018).

For children with low levels of self-control, parents need to be taught how to exercise parental control skillfully and set adequate rules for helping these children establish the first step towards endorsing parental regulations. These parents should learn that it is not yet appropriate to be permissive otherwise the child may not acquire the importance of abiding by adult rules, which might eventually compromise in the child's development of social adjustment. In contrast for children with high levels of

self-control, parents should learn the techniques to maintain child self-control level and purposefully encourage the child to express the need for autonomy. These parents should be reminded of the detrimental influences of (negative and harsh) controlling behaviors on the child's development of social adjustment.

General Conclusion

The current dissertation brings us one step closer to apprehending the characteristics and functions of parenting behaviors in Chinese mothers. Based on the findings in the dissertation, it has become clear how contemporary urban Chinese mothers use parenting behaviors with young children and how psychological and contextual factors explain variations in these parenting behaviors of Chinese mothers. Moreover, it has also become clear that Chinese children's social adjustment including internalization of rules and externalizing behaviors is predicted by the interactions between maternal parenting behaviors including respect for autonomy and negative control and child self-control in cognitive and behavioral domains. Such interactions are in line with the pattern of the goodness-of-fit model. In conclusion, this dissertation holds the premises for describing how Chinese mothers use parenting behaviors with young children and for delineating the mechanisms through which specific parenting behaviors calibrate child social adjustment across early and middle childhood.

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R

S

Summary in Dutch

(Samenvatting in het Nederlands)

Achtergrond van het Onderzoek

Moeders zijn de belangrijkste verzorgers in de eerste jaren van het leven van een kind. Moeders gebruiken opvoedingsgedragingen om de niche te creëren voor de ontwikkeling van kinderen, waarbij deze opvoedingsgedragingen de ervaringen van jonge kinderen construeren en de competentie en aanpassing van kinderen op meerdere domeinen bepalen (Bronfenbrenner, 2005; Super & Harkness, 2002). De bestaande kennis over de kenmerken en functies van vroeg opvoedingsgedrag is voornamelijk onderzocht vanuit WEIRD (Western, Educated, Industrialized, Rich, and Democratic) steekproeven (Nielson, Haun, Kärtner, & Legare, 2017). Vanwege zowel de culturele tradities als de recente dramatische sociale veranderingen is de Chinese culturele context van socialisatie uniek en onderscheidend van de culturele context van WEIRD. Er is echter minder bekend over de kenmerken en functies van het vroege opvoedingsgedrag van Chinese moeders.

Het huidige proefschrift is dan ook opgezet om dit gat in de literatuur aan te vullen. De onderzoeksdoelen zijn drieledig. Het eerste doel is om uitgebreid te beschrijven hoe Chinese moeders een verscheidenheid aan opvoedingsgedragingen toepassen bij jonge kinderen. Het tweede doel is het analyseren van overeenkomsten en verschillen tussen Chinese moeders en Nederlandse moeders in het opvoeden van jonge kinderen. Het derde doel is om te onderzoeken hoe geobserveerde opvoedingsgedragingen in wisselwerking met zelfcontrole van het kind de verschillen in sociale aanpassing van Chinese kinderen in de vroege en midden kindertijd voorspellen. Door deze drie doelen te onderzoeken, draagt dit proefschrift bij aan een beter begrip van vroeg opvoedgedrag in de hedendaagse Chinese culturele context.

