**EMPIRICAL ARTICLE**

# Paternal and maternal rejection and Chinese children's internalizing and externalizing problems across the transition to siblinghood: A developmental cascade model of family influence

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**Abstract**

This longitudinal study examined the reciprocal associations between paternal and maternal rejection and firstborn children's ($M_{age}$ = 49.9 months; 55% boys) behavior problems across the transition to siblinghood in a sample of 120 families recruited from 2016 to 2018 from Shanghai, China. Parental rejection and behavior problems were assessed before (prenatal) and 1, 6, and 12 months after the birth of a baby sibling. Random intercept cross-lagged panel models revealed positive relations between internalizing problems and both maternal and paternal rejection, and between externalizing problems and paternal rejection at the between-person level ($rs$ = .32–.37), but only cross-lagged effects from children's internalizing and externalizing problems to maternal rejection at the within-person level ($\beta s$ = .30–.54).

Starting in 2016, the Chinese central government officially ended the one-child policy, which allowed parents across China to now have two children. In May 2021, the government further relaxed its population policy allowing couples to have up to three children. Although these policy changes were based more on considerations of social and economic development and the challenges of an increasing aging population than concerns about children's development and family functioning, these policies have important implications for both Chinese parents and their children. As a result of these changes, the number of families in China with two or more children has been rapidly increasing. In 2018, more than 15.2 million infants were born in China, and among them, about 50% were second-borns (National Health Commission of China, 2019), and in 2019, more than 14.7 million infants were born in China, and among them, 59.5% were second-borns (or higher birth ranks; National Bureau of Statistics of China, 2020). This rising trend indicates that millions of Chinese families are now experiencing the birth of a second child after many decades of single-child families, with little to no research on how this transition is experienced or managed by parents and children.

Although few studies address the transition to siblinghood, in general, studies from several western societies indicate that some firstborn children encounter adjustment problems such as internalizing and externalizing problems after the arrival of a second child (see Volling, 2012 for an empirical review). Research on U.S. families has revealed significant individual differences in how children react to birth and most of these adjustment problems diminish within months after the transition to siblinghood (Volling et al., 2017). Others have found that how parents respond to children's behavior problems during this transition can influence the developmental course of these problems (Baydar et al., 1997; Kendrick & Dunn, 1980; Volling et al., 2017). For instance, some U.S. parents used more controlling or punitive discipline

to "correct" children's disruptive behavior (Stevenson et al., 2019), whereas others may use love withdrawal or other forms of parental rejection to get children to conform to standards of conduct.

Parental rejection, defined as the lack of parental warmth, affection, responsiveness, or expressions of love (Rohner et al., 2005), is a potential risk factor for children' adjustment. A large body of literature has shown that parental rejection influenced children's internalizing and externalizing problems. Children perceive parental rejection as aversive and believe their parents are not concerned or interested in them (Hale et al., 2008). Hence, parental rejection may undermine children's self-esteem and create negative self-schemas (Leary et al., 2006), which, in turn, can contribute to the development of internalizing problems (Miranda et al., 2016). Further, consistent with the frustration-aggression hypothesis, parental rejection may frustrate children's efforts to obtain parental acceptance, which can lead to aggressive behaviors and externalizing problems (Leary et al., 2006) and numerous studies confirm the effect of parental rejection on children's externalizing problems (Khaleque & Rohner, 2002; Smeijers et al., 2018). In addition, parental behaviors not only affect children's developmental adjustment, but children's behaviors also affect the parenting they receive (Yan et al., 2021). Externalizing problems that involve aggression are socially unacceptable, and many parents find it difficult and challenging to manage their children's externalizing problems. As a result, they may use more controlling discipline and/or engage in parental rejection and love withdrawal, with corresponding decreases in warmth and affection in response to children's inappropriate behaviors (Yan et al., 2021). A large body of research has shown that externalizing behaviors among children from early childhood to adolescence predicted parental rejection (e.g., Besnard et al., 2013; Putnick et al., 2015). Less is known about how children's internalizing problems may influence parental rejection, and no study has examined these relations across the transition to siblinghood. Hale et al. (2008) did report that early adolescents' depressive symptoms, one aspect of internalizing problems, predicted adolescents' reports of parental rejection over a 4-year period.

The present research aimed to advance our knowledge on the relations between parental rejection and Chinese children's internalizing and externalizing problems across the transition to siblinghood within a theoretical framework of a developmental cascade model (Masten & Cicchetti, 2010). When a baby sibling is born, some children may experience the loss of parental attention as a sign of parental rejection, and this, in turn, may predict individual differences in children's adjustment. Mothers and fathers may respond differently to children's challenging behaviors or work together as coparents across the transition (Volling et al., 2020). In the current study, both Chinese mothers and fathers reported on parental rejection and children's internalizing and externalizing problems as part of a longitudinal investigation (pre-birth, 1, 6, and 12 months postbirth) on children's adjustment after the birth of a second child.

