Unpacking the rich tapestry of Chinese culture: the interplay between parental socialization and children's social functioning

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Chapter 2

Cross-Lagged Panel Analyses of Maternal Psychological Control and Young Adolescents' Emotion Regulation

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Abstract

The present study examined the longitudinal relations between maternal psychological control and emotion regulation in Chinese adolescents. Specifically, we examined how emotion regulation was reciprocally associated with multiple dimensions of psychological control, including love withdrawal, guilt induction, and shaming in the Chinese cultural context. Participants consisted of 865 Chinese students from fourth through eighth grade (50.8% girls; M_{age} = 11.82 years at Wave 1, SD_{age} = 1.28 at Wave 1, range = 10 to 15 years). Data were collected at two time-periods over a one-year period. Children reported on their emotion regulation. Mothers rated their engagement in love withdrawal, guilt induction, and shaming. Cross-lagged panel analyses revealed an adequate model fit. Children's emotion regulation at study onset predicted decreases in all three dimensions of maternal psychological control one year later, whereas the three dimensions of maternal psychological control did not significantly predict emotion regulation one year later. Findings revealed the longitudinal associations among child emotion regulation and maternal psychological control within a specific cultural context. Implications for the meaning of psychological control parenting in Chinese culture are discussed.

Keywords: emotion regulation, love withdrawal, guilt induction, shaming, maternal psychological control, Chinese adolescents

Emotion regulation refers to an individual's ability to monitor, evaluate, and manage a wide range of emotions (Gross & Jazaieri, 2014). Emotion regulation has been identified as an essential task for developing adaptive psychological adjustment (Aldao et al., 2010; Rueth et al., 2017). During the period of adolescence, adolescents experience intense emotions when encountering significant personal and biological changes (Hofer et al., 2010) and are at increased risk for mental disorders (Costello et al., 2011). As such, constructive emotion regulation strategies are needed in order to successfully adapt to this developmental period.

One factor that is critical for adolescents' adaptive emotional regulation development is parental socialization (Morris et al., 2007). During adolescence, there is increased conflict and decreased warmth in parent-adolescent relationships (Steinberg, 2001) and adolescents may pull away from their parents to seek opportunities to develop independent emotion regulation abilities (Zeman et al., 2006). However, from a neuropsychological perspective, neural regions in the prefrontal cortex related to emotion regulation process has not fully matured until late adolescence (Spear, 2000), which suggests that adolescents cannot always depend on their own to regulate their emotions (Steinberg et al., 2006). In this case, adolescents may still require external resources, such as parents to help in their developing emotion regulation (Thompson & Meyer, 2007). Therefore, adolescents might be particularly sensitive to parental socialization of emotion regulation which can be particularly important during this developmental period (Bariola et al., 2011).

The present study focuses on the impact of psychologically controlling parenting on emotion regulation development during adolescence because parental psychological control intrudes upon adolescents' independent regulation during a period of high autonomy seeking (Barber, 1996; Steinberg, 1990), which may hamper adolescents' emotion regulation development (Cui et al., 2014; Luebbe et al., 2014). Extant research has supported a connection between parental psychological control and adolescents' emotion regulation

development (e.g., Otterpohl & Wild, 2015; Van Lissa et al., 2019). However, prior studies are limited in several ways.

First, no study has explored the associations between the distinguishable forms of psychological control (i.e., love withdrawal, guilt induction, and shaming) and emotion regulation. Previous studies only examined psychological control as a unidimensional construct when exploring its role in the emotion regulation (e.g., Cui et al., 2014; Van Lissa et al., 2019). Nonetheless, specific forms of psychological control carry distinct meanings and functions, especially in interdependent and collectivistic cultures (Fung & Lau, 2012). Thus, it is necessary to consider each form separately when examining the impact of psychological control in children's emotion regulation.

Second, although the linkage between psychological control and emotion regulation has been well-explored (e.g., Barber & Harmon, 2002; Cui et al., 2014; Roth & Assor, 2010), to our knowledge, only a few studies have directly examined the directionality of effects between parental psychological control and adolescents' emotion regulation (Otterpohl & Wild, 2015; Rogers et al., 2019; Van Lissa et al., 2019). Of note, these studies were conducted using samples from Western cultural backgrounds. Considering the importance of reciprocal models in understanding complex parent-child mutuality (Pearl et al., 2014) and cultural variation in the roleof psychological control (Louie et al., 2013), the current study used a longitudinal cross-lagged model to examine the transactional relations between psychological control andemotion regulation in Chinese cultural context.

Parental Socialization of Emotion Regulation

Emotion regulation is an important component of children's normal psychosocial adaptation (e.g., Eisenberg et al., 2002; Suveg et al., 2009). A meta-analytic review of the relation between emotion regulation and psychopathology demonstrated that maladaptive emotion-regulation strategies, including aggression, avoidance, and suppression were

strongly associated with internalizing and externalizing disorders, whereas adaptive emotion regulation strategies were related to less psychopathological symptoms (Aldao et al., 2010). Given the pivotal role of emotion regulation in children's developmental task, it is important to understand the factors that contribute to the development of emotional regulation.