Gebruikte Data

Deze dissertatie omvat vijf empirische studies (**hoofdstukken 2-6**) en één theoretisch overzicht review (**hoofdstuk 7**). Gegevens van vier onderzoekssteekproeven zijn gebruikt om de onderzoeksvragen in de vijf empirische studies te onderzoeken. De steekproeven zijn (1) een grote, cross-sectionele gemeenschapssteekproef van stedelijke Chinese moeders met kinderen in de leeftijd van 1 tot 4 jaar (N = 2.179, 51% meisjes), (2) een grote, cross-sectionele steekproef van Nederlandse moeders met jonge kinderen in de leeftijd van 1 tot 4 jaar (N = 1090, 50% meisjes), (3) een 7-golfs longitudinale (op 6, 9, 14, 25, 38, 60, en 84 maanden van de kinderleeftijd) steekproef van ongeveer 100 Chinese kinderen en hun gezinnen die

deelnamen aan observaties en vragenlijsten invulden, en (4) een 4-golf longitudinale (op 6, 15, 25, en 37 maanden van de kinderleeftijd) steekproef van ongeveer 280 Chinese kinderen en hun gezinnen die deelnamen aan observaties en vragenlijsten invulden. In alle vier de steekproeven werd het opvoedingsgedrag van de moeder gemeten toen de kinderen nog geen vijf jaar oud waren.

Doelstelling 1: Beschrijving Ouderschapsgedrag van Chinese Moeders met Jonge Kinderen

Er is voorgesteld om het opvoedingsgedrag van hedendaagse Chinese moeders te karakteriseren als "een combinatie van traditionele Chinese en Westerse ideologieën en praktijken" (Way et al., 2013, p. 62). Enerzijds zijn de socialisatiedoelen van het confucianisme richtinggevend voor de vraag of en hoe vaak Chinese moeders bepaalde opvoedingsgedragingen toepassen (Luo, Tamis-LeMonda, & Song, 2013). Anderzijds, vanwege de sociale hervormingen en de toepassing van het "één-kind" beleid in de afgelopen 40 jaar, zijn stedelijke Chinese moeders de kwaliteiten van kinderen gaan benadrukken die ouders uit westerse culturen vaak benadrukken in hun opvoeding (Ren & Edwards, 2016). Desondanks blijft empirisch bewijs beperkt met betrekking tot hoe Chinese moeders een verscheidenheid aan opvoedingsgedragingen gebruiken met jonge kinderen.

Ik onderzocht dit onderwerp in de **hoofdstukken 2, 4, 5, en 6** en vond dat een laag niveau van streng, negatief controlerend gedrag consistent werd getoond voor stedelijke Chinese moeders over verschillende meetmethoden, hetzij door maternale zelfrapportages of door observatie. Verder werd in **hoofdstuk 2** gevonden dat Chinese moeders ondersteunend, stimulerend en autoritair waren in hun discipline. De **hoofdstukken 4, 5 en 6** toonden aan dat Chinese moeders respect toonden voor de autonomie van het kind in de omgang met jonge kinderen.

Doelstelling 2: Vergelijking van Chinese Moeders met Nederlandse Moeders op het Gebied van Opvoedingsgedrag

Om culturele overeenkomsten en specifieke kenmerken van opvoeding vast te stellen, vergeleek ik Chinese moeders met Nederlandse moeders op de dertien dimensies van vroeg opvoedgedrag in de Comprehensive Early Childhood Parenting Questionnaire (Verhoeven, Deković, Bodden, & van Baar, 2017) in **hoofdstuk 3**. Het bleek dat Chinese moeders even vaak ondersteunend gedrag, stimulerend gedrag en

positieve discipline gebruikten als Nederlandse moeders. Chinese moeders gebruikten echter vaker psychologische controle dan Nederlandse moeders, mogelijk omdat dit gedrag traditioneel wordt beschouwd als een aanpak om kinderen te wijzen op wangedrag en hen te helpen een les te leren uit dergelijke ervaringen. Vergeleken met Nederlandse moeders waren Chinese moeders lakser en minder consequent in het handhaven van regels. Chinese moeders lijken dit gedrag te interpreteren als inflexibiliteit in het omgaan met het wangedrag van een kind, in plaats van een manier om een voorspelbare omgeving voor het kind te creëren.