## A developmental cascade model of parental rejection and children's behavior problems

The present research was guided by a developmental cascade model, which acknowledges interactional and transactional processes among the constructs that result in spreading effects occurring in developing systems over time (Masten & Cicchetti, 2010). Using a similar cascading model of family influence, Stevenson et al. (2019) recently showed that the parent–parent and parent–child subsystems were linked via a spillover cascade from interparental conflict to low parental efficacy to punitive discipline of the older sibling. Directionality of effects can also be examined in developmental cascade models because one can test whether parenting behaviors for mothers and fathers predict children's adjustment problems, whether adjustment problems predict parenting behaviors, and whether the effects are bidirectional over time. A developmental cascade model allowed us to address family processes and bidirectional relations between maternal and paternal rejection and children's internalizing and externalizing problems by including both mothers and fathers in the same model.

With respect to the birth of a baby sibling, U.S. studies find changes in the mother–firstborn relationship, including decreases in maternal warmth (e.g., acceptance and affection), declines in children's attachment security (Teti et al., 1996; Volling et al., 2021) and increases in maternal rejection (e.g., coerciveness, physical punishment) after the birth of the sibling (Baydar et al., 1997; Kendrick & Dunn, 1980). In addition, Kendrick and Dunn (1980) found in their sample of 40 British families that there was a significant increase in mothers' prohibitions directed at children after the birth of a second child, which children may perceive as parental rejection. However, no study has considered paternal rejection over this period, even though there is some suggestion that fathers may play a protective role for children's adjustment by compensating for the changes in the mother–child relationship (Kreppner, 1988; Volling et al., 2020).

It should be noted that the birth of a baby sibling itself may not directly affect children's adjustment problems. Instead, the effects may be mediated through changes in the mother–child and father-child relationships across the transition. Baydar et al. (1997) found in a sample of U.S. mothers, that it was the increase in mothers' physical punishment and decrease in positive parenting that mediated relations between the birth of a sibling and children's socioemotional adjustment problems. In two-parent, mother–father families, fathers may play a crucial role in supporting children's adjustment across the

transition, when mothers may have more direct involvement in the care of the newborn infant (Kreppner, 1988; Volling et al., 2020). In fact, father involvement in childcare mitigated children's separation anxiety after the birth in a sample of U.S. families (Volling et al., 2020).

## The Chinese family context and the transition to siblinghood

Cross-cultural research emphasizes the importance of socio-ecological and cultural factors on parenting and children's development (Bornstein, 1995; Harkness & Super, 1996). How parents react to children's behaviors may differ by cultural context, and relations between parental rejection and children's behaviors may have different cultural meaning in Chinese families (Lansford et al., 2005). In Chinese families with multiple children, there is an emphasis on harmonious sibling relationships, in line with collectivistic values underscoring interdependence. As noted in the *Book of Standards for Being a Good Student and Child*, one of the classic books on Confucianism-based early childhood education, older siblings are supposed to love younger siblings, and younger siblings are supposed to respect older siblings.

Because of the cultural value placed on maintaining harmonious sibling relationships, Chinese parents often restrict their children in order to establish and maintain positive sibling relationships (Chen & Tan, 2021). This restrictive parenting can be seen when Chinese parents use strict discipline to train older siblings to be good role models for their younger siblings (Fung & Chen, 2001). As is the case with other harsh parenting practices (e.g., authoritarian parenting) in Chinese cultural contexts (Chao & Tseng, 2002), parental rejection is adopted by many Chinese parents to "train" their children to be well-behaved in line with parental expectations for children's behavior (Fung & Lau, 2012). For example, Chinese mothers' and fathers' use of parental rejection was associated with relational induction, an indigenous approach to discipline that inhibits children's emotion and self-expression to maintain social harmony (Fung & Lau, 2012). In addition, Chinese parents view both children's internalizing problems (e.g., withdrawn behaviors) and externalizing problems (e.g., aggressive behaviors) as negative and problematic (Cheah & Rubin, 2004); internalizing behaviors are perceived as "nonsocial" and externalizing behaviors as "antisocial." In both cases, such behavior problems may damage the predominant collectivistic goals in Chinese society and parents may respond to problematic behaviors in a manner to restore social harmony and close relationships (Cheah & Rubin, 2004). Against this backdrop, if the birth of a baby sibling increases children's behavior problems (Volling et al., 2017), Chinese parents may be more inclined to use parental rejection to train and correct their behaviors to reestablish family harmony, which is why we focused on parental rejection in the current study.

The transition to siblinghood may pose additional challenges for both children and their parents in China due to two unique sub-transition periods, particularly with respect to mothers. One is the postpartum recovery period referred to Zuo-Yue-Zi in Chinese (or literally "doing the month"). Zuo-Yue-Zi is a traditional Chinese custom of having a mother rest for about 1 month (nearly 30–40 days) after delivery at home. During this time, she is expected to stay indoors and receive family support to facilitate an earlier and better recovery. Mothers engage in a strict regimen of resting in bed, keeping away from anything physically cold such as food or wind, no bathing, and limiting visitors, sometimes even their own children (Raven et al., 2007). From the Chinese medicine perspective, such practices are seen as the best way to promote bodily and physical recovery after pregnancy and to safeguard future health (Ding et al., 2018). But mothers often experience psychological pressures and frustration arising out of social restrictions and daily life inconveniences (Raven et al., 2007).