Parental socialization has been identified as a prominent role in children's emotion regulation development. According to the Tripartite Model (Morris et al., 2007), emotion regulation is socialized through three key mechanisms: parenting practices, family emotional climate, and child observation of parental emotion regulation. Therefore, positive parenting and parent-child relationships can provide children with supported and emotionally secured feelings, which are prerequisite for effective emotion regulation (Morris et al., 2017). When children feel close and warm, they are more likely to express their emotions comfortably (Houltberg et al., 2012). In addition, positive parenting is characterized by clear rules regarding appropriate emotional expression, which helps childrento learn to express emotions in socially acceptable ways (Morris et al., 2013).

In addition, inspired by the Self-Determination Theory (Ryan & Deci, 2017), Joussemet and colleagues (2008) posited that parental support serves as an important role in satisfying children's fundamental need for autonomy and flourishing autonomous motivation. Parents who are less autonomy-supportive and who tend to exert control over their children may fail to provide opportunities for children to practice regulating emotions independently and undermine their self-regulatory capacities (Luebbe et al., 2014; Soenens &Vansteenkiste, 2010). Indeed, a growing body of research has linked parental control to less adaptive emotion regulation in children (Caplan & Baker, 2017; Cui et al., 2014; Morris, et al., 2002). Overall, parental behaviors are expected to be a significant mechanism via which parents contribute to emotion regulation development.

Psychologically Controlling Parenting and Emotion Regulation

Psychologically controlling parenting involves intrusive behaviors characterized by using emotionally manipulative tactics, such as love withdrawal, guilt induction, and shaming, to elicit their children's compliance (Barber, 1996). Specifically, parents employ psychologically controlling practices via exploiting the love relationship between parent and child to maintain their children's compliance and emotional dependence on the parent (Barber & Harmon, 2002). For example, parents may show a lack of affection or withdraw their love when the child misbehaves or disappoints them. Consequently, adolescents who experience psychologically controlling parenting practices may feel less secure and autonomous and are at risk for a wide range of maladaptive adjustment, such as aggressive behaviors (Kuppens et al., 2013) and depressive symptoms (Werner et al., 2016).

According to the Tripartite Model (Morris et al., 2007), psychologically controlling parents create a negative emotional climate of the family and elicit children's insecure feeling, which result in children having difficulties in expressing their negative emotion appropriately (Morris et al., 2002; Morris et al., 2007). Under the framework of the Self-Determination Theory (Joussemet et al., 2008; Ryan & Deci, 2017), autonomy supportive parents provide their children with more freedom and independence, which make their children feel encouraged to seek social experiences and to practice their emotion regulation skills (Brenning et al., 2015). By contrast, psychologically controlling parents are prone to assert authority and intrusive control over their children regardless of their own willingness and encourage children to conform to their own desires, which limit opportunities for children to explore by themselves and undermine children's fundamental need for autonomy (Morris, et al., 2002). Consequently, children mayhave fewer opportunities to practice self-regulation and instead, they must rely on others to resolve their emotional conflicts, thereby, limiting their ability to self-regulate their emotions(Barber & Xia, 2013; Cui et al., 2014;

Marusak et al., 2018).

Indeed, previous research indicates that adolescents' experience of psychologically controlling parenting contributes to later difficulties in regulating emotions (Cui et al., 2014; Luebbe et al., 2014). For example, Luebbe and colleagues (2014) demonstrated that adolescents' perceived maternal psychological control predicted dysregulation of negative emotions, which in turn, led to anxious symptoms. Similarly, Cui and colleagues (2014) examined the mediating role of anger regulation in the relations between adolescents' perceived parental psychological control and aggressive behavior and depressive symptoms. They found that adolescents' experiences of psychological control were positively associated with aggression and depression through poor anger regulation. Moreover, adolescents of psychologically controlling parents may be more likely to use maladaptive anger regulation strategies compared to adolescents of autonomy-supportive parents, which supports the argument that when adolescents' need for autonomy is satisfied, they are more likely to be capable of independently regulating their anger in adaptive ways (Rueth et al., 2017). Taken together, parents who attempt to exert intrusive and covert control over their children may fail to provide their children with the opportunities to learn how to autonomously regulate their own emotions, which may impair children's development of emotion regulation.

The Effects of Adolescent Emotion Regulation on Parenting

Numerous studies support the view that parents and adolescents mutually influence each other (e.g., Sheehan & Watson, 2008; Wang et al., 2011). According to the Social Coercion Theory (Patterson, 1982), a process of mutual reinforcement through a bidirectional interplay of both parent and child effects exist, suggesting that parents may respond to children's aversive behaviors in a negative way, which in turn, evoke increasing levels of children's maladaptive behaviors. Indeed, a growing body of longitudinal studies have found reciprocal relations between parenting and adolescents' psychological adjustment (see

Pinquart, 2017 for a meta-analysis). Pinquart (2017) conducted a meta-analysis to examine the links between parenting and internalizingsymptoms in children and adolescents. The results supported the notion that parental psychological control and adolescents' internalizing symptoms were reciprocally related inchildren and adolescents.