Om verklaringen te vinden voor de culturele variatie in opvoeding, onderzocht ik hoe maternale psychologische factoren (i.e. opvoedingsstress) en beleidsgerelateerde factoren (i.e. status van enig kind en werkuren van de moeder) samenhangen met groepsvariaties in de dertien dimensies van vroeg opvoedingsgedrag. Vergeleken met Nederlandse moeders rapporteerden Chinese moeders hogere opvoedingsstress en dit groepsverschil in opvoedingsstress verklaarde volledig de culturele verschillen in overreactiviteit en fysieke straf. Deze bevinding suggereert dat opvoedingsstress kan leiden tot dergelijk reactief, oudergericht opvoedingsgedrag en dat groepsvariatie in dergelijk gedrag mogelijk niet cultureel specifiek is. Bovendien waren Chinese kinderen, in vergelijking met Nederlandse kinderen, vaker enig kind en moeders hadden de neiging om meer stimulerend gedrag en minder harde discipline te gebruiken bij enig kinderen dan bij kinderen met broers of zussen. Deze bevinding wijst erop dat Chinese moeders relatief mild zijn in de opvoeding van enig kinderen, mogelijk omdat deze moeders een hechte band willen opbouwen met het enige kind waar ze later in hun leven op kunnen rekenen.

Doelstelling 3: Onderzoeking naar de Effecten van Interactie tussen Ouderschap en Zelfcontrole op de Sociale Aanpassing van Kinderen

Ongetwijfeld zijn opvoedingsgedragingen direct gerelateerd aan veel ontwikkelingsuitkomsten (Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000). Toch zijn de voorspellingen van opvoedingsgedragingen met betrekking tot de uitkomst daarvan voor kinderen ook verschillend voor kinderen die verschillen in temperament kenmerken. In dit proefschrift richtte ik me op de interactie tussen autonomie-gerelateerd opvoedingsgedrag van de moeder en zelfcontrole van het kind, om verschillen in sociale aanpassing van kinderen te voorspellen. Kinderen beginnen om autonomie te vragen in hun relatie met moeders vanaf de peutertijd en de

kleuterjaren (Andreadakis, Joussemet, & Mageau, 2019). In deze fase zijn moederlijke gedragingen die de autonomie van een kind ondersteunen (respect voor autonomie) of belemmeren (negatieve controle) van belang voor de ontwikkeling van sociale aanpassing. Deze fase omvat ook een snelle verbetering van zelfcontrolevaardigheden in de gedragsmatige (toegewijde meegaandheid/committed compliance) en cognitieve (bewuste controle/effortful control en hinderende controle/inhibitory control) domeinen (Kochanska & Aksan, 2006). Deze zelfcontrolevaardigheden hebben grote invloed op de latere sociale aanpassing van het kind, zoals het vermogen om zelfstandig de regels van ouders op te volgen (internalisatie van regels) en het vermogen om impulsiviteit en driftbuien te reguleren (weinig externaliserend gedrag).

Ik onderzocht deze interacties tussen opvoeding en zelfcontrole in de **hoofdstukken 4, 5, en 6**. Het bleek dat voor kinderen met een hoog niveau van zelfcontrole (d.w.z. 25-maanden toegewijd gedrag in **hoofdstuk 4**, 25- of 60-maanden inspanningsgerichte controle in **hoofdstuk 5**, en 25-maanden remmende controle in **hoofdstuk 6**), respect van de moeder voor autonomie het internaliseren van regels positief voorspelde (op 60 maanden in **hoofdstuk 4** en op 37 maanden in **hoofdstuk 5**) en externaliserend gedrag negatief voorspelde (op 37 maanden in **hoofdstuk 6**), terwijl negatieve controle van de moeder positief externaliserend gedrag voorspelde (op 60 maanden in **hoofdstuk 4** en op 37 maanden in **hoofdstuk 6**). Daarentegen, voor kinderen met weinig zelfcontrole voorspelde respect van de moeder voor autonomie het internaliseren van regels negatief (bij 60 maanden in **hoofdstuk 4** en gedurende 60-84 maanden in **hoofdstuk 5**) en externaliserend gedrag positief (bij 37 maanden in **hoofdstuk 6**), terwijl negatieve controle van de moeder het internaliseren van regels positief voorspelde (bij 60 maanden in **hoofdstuk 4**) en externaliserend gedrag negatief voorspelde (bij 60 maanden in **hoofdstuk 4** en bij 37 maanden in **hoofdstuk 6**).