A second critical sub-transition after pregnancy and birth is the transition back to work after maternity leave. In China, female employees may have a 98-day paid maternity leave which can start as early as 15 days before the delivery date and can include an additional 15 days should there be dystocia. Should the mother have a second child, she will receive an additional 15 days, with another 15 days for each additional infant. The maternity leave provision is approved by the central Chinese government and is available to all residents of China (The State Council of the People's Republic of China, 2012). Some local governments may provide additional leave days, apart from the national standard, which can vary by region. For example, mothers may be given an additional 30-day leave in Shanghai (The Law Committee Under The Standing Committee of The Shanghai Municipal People's Congress and Shanghai Population and Family Planning Commission, 2016), the city from which mothers for the current study were recruited. Hence, for a mother giving birth to a second newborn free of childbirth complications, she would be eligible for 143 days of paid maternity leave in Shanghai. Therefore, mothers giving birth to a second child may commonly return to work nearly 5 months after onset of the leave, which differs from other countries such as the United States where paid maternal leave is not guaranteed. In addition, according to the China Health and Nutrition Survey, among mothers in urban China with children under 7 years old, 84.4% of them participated in the labor force, with most of the working mothers (96%) working full-time (Du et al., 2019). Research conducted in the United States found a significant decline in maternal-child interaction after mothers returned to work (Huston & Aronson, 2005). As a result, U.S. mothers had less knowledge of child development and

sensitive mother–child relationships after they returned to work (Feldman et al., 2004). Similarly, Chinese mothers had less parenting self-efficacy when they returned to work (Zheng et al., 2018).

Due to these two consecutive sub-transitions, the birth of a second child may be a different experience for Chinese families and Western families in North America (e.g., the United States; see Volling et al., 2017) and Europe (e.g., Kendrick & Dunn, 1980 in the United Kingdom, and Szabó et al., 2012 in the Netherlands). The transition may be quite challenging for Chinese mothers, particularly during Zuo-Yue-Zi, when children's access to the mother may be restricted, but also when mothers must return to work and children are once again separated from their mothers. Increases in children's behavior problems during either of these transitions may stress mothers and, in turn, increase negative parenting behaviors, including maternal rejection, directed toward children. Because each of these sub-transitions involves mother–child separations, which are stressful and emotionally challenging for young children, there may be a decline in children's attachment security to mothers and a corresponding increase in children's problematic behavior (Teti et al., 1996; Volling et al., 2021). Teti et al. (1996) found a significant decline in preschool children's attachment security to mothers, a major risk factor for the development of both internalizing and externalizing problems (Chen, 2012; Fearon & Belsky, 2011) after the birth of a baby sibling in the United States.

Recent work with Chinese families reported that parents with two children had higher levels of parenting stress than parents with only one child (Hong & Liu, 2021), and that fathers' involvement in childcare may buffer against the negative effects of maternal stress on parenting behaviors (Chen, 2020). Empirical research on fathers in Chinese families with multiple children is scarce, however. Therefore, it remains unclear whether fathers have a uniquely supportive role on their children's adjustment to the arrival of a baby sibling for Chinese families. Although "strict father, and kind mother" is often referenced to reflect the traditional roles of Chinese parenting philosophy, the smaller family size, reduced gender role differentiations and female labor force participation in response to decades of social transformations in China may have altered these expectations and parenting behaviors (Chang et al., 2011; Li, 2020). For example, against the background of the one-child policy, most of these parents themselves were only children. A recent study showed that in two-child families in China, mothers who grew up without siblings reported more authoritative parenting styles and less authoritarian parenting styles than mothers who grew up with siblings (Fan & Chen, 2020). In addition, researchers have reported that Chinese fathers are engaged in warm parenting practices similar to (if not more than) Chinese mothers, and some empirical work has found that mothers tend to adopt more parental control than

fathers in modern China (Li, 2020; Shek, 2005). Some Chinese scholars have now even suggested that traditional Chinese parenting practices of the past have been replaced with "strict mother, kind father" in contemporary Chinese societies (Shek, 2005).

## The present study

The present study extends prior research on the transition to siblinghood by investigating the cascading family influences between maternal and paternal rejection and children's internalizing and externalizing problems using a sample of 120 two-parent, mother–father Chinese families participating in a four-wave longitudinal study undergoing the transition from one child to two. We examined multiple transactional processes within the family by simultaneous modeling of fathers, mothers, and child effects using a random intercepts cross-lagged panel model (RI-CLPM; Hamaker et al., 2015), which accounts for stable between-person and actual within-person effects over time. The traditional CLPM fails to properly separate between-person differences from within-person differences, which is why the inclusion of a latent random intercept has been recommended (Hamaker et al., 2015). Because some have argued that causal relations are better explored with a focus on the within-person rather than the between-person level (Berry & Willoughby, 2017), we disentangled the within-person variance from the between-person variance when examining the reciprocal relations across the transition. In this way, we were able to determine the extent to which the relations between parental rejection and firstborn children's adjustment problems emerge at the within-person or between-person levels. In contrast to the traditional CLPM, RI-CLPM provides less biased estimates of within-person longitudinal bidirectional relations and accounts for the large individual differences in children's responses to the birth of an infant sibling (Volling et al., 2017).