Therefore, guided by the Social Coercion Theory (Patterson,1982), it is surmised that parents may respond to children's poor emotion regulation by increasing their use of psychologically controlling parenting. When poorly regulated adolescents continue to fail to meet society's expectations for self-regulation, their mothers may become increasingly manipulative to push their child to behave appropriately (Zucker, 1994). However, there is little empirical evidence to support a child-driven effect from adolescents' emotion regulation to parental psychological control. To our knowledge, only three longitudinal studies examined both the parent-driven and child-driven effects linking psychological control to emotion regulation.

Otterpohl and Wild (2015) used a two-wave cross-lagged design to examine the directionality of the associations between parenting, emotion regulation, and psychosocial functioning. They found that adolescents' report of psychological control did not significantly predict later emotion regulation, while adaptive emotion regulation was predictive of later decreasing psychological control. More recently, Van Lissa and colleagues (2019) conducted a four-year longitudinal study to examine the reciprocal interplay between parenting (including support, behavior control, and psychological control) and adolescents' emotion regulation development. For psychological control, the results found no evidence for effects of adolescents' perceived psychological control on emotion regulation, whereas the child effect was significant, such that adolescents' emotion regulation was negatively predictive of perceived psychological control. These two studies indicated that adolescents with poor emotion regulation tend to elicit more psychologically controlling parenting, whereas

parental psychological control has no longitudinal effects on adolescents' emotion regulation.

In contrast, Rogers and colleagues (2019) found the reversed pattern of results. They used an overall measure of self-regulation including emotional, cognitive, and behavioral regulation to test the cross-lagged associations between adolescents' perceptions of parental psychological control and their self-regulation at the within-person level. The results indicated that when psychological control increased beyond their own typical levels, adolescents' own typical levels of self-regulation decrease one year later. However, adolescents' self-regulation did not predict their later reports of maternal psychological control. Given the inconsistent findings, the current study examined the reciprocal effects between specific forms of psychological control and adolescents' emotion regulation.

Distinguishable Dimensions of Psychological Control and Cultural Context

Psychological control is conceptualized as a multidimensional construct (Barber, 1996). Yu and colleagues (2015) using a Chinese-American sample identified three distinctive dimensions of psychological control: love withdrawal, guilt induction, and shaming. Love withdrawal is described as parents' emotional manipulation through threatening to withdraw love or attention in order to achieve control over their children (Barber, 1996; Yu et al., 2015). Love withdrawal may indicate parental hostility and denial of parental acceptance because the parent-child attachment was undermined through parents' withdrawal of love (Hart et al., 1998; Yu et al., 2019). This form of psychological control is linked to children's maladjustment universally (Shek, 2007; Yu et al., 2019).

Guilt induction is characterized by placing guilt on children to regulate children's misconduct by emphasizing how children's specific behaviors have affected others (Fung & Lau, 2012; Yu et al., 2015). Likewise, shaming involves invoking children's feeling of humiliation and losing their parents' face so that children will be more likely to act in culturally-appropriate modest and respectful ways (Fung & Chen, 2001; Yu et al., 2015).

However, due to the emotionally intrusive feature of guilt induction and shaming, children in individualist cultures, where autonomy and individualism are highly emphasized, tend to perceive parental induction of guilt and shame as rejection and hostility, which leads to children's maladaptive adjustment (Rote & Smetana, 2017). In contrast, parental guilt induction and shaming are less harmful in interdependent contexts due to the cultural emphasis on interdependence and obligations to others (Cheah et al., 2019).

From the theoretical perspective of individualism and collectivism (Sorkhabi, 2005), specific parenting behaviors are interpreted differently based on different cultural values. Fung (1999) contends that children in collectivist cultures are likely to perceive practices of shaming as desirable for hierarchical order and harmony. Therefore, shaming may have constructive socialization effects in Chinese cultural contexts. In addition, because maternal guilt induction is not indicative of maternal maladaptive emotions and negative cognitions in interdependence-oriented cultures, such inductive practices which are intended to regulate children's behaviors might be more acceptable from the child's perspective (Rudy & Halgunseth, 2005; Soenens, et al., 2015).

Considering the distinguishable implications of love withdrawal, guilt induction, and shaming in interdependent cultural contexts compared to individualistic societies, we expected that these specific forms of psychological control would have different effects on Chinese adolescents' emotion regulation development. As suggested by Hoffman (2000), parents' hostile or punitive expressivity might evoke affective overarousal in their children, which can lead to children's difficulties in focusing or shifting attention. These difficulties in cognitive process may further result in children's poor regulation abilities. However, if parents express their thoughts and feelings appropriately and are responsive to their children in stressful situations, children may be less likely to be over-aroused and more motivated to process parents' positive messages. In turn, these children will learn appropriate strategies for

regulating their emotions. Therefore, it is reasonable to presume that if parents withdraw their love and ignore children's feelings and thoughts as punishment to their children's misconduct, children may develop poor emotion regulation over time.