Deze bevindingen duiden op een congruent beeld van opvoeden-naar-temperament interacties. Voor kinderen met een hoge mate van zelfcontrole bevordert respect voor autonomie door de moeder de sociale aanpassing, terwijl negatieve controle door de moeder de sociale aanpassing belemmert. Omgekeerd geldt voor kinderen met een laag niveau van zelfcontrole dat steun van moeders voor autonomie de sociale aanpassing belemmert, terwijl negatieve controle van moeders de sociale aanpassing bevordert. Deze interactie-effecten komen overeen met het patroon van een contrasterend effect, waarbij kinderen met verschillende temperamentsniveaus in

tegengestelde richting reageren wanneer ze met hetzelfde opvoedingsgedrag te maken krijgen.

Voortbouwend op cumulatieve bevindingen van interactie-effecten tussen socialisatie en temperament, betoogde ik in **hoofdstuk 7** dat recente relevante studies zich alleen tot het goodness-of-fit model (Thomas & Chess, 1977) wendden wanneer ze er niet in slaagden andere modellen te ondersteunen (b.v. het differentiële-susceptibiliteitsmodel). Dit komt omdat het goodness-of-fit model niet duidelijk geoperationaliseerd kan worden. Ik betoogde verder dat een contrastief effect het best het naast elkaar bestaan van goodness-of-fit en poorness-of-fit samenvat en duidelijk kan worden onderscheiden van de patronen in ondersteuning van andere modellen en dat dit patroon veelbelovend is voor het karakteriseren van het goodness-of-fit model. Ter ondersteuning van mijn voorstel heb ik empirisch bewijs en methodologische overwegingen geleverd voor het testen van een contrastief effect. Ik besprak verder hoe interacties tussen socialisatie en temperament cultureel specifiek kunnen zijn, wat verklaard kan worden in het goodness-of-fit kader, maar minder door de andere modellen.

Conclusie

Samenvattend kan worden gesteld dat Chinese moeders vaak gebruik maken van ondersteunend gedrag, stimulerend gedrag en positieve discipline en dat ze de meeste harde disciplinaire gedragingen (zoals verbale straf) niet vaak toepassen bij jonge kinderen. Maar Chinese moeders gebruiken vaker psychologische controle dan Nederlandse moeders, hoewel de frequenties laag zijn in beide groepen moeders. Vergeleken met Nederlandse moeders zijn Chinese moeders minder consequent in het handhaven van ouderlijke regels. Bovendien matigt de zelfcontrole van kinderen hoe het respect van moeders voor autonomie en negatieve controle de sociale aanpassing van kinderen in de loop van de tijd voorspellen. Kinderen met een hoge mate van zelfcontrole profiteren van meer respect van moeders voor autonomie, terwijl kinderen met een lage mate van zelfcontrole profiteren van meer negatieve controle van moeders. Deze resultaten ondersteunen het goodness-of-fit model en laten zien dat dit model een bruikbaar en waardevol theoretisch instrument is voor het karakteriseren van persoonx-omgeving ontwikkelingsprocessen. Alles bij elkaar heeft dit proefschrift ons een stap dichterbij gebracht bij het begrijpen van de kenmerken en functies van opvoedingsgedrag bij hedendaagse Chinese moeders met jonge kinderen.