Given the significant changes occurring in the family shortly after the birth of an infant sibling and the rapid developmental advances in infant abilities in the following year, bidirectional associations between parental rejection and children's adjustment might differ during certain periods of time (Serbin et al., 2015). Given the current research design (prebirth and 1, 6, and 12 months postbirth), we predicted that cross-lagged effects might be more salient from prebirth to 1-month postbirth, a time of disruption and adjustment for the entire family (Volling et al., 2017) and from 6 to 12 months after the birth due to mothers' going back to work. Because of the overall lack of literature on the transition to siblinghood, in general, and no extant longitudinal research on Chinese families, the current study is an exploratory investigation of the bidirectional links of maternal and paternal rejection

with children's behavior problems. As such, we make no firm hypotheses regarding the differential effects of mothers and fathers in the patterns proposed above, as well as the direction of those effects.

## METHOD

### Participants

This study was conducted in Shanghai, which is one of the most developed cities in China, and where the local government has actively responded to the low fertility rates by providing multiple supporting measures (e.g., maternity and day care services). One hundred and twenty families, including mothers, fathers, and their firstborn children ($M = 49.9$ months, $SD = 15.4$; 55% boys), participated in a four-wave longitudinal study on the transition following the birth of a sibling. Initially, two-parent families were recruited from 2016 to 2018 through online advertisements, day care centers, and local birth announcements. Families had to meet several criteria for participation: (1) mothers had to be expecting their second child; (2) firstborn children had to be between the ages of 2 and 6; and (3) the biological father of the infant had to be residing in the home. The study involved four assessment periods starting in the last trimester of the mother's pregnancy with the second infant and then again when the infant was 1, 6, and 12 months of age. In this sample, fathers were, on average, 35.4 years of age and had completed 16.9 years of education, whereas mothers were, on average, 33.6 years old and had completed 16.7 years of education. Median family annual income reported by parents ranged from 360,000 Chinese Yuan (≈56,520 U.S. dollars) to 400,000 Chinese Yuan (≈62,800 U.S. dollars). According to a recent report in the *Shanghai Statistical Yearbook*, annual disposable family income in 2020 was about 183, 469 Chinese Yuan (≈27,759 U.S. dollars) in Shanghai (Shanghai Municipal Bureau of Statistics, 2021). In the sample, 100% of couples were married. The length of marriage ranged from 2 to 15 years ($M = 6.95$, $SD = 2.36$). 100% of fathers worked full-time, and 96.9% of mothers worked full-time at the prenatal time point with 78.9% of mothers returning to work full-time after 6 months of the birth, and 84% of them after 12 months. We did not access the ethnic background information of the family in the present study. But according to the statistical report from the seventh population census of China in 2021, almost all of the population in Shanghai (98.4%) is of Han decent, and only 1.6% of them are ethnic minorities.

Of the initial 120 families recruited, 101 families remained in the study and participated at the 12-month time point. Nineteen families had missing data at 12 months. They dropped out for a variety of reasons (e.g., no longer interested, moving from Shanghai, and not enough time). Fathers and mothers who dropped out from the study were older, $Fs > 5.7$, $ps < .02$, and more mothers worked part-time than full-time ($\chi^2 = 9.55$, $p < .01$) compared to those families who remained in the study. There were no other significant differences between the families lost to attrition and the families who remained at 12 months. Results from Little's missing completely at random (MCAR) test ($\chi^2 = 379.84$, $p > .05$) suggested that missing cases were likely to be MCAR(Little, 1988).

### Procedure

This study was approved by the Institutional Review Board at Fudan University. After parents had provided written, informed consent to participate, one home visit was conducted by two research assistants at each timepoint. Data were collected using multiple methods, including interviews, observations of family interaction, and questionnaires. Information for the current analyses was obtained from mothers' and fathers' questionnaires on parental rejection and their children's behavior problems before and after the sibling's birth at each of the four times (i.e., prenatal, 1, 6, and 12 months).

### Measures

#### Children's internalizing and externalizing problems

Mothers and fathers independently completed the Chinese version (Wan & Lam, 2010) of the Child Behavior Checklist (CBCL/1.5–5; Achenbach & Rescorla, 2000) for their firstborn at the four times. The CBCL consists of two subscales: internalizing (e.g., "feelings are easily hurt") and externalizing problems (e.g., "gets in many fights") which are rated on a 3-point scale ranging from 0 ("never") to 2 ("often"). The subscale scores for both maternal and paternal reports were created separately. Correlations between mothers' and fathers' reports on both internalizing and externalizing problems revealed significant correlations in the moderate range across the four timepoints. Internalizing problems, $r = .29–.51$, $M = 0.38$, all $ps < .01$; and externalizing problems, $r = .36–.52$, $M = 0.44$, all $ps < .001$. To reduce single reporter bias, robust composites were calculated by averaging across maternal and paternal subscale scores within each timepoint (Volling et al., 2017). The internal consistency reliabilities across four timepoints ranged from 0.82 to 0.93, with an average of 0.88 for internalizing problems, and ranged from 0.85 to 0.92 with an average of 0.90 for externalizing problems.