In contrast to the evidence that parental guilt induction and shaming are strongly associated with perceived parental rejection in Western cultures (Rote & Smetana, 2017), the effects of guilt and shame induction on Asian children's adjustment may be less detrimental because interdependence and obligations to others are emphasized in collectivistic cultures (Fung & Lau, 2012; Krevans & Gibbs, 1996). Additionally, in interdependent cultures featured by the hierarchical structure of the family, children are taught to be obligated to care for parents (Ho, 1996). Thus, children are expected to gain an understanding and appreciation of their parents' sacrifices and efforts. This understanding will make parent's induction of guilt and shame more acceptable and less deleterious from Chinese children's perspective compared to children from individualistic cultures (Scharf & Goldner, 2018; Soenens et al., 2015). Thus, although parents' use of guilt induction and shaming also show some negative attitude and emotion such as display of disappointment, these two forms of psychological control may not be harmful to Chinese children's emotionregulation.

To our knowledge, no study has explored how theses dimensions separately relate to children's emotion regulation development. Given that the subset of psychologically controlling strategies may carry divergent meanings and functions in interdependent cultures, in this study, we separated this construct into three distinct dimensions: love withdrawal, guilt induction, and shaming, and focused on these forms of psychological control to specify and examine a reciprocal model that identify how each dimension of psychological control interplays with emotion regulation in Chinese adolescents.

The Current Study

We used a longitudinal design to examine the reciprocal relations between maternal

psychological control and adolescents' emotion regulation at two time-periods over a one-year period. We distinguished three dimensions of maternal psychological control: love withdrawal that may have harmful developmental outcomes universally, and guilt induction and shaming that may be milder in Chinese cultural context, to explore their differential effects on adolescents' emotion regulation. Combined with the aforementioned theory and research, we hypothesized that: (a) among three forms of psychological control, maternal love withdrawal would predict decreases in adolescents' emotion regulation one year later. In contrast, maternal guilt induction and shaming would not significantly predict decreases in adolescents' emotion regulation one year later; and (b) adolescents' better emotion regulation would predict less maternal psychological control over time.

Method

Participants

Data collection was conducted at two time-points over a one-year period in 2014 and 2015. During the first assessment, 883 Chinese families were invited and 865 of them (50.8% girls; M_{age} = 11.82 years, SD_{age} = 1.28, range = 10 to 15 years) agreed to participate in the study. The participation rate at Time 1 was about 98%. The majority of participating families were from middle socioeconomic status. Specifically, based on a scale of monthly income ranging from 1 (1,000 RMB or below) to 12 (above 40,000 RMB or above), 18.4% of the families had a monthly household income that was less than 7,000 RMB; 46.3% of the families had a monthly income between 7,000 RMB to 20, 000 RMB; and 35.3 % of the families had a monthly income above 20,000 RMB. Approximately 65% of mothers and fathers had a high school or lower education, and 35% of mothers and fathers attained university or postgraduate education. All children and parents were of Han ethnicity, the dominant ethnic group in China. The sample was representative of the general population in the region (Bulletin, 2015).

At Wave 2, 818 families (95% retention rate) completed the data collection. Attrition analysis indicated that participants who completed the data for both waves and those who dropped out of the study at Wave 2 did not differ in gender, χ^2 (1) = 1.55, p = .23, age, t (856) = -.19, p = .85, emotional regulation, t (848) = .34, p = .74, and psychological control dimensions, all ts < .91, all ps > .36.

Procedure

The study was approved by the Institutional Review Board. We randomly contacted several public schools in different areas of Shanghai, China. Four schools were willing to collaborate with us to recruit families in the school. Prior to data collection, approvals from schools and written informed consent from parents and children were obtained. Well-trained graduate research assistants conducted data collection of children's self-reported emotion regulation at each school. The whole process took approximately twenty minutes. Mothers were asked to complete the questionnaire at home and returned them to the research assistants via mail. After data collection, each family received a gift as participating compensation. The Western-based measures were translated into Chinese and then back translated to ensure reliability.

Measures

Emotion regulation

Children reported their emotion regulation using the Self- Regulation Scale (SRS; Novak & Clayton, 2001), which comprised three aspects of self- regulation: emotion regulation, cognitive regulation, and behavior regulation. Of interest, the emotion regulation subscale, which consisted of nine items, was used in this study (e.g., "I have difficulty controlling my temper," "My mood goes up and down without a reason"). Theresponse range varies from 1 (*never true*) to 4 (*always true*). Items are averaged such that a higher score reflects better emotion regulation. This measure has shown good reliability and validity in a

sample of Chinese children (Sang et al., 2018; Zhou et al., 2016). The internal consistencies of the subscale were Cronbach's α = .86 and α = .85 at Wave 1 and Wave 2, respectively.

Psychological control

Mothers reported their engagement in psychological control on a 5-point Likert-scale (Olsen et al., 2002; Yu et al., 2015), ranging from 1 (*never*) to 5 (*always*). The scale contains three dimensions of psychological control: love withdrawal (4 items; e.g., "Is less friendly with child if child does not see things my way."), guilt induction (5 items; e.g., "Makes child feel guilty when child does not meet my expectations."), and shaming (5 items; e.g., "Let child know how disappointed I am when he/she misbehaves."). Higher scores account for more psychological control the mother used. The earliest measure of psychological control was the 10-item scale from the revised Children's Report of ParentalBehavioral Inventory (Schaefer, 1965). Barber (1996) developed six-dimensional scales to tap psychological control as a multidimensional concept based on Schaefer's work.