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Acknowledgments

If you happen to be familiar with the "personality traits" of each Zodiac sign, you will perfectly and accurately identify me as a Libran, who is said to "be obsessed with symmetry and strives to create equilibrium in all areas of life". Most importantly, Libra symbolizes "we", making "relationships" something paramount in my life. You do not believe the Zodiac thing? No problem. But please believe that I say each of the following words from the bottom of my heart. Although uncertainty hangs in my mind about whether I am able to flawlessly express all my feelings and thoughts and exhaustively speak to everyone in this limited, formal chapter, I shall try my best to give you a hint of how grateful I am for everyone I met and for every moment I experienced throughout the past years.

Judith. Thank you very much for guiding me through the PhD track and teaching me so many things (what is a good supervisor, a good researcher, a good teacher, a good colleague, and a good friend). How fortunate I am to have a supportive promotor whom I can rely on to improve proficiencies of critical thinking, to advance research skills, to expand knowledge bases, and to learn the social duties of a researcher / supervisor / teacher. Equally fortunate for me are numerous small moments about you taking care of me, sharing personal experiences with me, and chatting with me in a lighthearted atmosphere. It seems like just yesterday that we had our first meeting, we had the trip to China, we had dinners together, and we took Ginger for field trips. Everything I learned from you will be my mirror, my sword, and my shield to continue guiding me through ups and downs in the upcoming days of my life.

Maja. Thanks a million for your continuous direction and supervision. Before I came to Utrecht, I asked someone what the difference is between doing a PhD in China and in the Netherlands. The answer I got is something like "while in China you will be treated as a student of a laboratory, in the Netherlands you will be treated as a young researcher and can expect an 'apprenticeship' with your promotor." I am grateful that

across my PhD phase you showed respect to my decisions and encouraged me to embrace my research interests, express my thoughts directly, and elaborate on my points confidently no matter what. Having you as my promotor assures me of always having a clear and helicopter view of my project, my individual study, and my argumentation within each article. I treasure what you taught me—daring to speak up for what one believes while still being humble and open-minded.

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Vivid in my memory is how CAS, especially OWP, colleagues supported and helped me to become a better researcher, or I can even say, a better person. You gave feedback on my research, which always inspired me to think a step further. You also created a warm and welcoming department where I truly fulfilled the need for belongingness. I will miss dearly the greetings of "lunchtime", department meetings on interesting topics, department outings, celebrations of Sinterklaas and Christmas, games that brought us closer as well as the writing week, research days, and conferences we went together. At this moment, the coronavirus is still wide-spreading, and working from home remains to be advised. This makes me extremely cherish the time when we were able to have casual chats in the hallway or at the coffee corner. A special mention goes to Ankie. Thank you for being a great roommate and sending me "how are you doing" emails from time to time.

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willingness to evaluate my dissertation and formulate questions, and for taking the time to attend my defense. I wish to highlight that in addition to my supportive promotors, many other colleagues (Marloes, Odilia, Astrid, Sheida, Stathis, Sophie, Yixin, Sanne, and Amal) also gave me a leg up when I was writing the dissertation and preparing for the defense.

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I have deep feelings for the following names to be mentioned. You are my sibling-like friends who teach me (and also explore together with me) how to grow and how to love. Siqi, I have a trillion words to speak to you and this journey of my life is that unforgettable and complete only because you have filled it in with joy and love. This is why I believe that you should design the cover of my dissertation and be part of this story. Zijing, the memory of we traveling together and having marathon talk on the phone always brought me back to our preadolescence period when we began to carefully explore (and fantasize) the possibilities of our life and excitedly shared the thoughts with each other. Such yesterday-once-more moments have healed my homesickness and loneliness. Joe, thank you for being the "full of surprise" (in an absolutely good manner) person in my life. In particular, my adventure as a sojourner in the Netherlands, or broadly Europe, is "wunderbar" because you found methods and made time to spice it up. Yue, I can list countless occasions when I felt so happy to have you as my "sibling". Our routines such as updating each other on the sparkling moments of a day, sharing personal hassles without worrying about being judged, and tickling the appetite for Chinese food or European food definitely bond our sibling relationships tighter. Yang, you have "witnessed" how I developed from a naïve psychology student to a young psychologist. I appreciate that you enlightened me about translating research findings into applicable plans tied to societal needs.