## Parental rejection

Mothers and fathers independently completed the Chinese version (Putnick et al., 2015) of the four-item *rejection* (e.g., "When my child misbehaves, I make him/her feel I don't love him/her anymore.") subscale of the Parental Acceptance-Rejection/Control Questionnaire (Rohner, 2005), using a 4-point scale ranging from 1 ("almost never") to 4 ("every day") at each of the four times of measurement. Items were averaged to create scores for maternal and paternal rejection at each time, with internal consistency reliabilities ranging from 0.56 to 0.76 across the four time-points; average of 0.66 for maternal rejection, and 0.68 for paternal rejection.

### Data analysis procedure

To test the hypothesized transactional processes between parental rejection and children's behavior problems, structural equation modeling (SEM) was conducted using Mplus 7.0 (Muthén & Muthén, 2012), and missing data were handled using full information maximum likelihood estimation procedures (Schafer & Graham, 2002). We disentangled the within-person effects from the between-person effects and further tested our hypotheses by using RI-CLPM. Between-person effects were measured via cross-time averages, whereas within-person effects were measured by centering each time point on the within-person cross time average. Two RI-CLPMs, one for internalizing (Figure 1) and one for externalizing problems (Figure 2) were estimated separately, to ensure an acceptable parameter-to-N ratio (Little, 2013). To rule out potential confounds, demographic variables such as children's age and gender, parental age and education, family income, and maternal employment status were examined in preliminary analyses to determine if they should be included as covariates in the models. Previous literature showed that children's age and gender, parental age and education, family income, and maternal employment status were associated with parental rejection and/or behavior problems (e.g., Lemmon et al., 2018; Putnick et al., 2015; Tran et al., 2021; Yan et al., 2021). Bivariate correlations (see Table S1) revealed only a few significant relations. Boys received greater prenatal paternal rejection than girls. Parents' reports of externalizing problems at prebirth and 1 month post-birth were negatively associated with children's age. Children whose mothers returned back to work after 6 and 12 months had more externalizing problems at 12 months post-birth than children whose mothers did not return back to work after 6 and 12 months. Variables showing significant associations with parental rejection and child adjustment at specific timepoints were then included as covariates in the final models. Non-significant covariates were not included in

the final models to avoid over control and decreasing statistical power (Becker, 2005).

In addition, tests for normality were performed and indicated that internalizing problems at 6 months (skewness = 1.35, and kurtosis = 2.93), paternal rejection at 6 months (skewness = 2.07, and kurtosis = 5.46) and paternal rejection at 12 months (skewness = 2.74, and kurtosis = 12.26) were positively skewed and leptokurtic. These three variables were normalized using log transformations and the main analyses were run twice, once with the original values and the other with log-transformed values. Estimates and model fit indices were nearly identical and did not change the overall results. For ease of interpretation, only the findings obtained from the analyses based on original non-transformed values were reported.

## RESULTS

### Descriptive analyses

Table S2 shows descriptive statistics and Pearson's correlations among variables. Generally, the magnitudes of the autocorrelations were moderate to large. Concurrent correlations across parenting and children's behavior problems were small to moderate in size, with the exception of the associations between internalizing and externalizing problems at all time points, which were high.

In addition, Table S3 shows the means of maternal and paternal reports of children's behavior problems and paired sample t-test statistics. Furthermore, Table S4 shows the correlations of maternal and paternal reports of children's behavior problems with maternal and paternal rejections.