Furthermore, Olsen and colleagues (2002) added 17 new items into Barber's 16 items and validated the measure cross-culturally. Yu and colleagues (2015) confirmed the three dimensionality of psychology control among Chinese-American mothers based on Olsen and colleagues' (2002) work, which was used in the current study. This scale has proved reliable and valid for Chinese children (Olsen et al., 2002). The internal consistencies for love withdrawal, guilt induction, and shaming were, respectively, Cronbach's α = .71, α = .71, and α = .67 at Wave 1, and Cronbach's α = .75, α = .73, and α = .68 at Wave 2 in the current sample.

Analytic Strategy

Descriptive analyses were conducted in SPSS Statistic 22. To address the primary research questions, cross-lagged analyses with latent constructs were performed using M*plus*, version 7 (Muthén & Muthén, 1998-2012). We used the robust maximum likelihood

estimator (MLR), which provides standard errors and chi-square test statistic. Missing data were dealt with full information maximum likelihood estimation (FIML; Muthén & Muthén 2005).

Confirmatory factor analyses (CFA) were conducted to determine the factor structure of the psychological control construct, such that whether love withdrawal, guilt induction, and shaming should be examined in a one-factor model or a three-factor model. A one-factor CFA model was specified where all items of psychological control were loaded on one construct. In contrast, a three-factor CFA model was estimated where the three dimensions of psychological control were considered separated dimensions.

Measurement invariance was then tested to establish the equivalence of factor loadings across the two waves. The unconstrained model, where all factor loadings were freely estimated, served as a comparison against the constrained model, where the factor loadings were set to be equal across waves. Chi-square difference tests were conducted to compare the two models.

Cross-lagged analysis was conducted to examine the bidirectional relations between psychological parenting and emotion regulation. The hypothetical model set up the paths from three forms of psychological control at Wave 1 to emotion regulation at Wave 2 as well as from emotion regulation at Wave 1 to the three forms of psychological control at Wave 2. In addition, paths from all constructs at Wave 1 to corresponding constructs at Wave 2 were established to control stability. Child sex, child age, and maternal education were included as potential covariates because previous research has linked these variables to parenting and children's adjustment (e.g., Smetana & Daddis, 2002; Zimmermann & Iwanski, 2014). To evaluate the model fit, we examined the χ^2 test, CFI, TLI, RMSEA, and SRMR. Adequate model fit is represented by CFI > .90, TLI > .90, RMSEA < .08, and SRMR < .08 (Brown, 2006; Kline, 2016). The χ^2 test of significance is sensitive to large samples therefore, it is

reported but not used as a measure of model fit (Cheung & Rensvold, 2002).

Results

Preliminary Analyses

Means, standard deviations, and bivariate correlations are presented in Table1. Children reported moderate mean levels of emotion regulation. Mothers reported low mean levels of love withdrawal and moderate mean levels of guilt induction and shaming. Correlations among the study variables showed that all constructs were stable over time. Maternal love withdrawal, guilt induction, and shaming were significantly and negatively associated with emotion regulation at Wave 1 and Wave 2.

CFA Models for Psychological Control Construct

The results of the comparisons of model fit between the one-factor with 14 items and three-factor CFA models indicated that the expected three-factor model ($\chi^2(74) = 244.26$, $p < .01$, CFI = .91, TLI = .89, RMSEA = .05, SRMR = .05) fit the data significantly better, $\Delta\chi^2(3) = 84.95$, $p < .000$. Therefore, the three-factor model, in which love withdrawal with 4 items, guilt induction with 5 items, and shaming with 5 items were considered related but separated dimensions of psychological control was retained for further analysis.

Longitudinal Measurement Invariance

We tested the longitudinal measurement invariance by comparing the configural (baseline) model with the metric model for each construct, in which the factor loadings were constrained to be equal across time (factor variance at Wave 1 was fixed to 1). Findings indicated the establishment of metric invariance for all study constructs. Specifically, for parenting, chi-square difference tests showed that there was no significant difference between the unconstrained ($\chi^2(335) = 1134.214$, $p < .01$, CFI = .83, TLI = .81, RMSEA = .05, SRMR = .06) and constrained model ($\chi^2(348) = 1144.44$, $p < .01$, CFI = .83, TLI = .82, RMSEA = .05, SRMR = .06; $\Delta\chi^2(13) = 8.70$, $p = .80$), indicating the establishment of longitudinal

metric invariance of parenting construct. Similarly, for child emotion regulation, chi-square difference tests demonstrated that there was no significant difference between the unconstrained ($\chi^2(125) = 380.37$, $p < .01$, CFI = .92, TLI = .91, RMSEA = .05, SRMR = .04) and constrained model ($\chi^2(133) = 391.28$, $p < .01$, CFI = .92, TLI = .91, RMSEA = .05, SRMR = .05; $\Delta\chi^2(8) = 7.05$, $p = .53$), indicating the establishment of longitudinal metric invariance of emotion regulation construct.