To my parents, I love you. Mom, I wrote this dissertation to (partly) show my readers what a Chinese mother's love and care look like and how you, as one, devote all you have and know to educating and socializing me. Although I am far away from

home, your support, comfort, and trust are never far away. You are my superheroine and fortunately, throughout these years I got to know more and more about every brave and remarkable aspect of you. Thank you for lighting an ever-burning candle to warm me up on cold days and lead my way in the dark. Dad, sorry that this dissertation is dedicated to Chinese mothers only (I will consider addressing this limitation by conducting research on Chinese fathers' parenting behaviors in the future). But thank you for dedicating your endless love and care to me. According to the words of my friends, I have your curiosity, hospitality, kindness, a weird sense of humor, and a good taste in art. These qualities, if you would agree with this impression, make my life absolutely colorful and worth living.

I wrote this paragraph in English because many relatives of my extended family once joked that after studying for years in the Netherlands, I probably can only speak in English when I am back to China. Although I am the only child of my nuclear family, I grew up in a large extended family. My family members used their ways to teach and take care of me. Thank you all for never saying the word "love" but always expressing this emotion by doing something for me.

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A

CV

Curriculum Vitae

Biography

Shuyang Dong (1991, Kunming, China) majored in Applied Psychology and obtained a Bachelor of Science degree (BSc) from Sun Yat-sen University in 2014. He then joined the research master's program of Developmental and Educational Psychology at Capital Normal University and was supervised by Prof. Dr. Zhengyan Wang. He obtained a Master of Education degree (MEd) in 2017. The same year he was awarded the Chinese Government Scholarship by China Scholarship Council and began his PhD track shortly afterward in the Department of Developmental Psychology at Utrecht University. He was supervised by Prof. Dr. Judith Semon Dubas and Prof. Dr. Maja Deković. His PhD project aims at understanding the characteristics and functions of parenting behaviors in Chinese mothers with young children.

Shuyang organized symposia and presented his work in several national and international conferences, including SRCD 2021 Biennial Meeting, VNOP 2021 Biennial Meeting, ISSBD 2020 Biennial Meeting, SRCD 2019 Biennial Meeting, the 22nd National Conference on Psychology, VNOP 2018 Biennial Meeting, 2018 S4 Conference, the 19th National Conference on Psychology, and ISSBD 2016 Biennial Meeting. He was the chairman of the 3rd Meeting of the Chinese Association for Psychological and Brain Science (2019, Utrecht, the Netherlands). He also organized a full-day workshop on the topic "Study Development: Longitudinal Analyses" for students and researchers at Capital Normal University (2018). Moreover, he was the chair of the department PhD group from 2019 to 2021.

Shuyang has conducted collaborative studies and co-authored articles with researchers from China, the Netherlands, the United States, and Germany. He works as a peer reviewer for scientific journals including *Journal of Child and Family Studies*, *Journal of Early Adolescence*, *Creativity Research Journal*, and *European Journal of Personality*. From the spring of 2022, Shuyang will work as a post-doctoral fellow of the Early Childhood Development and Education research team (led by Prof. Dr. Nirmala Rao) in the Faculty of Education at the University of Hong Kong.