### Bidirectional relations between parental rejection and Children's behavior problems

To test bidirectional relations at the individual level, we used RI-CLPM to explore the within-person dynamics in parental rejection and children's behavior problems after controlling for stable between-person variance. First, we calculated intra-class correlations (ICC) for parental rejection and behavior problems. ICCs represent the proportion of the variance that is explained by the between-person level relative to the total variance. Based on the ICCs, 59.38% of the variance in internalizing problems and 60.94% of the variance in externalizing problems was explained by differences between persons, with the remaining variance reflecting fluctuations within persons over time. For parental rejection, 45.64% of the variance for maternal rejection and 32.48% of the variance for paternal rejection were due to stable between-person
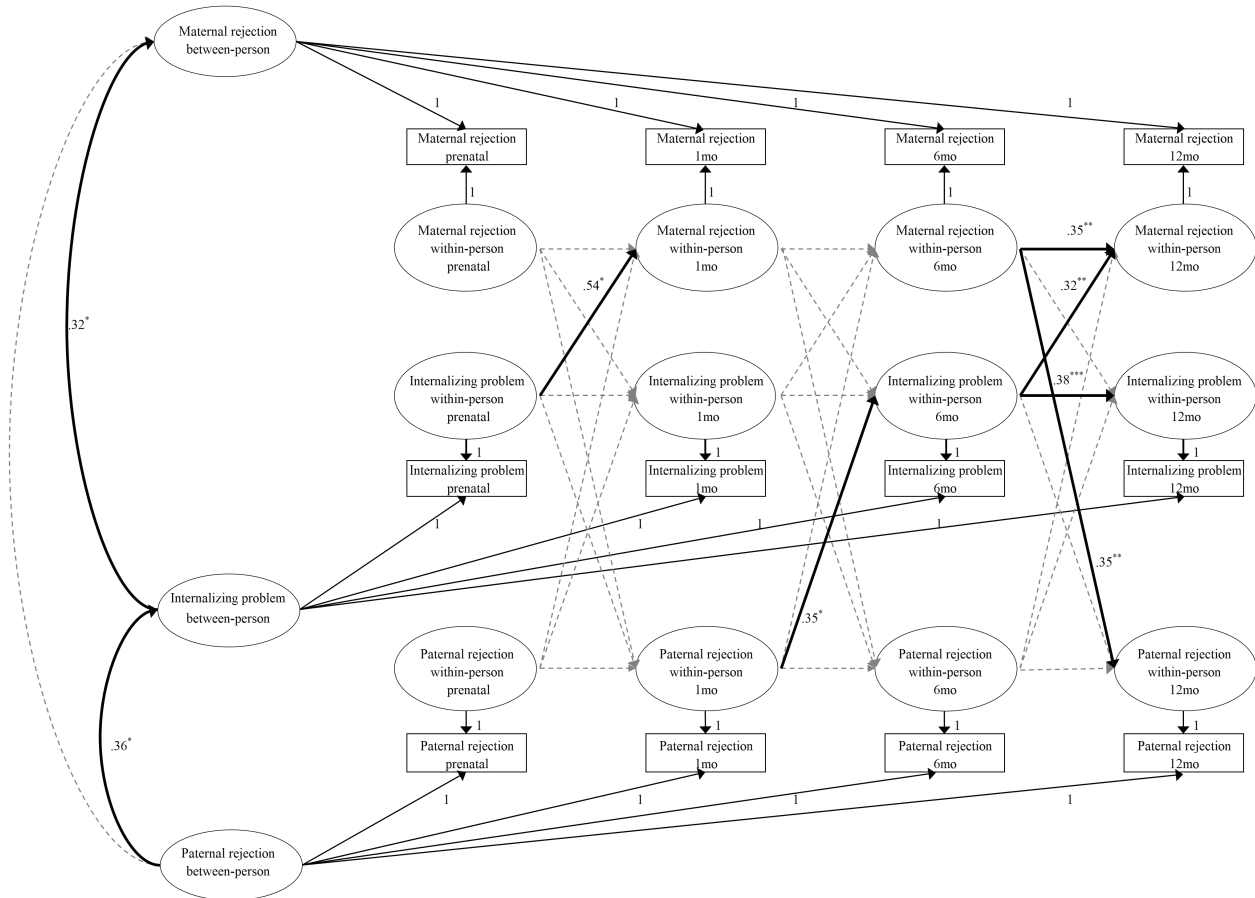
**FIGURE 1** Random intercept cross-lagged panel model for children's internalizing problems. *Note*: For the ease of presentation, concurrent correlations (e.g., maternal and paternal rejection were significantly related at 6 months) at the within-person level are not pictured, but can be found in Table 1. Significant paths and standardized estimates are shown in bold. The faded and dashed arrows indicate paths that were estimated but were not statistically significant. The standardized estimates, SE, *t* values and *p* vales of all these parameters for internalizing problems are presented in the left column of Table 1. Demographic variables which were significantly related to the study variables in Table S1 were included as covariates. *$p < .05$. **$p < .01$. ***$p < .001$

differences, with the rest due to within-person fluctuations over time.

The final models are shown in Figure 1 for internalizing behavior problems and Figure 2 for externalizing behavior problems. Evaluation of model fit was based on several fit indices including the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Values close to or greater than 0.95 are desirable on the CFI, while the RMSEA and SRMR should preferably be less than or equal to 0.08 (Hu & Bentler, 1999). The model for internalizing problems had excellent fit, $\chi^2(86) = 86.29$, $p = .47$, RMSEA = 0.01, CFI = 1.00, SRMR = 0.06, and the model for externalizing problems also had satisfactory model fit, $\chi^2(93) = 100.49$, $p = .28$, RMSEA = 0.03, CFI = 0.98, SRMR = 0.07. Figure 1 shows findings for parental rejection and internalizing problems. At the between-person level, there were positive relations between internalizing problems and both maternal and paternal rejection. At the within-person level, few autoregressive