Cross-Lagged Model

Cross-lagged panel analysis was conducted to examine the reciprocal relations between maternal psychological control and adolescents' emotion regulation, controlling for stability in each construct over time, which focuses on the change of the constructs. Covariates included child sex, child age, and maternal education, which were pruned out of the model to avoid overcontrol because none of these variables were significantly predictive of the main constructs. The model fit the data adequately, $\chi^2(943) = 1683.13$, $p < .01$, CFI = .92, TLI = .91, RMSEA = .03, SRMR = .04 (see Figure 1). Standardized factor loadings of the constructs were presented in Table 2.

Results indicated that greater emotion regulation at Wave 1 predicated decreases in maternal love withdrawal ($b = -.17$, $SE = .06$, $p < .01$; $\sigma^2 = .77$), guilt induction ($b = -.15$, $SE = .06$, $p < .01$; $\sigma^2 = .75$), and shaming ($b = -.19$, $SE = .06$, $p < .01$; $\sigma^2 = .71$) at Wave 2, whereas the three dimensions of maternal psychological control at Wave 1 did not significantly predict emotional regulation ($\sigma^2 = .73$) at Wave 2. Furthermore, multiple group analyses were conducted to examine whether the relation between maternal psychological control and emotion regulation differed across gender. The fit of the constrained model wasnot significantly different from the unconstrained model, indicating there was no significantgender difference in the reciprocal effects, $\Delta\chi^2(6) = .65$, $p = .10$, ΔCFI = .000, ΔTLI = .002,ΔRMSEA = .000, ΔSRMR = .003.

Discussion

This study adopted a multi-informant longitudinal design to examine the reciprocal relations between distinctive aspects of maternal psychological control and adolescents' emotion regulation. Most studies only focused on a unidimensional measure of psychological control and a parent-driven effect from psychological control to emotion regulation (e.g., Cui et al., 2014; Luebbe et al., 2014). Therefore, these studies failed to capture the unique function of each facets of parental psychological control and the transactional nature of parent-child relationship in understanding the development of emotion regulation in interdependent and collectivistic cultural contexts. Our studies revealed that Chinese adolescents' emotion regulation was not impaired by their mothers' guilt induction and shaming. Surprisingly, mother's love withdrawal was also not harmful to adolescents' emotion regulation. In addition, a child effect was found, with emotion regulation predicting a decrease in later mothers' engagement in psychological control behavior, including love withdrawal, guilt induction, and shaming.

Parent Effects: Love Withdrawal, Guilt Induction, and Shaming on Emotion Regulation

In this study, we utilized a dimensional approach to examine maternal love withdrawal, guilt induction, and shaming separately because these three forms of psychological control have been found to be statistically distinct (Yu et al., 2015) and differentially related to child outcomes, especially in the sample with the interdependence-oriented cultural values (e.g., Fung & Lau, 2012). In line with our hypothesis, maternal guilt induction and shaming were not predictive of later emotion regulation. That is, negative effects of these two dimensions of psychological control were not significant in Chinese adolescent emotion regulation development. This further supports the notion that parents' use of guilt induction and shame are less harmful to children from collectivist backgrounds (Cheah et al., 2019). According to Rudy and Halgunseth (2005), Asian mothers use of guilt

induction was not indicative of maternal maladaptive emotions and negative cognitions. Thus, such inductive practices correct children's behaviors with a more benign attitude, which may be more acceptable and less deleterious from the child's perspective (Scharf & Goldner, 2018; Soenens et al., 2015). Consequently, parental guilt induction and shamingmay not be predictive of later Chinese adolescents' emotion regulation.

Contrary to our expectation, no predictive effects emerged for maternal love withdrawal on Chinese adolescents' emotion regulation development. Previous research has suggested that love withdrawal has negative impacts on both Western and Asian children's psychological adjustment (e.g., Barber & Harmon, 2002; Yu et al., 2019). This is in contrast to the results from this study, which indicated that maternal love withdrawal was not predictive of later emotion regulation in early adolescents. This deviation from prior findings may be due to the notion that parental love withdrawal has little impact on emotion regulation during adolescence period. Indeed, previous research has shown that as a result of brain maturation, adolescents rely more on internal emotion regulation strategies such as distraction, which requires higher cognitive control capacities and is effective in repairing negative affect as compared to external emotion relation strategies, such as parental warmth (Ahmed et al., 2015; Wante et al., 2018). Therefore, less maternal care and attention may not be predictive of adolescents' poor emotion regulation.

Child Effects: Emotion Regulation on Psychological Control

As expected, we found evidence of child effects in relation to adolescents' emotion regulation. Specifically, when adolescents have greater emotion regulation, their mothers reported decreases in psychological control, including love withdrawal, guilt induction, and shaming, one year later. These findings are consistent with previous studies with Western samples indicating that adolescents' adaptive emotion regulation predicted lower levels of psychological control (Rogers et al., 2019; Van Lissa et al., 2019). From the developmental

perspectives, the relationships between parent and adolescent become less hierarchical and more egalitarian (Branje et al., 2013) and parents anticipate that their childrenacquire the ability to regulate their emotions independently as they get older and mature (Compas et al., 2017; Dix, 1991). When the child reaches this expectation, parents might reduce psychological control and provide autonomous support to satisfy their children's increased need for autonomy during the period of adolescence (Zimmer-Gembeck & Collins,2003).