Publications

Book Chapters

Dong S. (2016). Infant physical growth, nutrition, and health. In Wu. M., Wang, Z., & Zhao, J. (*Eds*), *Infant psychology* (pp. 135–159). Hangzhou, CN: Zhejiang Education Press. [in Chinese]

Journal Publications

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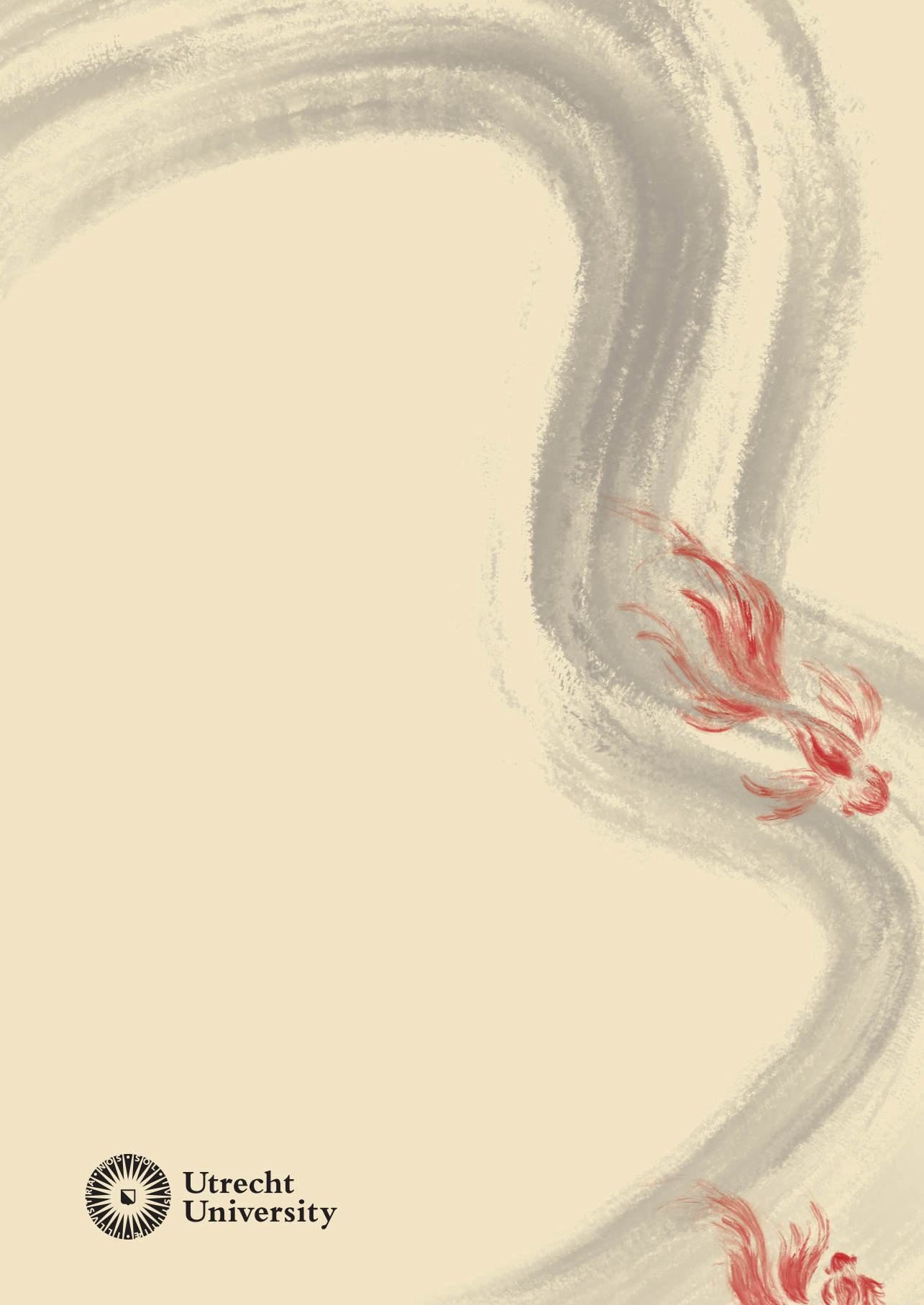

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