paths were significant. These within-person stabilities only occurred for internalizing problems and for maternal rejection between 6 and 12 months. Moreover, for the cross-lagged associations at the within-person level, more child-driven effects were observed, especially for mothers. Specifically, children's internalizing problems prenatally predicted higher maternal rejection at 1 month, and internalizing problems at 6 months predicted higher maternal rejection at 12 months. There were no cross-lag paths with maternal rejection predicting children's internalizing at any point at the within-person level, once the between-person relations were taken into consideration. In addition, paternal rejection at 1 month predicted higher levels of children's internalizing problems at 6 months, but there were no child-driven cross-lag paths predicting paternal rejection at any time. Furthermore, cross-parent relations indicated that maternal rejection at 6 months predicted more paternal rejection at 12 months. Finally, concurrent correlations are shown in Table 1, but not included in Figure 1 for ease of presentation. Maternal
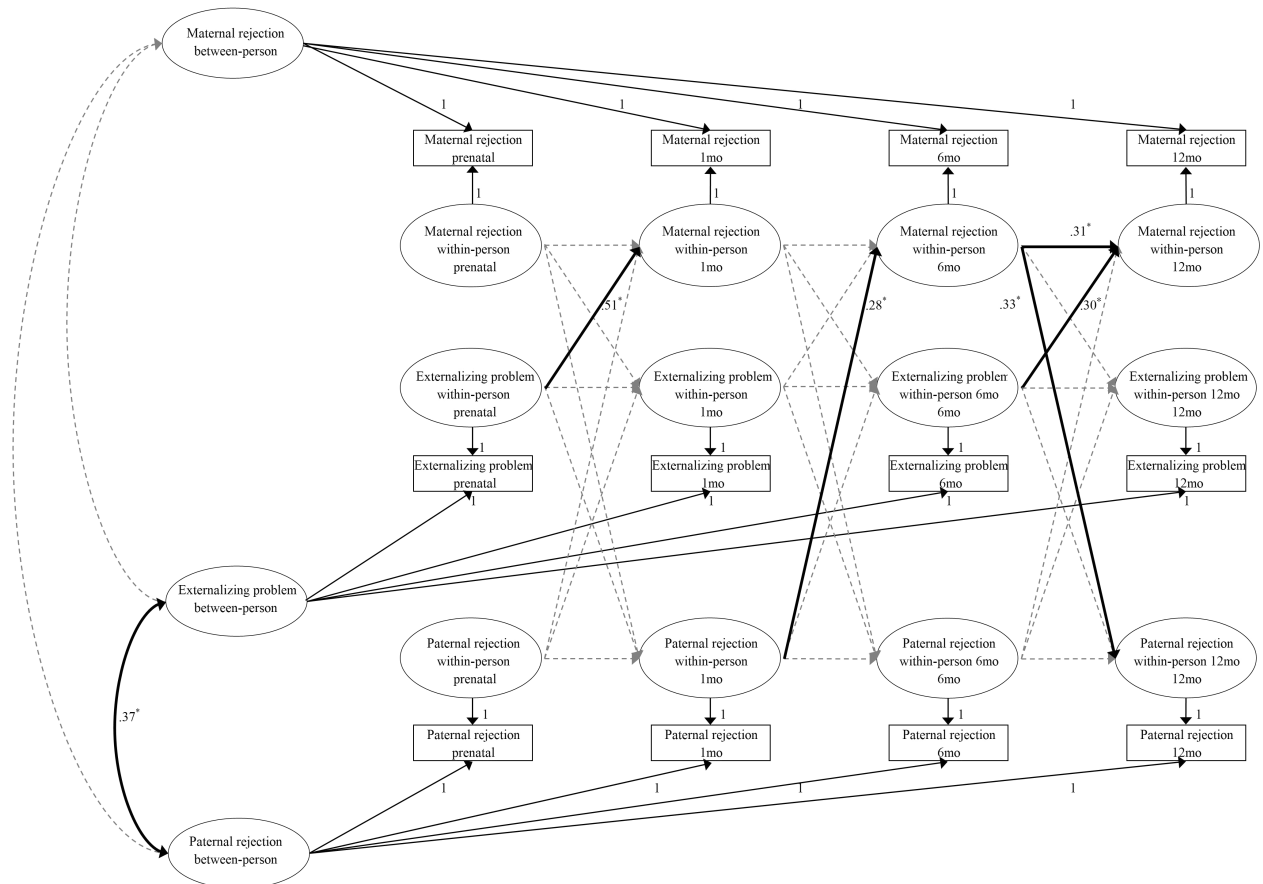
**FIGURE 2** Random intercept cross-lagged panel model for children's externalizing problems. *Note*: For the ease of presentation, concurrent correlations (e.g., maternal and paternal rejection were significantly related at both 1 and 6 months) on the within-person level are not pictured, but they are shown in Table 1. Significant paths and standardized estimates are shown in bold. The faded and dashed arrows indicate paths that were estimated but were not statistically significant. The standardized estimates, SE, *t* values and *p* vales of all these parameters for externalizing problems are presented in the right column of Table 1. Demographic variables which were significantly related to the study variables in Table S1 were included as covariates. *$p < .05$

and paternal rejection were significantly related at 6 months, and maternal rejection was significantly related to internalizing problems at 12 months.

Figure 2 shows results from the RI-CLPM for children's externalizing problems. At the between-person level, only paternal rejection showed a positive association with children's externalizing problems. At the within-person level, there was only one significant autoregressive path for maternal rejection from 6 to 12 months. Child-directed effects were also found with children's externalizing problems at the prenatal time-point predicting maternal rejection at 1 month after the birth and externalizing problems at 6 months predicting maternal rejection at 12 months. There were no cross-lag paths with maternal rejection predicting children's externalizing at any point at the within-person level, once the between-person relations were taken into consideration. There were no child-driven cross-lag paths predicting paternal rejection, nor did paternal rejection predict externalizing behaviors at any time. Furthermore, cross-parent paths indicated that

paternal rejection at 1 month predicted maternal rejection at 6 months, and maternal rejection at 6 months predicted increased paternal rejection at 12 months. Finally, concurrent correlations on the within-person level (not shown in the figure) are shown in Table 1. Maternal and paternal rejection were significantly related at both 1 and 6 months, and maternal rejection was significantly related to externalizing problems at 6 months.