Limitations and Further Directions

The strength of this study is that the longitudinally cross-lagged design allowed us to test reciprocal relations between psychologically controlling parenting and emotion regulation development in adolescents over time. In addition, this study used divergent forms of psychological control to examine their unique relations to emotion regulation separately in an interdependent cultural context.

Notwithstanding, several limitations should be acknowledged. First, self-report measures of all the constructs were used, which may not objectively capture mothers' psychologically controlling parenting and children's capacity to regulate their emotions. Mothers' self-reports of their parenting may be conservative or exaggerated due to recall biases and social desirability (Morsbach & Prinz, 2006; Winsler et al., 2005). In addition, questionnaire measures of emotion regulation may have issues with accuracy of recall especially for adolescents (Compas et al., 2017). In contrast, observational research has benefits of capturing how children regulate their emotions during social interaction, which can comprehensively reflect children's emotion regulation ability (Compas et al., 2017; Morris et al., 2010). Further research could use more objective methods, including structured observations and interviews to measure psychologically controlling parenting and emotion regulation for promoting ecological validity.

Second, children's perspective and interpretation of caregiving experience may be

more important than actual parenting (Stone et al., 2013). It has been argued that children's appraisal of controlling parenting practices is a critical mediating process, which may modulate the impacts of such parenting (Soenens et al., 2015). Indeed, Cheah and colleagues (2019) found that when children interpreted their parents' engagement in psychological control as for the child own benefits, detrimental effects of psychologically controlling practices may be alleviated. Future studies could directly examine children's interpretations regarding the specific forms of psychological control to obtain a better understanding of the potential mechanisms of how these distinct forms play role in children's development.

Third, although we focused on understanding the within-culture effects of different dimensions of psychologically controlling parenting on the development of Chinese children, differences in the impacts of such dimensions on children from collectivist and individualist background can be obtain if we directly utilize a cross-cultural design.

Conclusions and Implications

In the present study, we assessed three dimensions of maternal psychologically controlling practices (i.e., love withdrawal, guilt induction, shaming) to examine whether these dimensions transactionally relate to emotion regulation during adolescence. The results revealed that Chinese adolescents' adaptive emotion regulation was predictive of decreased maternal love withdrawal, guilt induction and shaming, whereas these three forms of psychological control were not predictive of adolescents' emotion regulation.

Our findings have several important practical implications. First, our findings emphasize the necessity of emotion regulation training approaches in the emotionally arousing phase of adolescence. The role of adolescents' adaptive emotion regulation would not only improve adolescents' own psychological health, but also be beneficial for the whole family system. Indeed, emotion regulation trainings have been developed for adolescents (e.g., Schuppert et al., 2009). Adolescents could learn how to regulate their emotions so that

their parents can reduce their use of psychologically controlling strategies. When applying these findings to interventions, efforts aimed at developing healthy family dynamics would benefit by training adolescents to regulate their emotions. Furthermore, although our studies found there was no significant effects of love withdrawal, guilt induction, and shaming on adolescent' emotion regulation, the underlying mechanisms of these relations may differ from distinctive dimensions. Therefore, intervention programs with Chinese families should take into account specific aspects of psychologically controlling practices.

Table 1

Descriptive statistics and correlations among the latent study constructs and demographic variables.

	1	2	3	4	5	6	7	8	9	10	11
1. Child sex	1										
2. Child age	-.07*	1									
3. Maternal education	.05	-.03	1								
4. Emotion regulation (W1)	.07*	-.15***	.05	1							
5. Love withdrawal (W1)	.00	.06	-.09*	-.11**	1						
6. Guilt induction (W1)	-.06	.06	-.09**	-.13***	.46***	1					
7. Shaming (W1)	-.03	.04	-.06	-.08*	.39***	.62***	1				
8. Emotion regulation (W2)	.08*	-.07*	.06	.45***	-.11**	-.12***	-.12**	1			
9. Love withdrawal (W2)	-.01	.07	-.14***	-.18***	.33***	.16***	.17***	-.16***	1		
10. Guilt induction (W2)	-.06	.08*	-.08*	-.17***	.17***	.37***	.29***	-.16***	.45***	1	
11. Shaming (W2)	-.04	.07	.02	-.17***	.18***	.28***	.41***	-.12***	.43***	.67***	1
M	.51	11.82	3.46	3.35	1.71	2.35	2.43	3.36	1.75	2.41	2.46
SD	.50	1.28	1.29	.58	.67	.75	.75	.54	.70	.77	.72

Note. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$. W1 = Wave 1; W2 = Wave 2.

Table 2

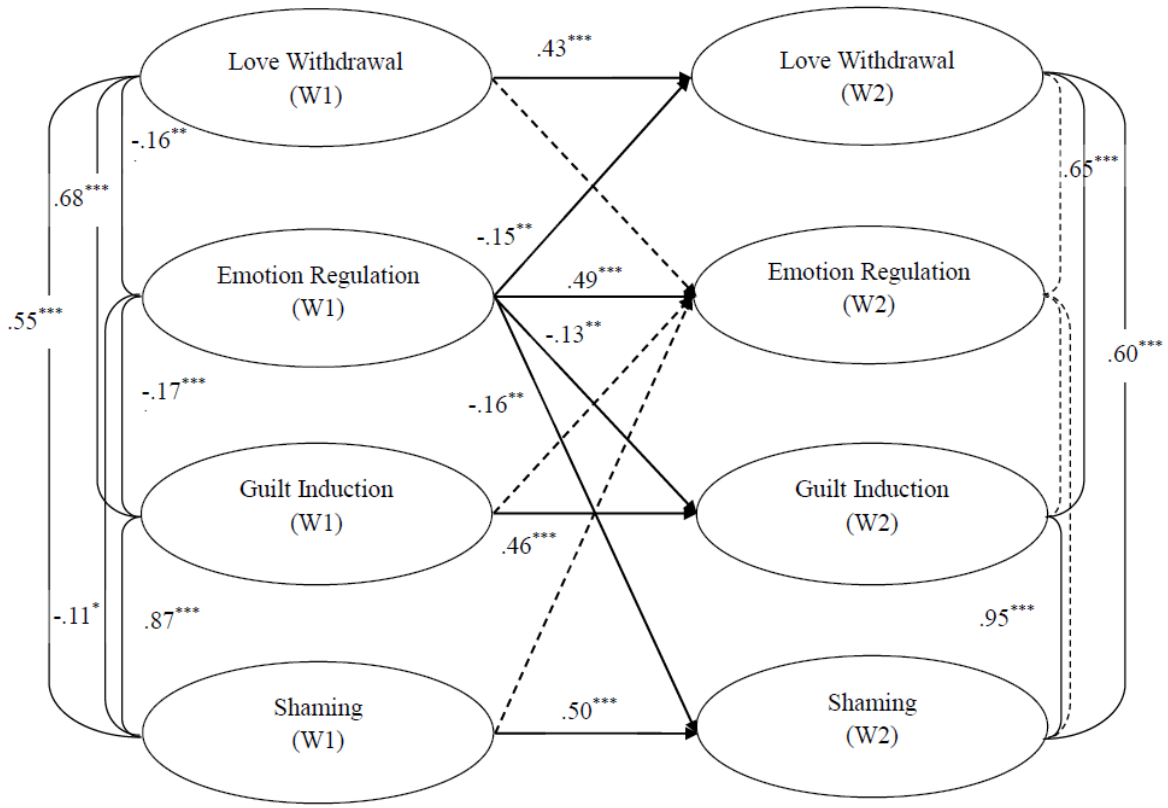
Standardized item factor loadings at both waves.

Constructs and items	Wave 1	Wave 2
Emotion regulation		
I have difficulty controlling my temper.	.69 (15)	.59 (5)
When I am angry, I lose control over my actions.	.72 (17)	.66 (9)
I get so frustrated that I often feel like a bomb ready to explode.	.68 (23)	.65 (7)
I get into arguments when people disagree with me.	.54 (18)	.56 (9)
I fly off the handle for no good reason.	.63 (17)	.59 (6)
There are days when I'm on edge all the time.	.68 (19)	.70 (8)
I easily become emotionally upset when I am tired.	.63 (19)	.61 (4)
I slam doors when I am mad.	.57 (15)	.64 (6)
My mood goes up and down without a reason.	.57 (21)	.53 (6)
Love withdrawal		
Ignores child when he/she tries to get attention.	.61 (21)	.68 (81)
If child has hurt my feelings, stops talking to child until she/he pleases me again.	.53 (18)	.64 (77)
Is less friendly with child if child does not see things my way.	.69 (24)	.73 (81)
Doesn't pay attention when child is talking to me.	.61 (27)	.55 (92)
Guilt induction		
Makes child aware of how much I sacrifice or do for him/her.	.58 (21)	.60 (75)
Says, if you really care for me, you would not do things that cause me to worry.	.44 (17)	.49 (77)
Tells child of all the things that I have done for him/her.	.59 (17)	.58 (76)
Tells child that I get embarrassed when he/she does not meet my expectations	.68 (30)	.71 (90)
Makes child feel guilty when child does not meet my expectations.	.62 (31)	.67 (88)
Shaming		
Let child know when he/she has disappointed me.	.42 (20)	.43 (78)
Tells child he/she is not as good as I was when I was growing up.	.48 (15)	.49 (77)
Acts disappointed when child misbehaves.	.63 (15)	.65 (73)
Informs child that punishment will always find him/her when misbehavior occurs.	.55 (31)	.54 (86)
Let child know how disappointed I am when he/she misbehaves.	.69 (27)	.70 (84)

Note. Standardized factor loading of each item at Wave 1 and Wave 2. All factor loadings were significantly different from 0. In the parentheses, the number means the amount of missingness at the item level. At the scale level, the amount of missingness for emotion regulation, love withdrawal, guilt induction, and shaming is 15, 14, 13, and 12, respectively at Wave 1 and 4, 72, 72, and 71, respectively at Wave 2.

Figure 1

Cross-lagged associations between maternal psychological control and emotion regulation.



Note. Value represents standardized coefficients. Items that constructed the latent variables are not drawn in the figure. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.