Last, for comparative purposes, the standard CLPMs for internalizing problems (see Figure S1) and externalizing problems (see Figure S2) can be found in Supporting Information. Similar to the RI-CLPMs above, both children's prenatal internalizing and externalizing problems predicted higher maternal rejection at 1 month, both internalizing and externalizing problems at 6 months predicted higher maternal rejection at 12 months, paternal rejection at 1 month predicted higher levels of children's internalizing problems at 6 months, and maternal rejection at 6 months predicted increased paternal rejection at 12 months.

**TABLE 1** RI-CLPMs linking parental rejection and internalizing and externalizing problems

| | Internalizing problems | | | | Externalizing problems | | | |
|---|---|---|---|---|---|---|---|---|
| | Est.(std) | SE | t | p | Est.(std) | SE | t | p |
| **Cross-lagged effects** | | | | | | | | |
| MaREJ (P) → BP (1) | −.01 | 0.22 | −0.03 | .98 | −.08 | 0.22 | −0.35 | .73 |
| MaREJ (1) → BP (6) | −.01 | 0.16 | −0.05 | .96 | .10 | 0.19 | 0.51 | .61 |
| MaREJ (6) → BP (12) | .15 | 0.13 | 1.16 | .25 | .13 | 0.17 | 0.80 | .42 |
| PaREJ (P) → BP (1) | −.13 | 0.22 | −0.61 | .54 | −.32 | 0.25 | −1.28 | .20 |
| PaREJ (1) → BP (6) | .35 | 0.16 | 2.11 | .04 | .22 | 0.20 | 1.11 | .27 |
| PaREJ (6) → BP (12) | .12 | 0.12 | 0.98 | .33 | .01 | 0.15 | 0.09 | .93 |
| BP (P) → MaREJ (1) | .54 | 0.22 | 2.44 | .02 | .51 | 0.21 | 2.39 | .02 |
| BP (1) → MaREJ (6) | −.04 | 0.14 | −0.29 | .77 | .05 | 0.15 | 0.35 | .73 |
| BP (6) → MaREJ (12) | .32 | 0.11 | 2.94 | .00 | .30 | 0.14 | 2.15 | .03 |
| BP (P) → PaREJ (1) | .17 | 0.24 | 0.69 | .49 | −.14 | 0.28 | −0.49 | .62 |
| BP (1) → PaREJ (6) | −.02 | 0.14 | −0.14 | .89 | −.03 | 0.14 | −0.21 | .84 |
| BP (6) → PaREJ (12) | −.03 | 0.13 | −0.22 | .83 | .06 | 0.17 | 0.35 | .73 |
| MaREJ (P) → PaREJ (1) | −.02 | 0.18 | −0.11 | .91 | .02 | 0.20 | 0.10 | .92 |
| MaREJ (1) → PaREJ (6) | −.10 | 0.14 | −0.68 | .50 | −.09 | 0.14 | −0.68 | .50 |
| MaREJ (6) → PaREJ (12) | .35 | 0.14 | 2.61 | .01 | .33 | 0.14 | 2.38 | .02 |
| PaREJ (P) → MaREJ (1) | −.10 | 0.17 | −0.58 | .56 | −.04 | 0.19 | −0.21 | .83 |
| PaREJ (1) → MaREJ (6) | .27 | 0.15 | 1.77 | .08 | .28 | 0.14 | 2.00 | .05 |
| PaREJ (6) → MaREJ (12) | −.06 | 0.12 | −0.46 | .65 | −.10 | 0.13 | −0.77 | .44 |
| **Autoregressive paths** | | | | | | | | |
| BP (P) → BP (1) | −.06 | 0.33 | −0.18 | .86 | −.04 | 0.32 | −0.12 | .91 |
| BP (1) → BP (6) | .10 | 0.15 | 0.63 | .53 | .02 | 0.22 | 0.09 | .93 |
| BP (6) → BP (12) | .38 | 0.12 | 3.22 | < .001 | .23 | 0.18 | 1.23 | .22 |
| MaREJ (P) → MaREJ (1) | −.14 | 0.20 | −0.70 | .49 | −.14 | 0.20 | −0.70 | .49 |
| MaREJ (1) → MaREJ (6) | .28 | 0.15 | 1.86 | .06 | .24 | 0.14 | 1.70 | .09 |
| MaREJ (6) → MaREJ (12) | .35 | 0.12 | 2.84 | .01 | .31 | 0.14 | 2.21 | .03 |
| PaREJ (P) → PaREJ (1) | .11 | 0.17 | 0.61 | .54 | .02 | 0.24 | 0.10 | .92 |
| PaREJ (1) → PaREJ (6) | .10 | 0.16 | 0.63 | .53 | .13 | 0.15 | 0.86 | .39 |
| PaREJ (6) → PaREJ (12) | −.02 | 0.14 | −0.12 | .91 | .00 | 0.14 | 0.00 | 1.00 |
| **Between-person associations** | | | | | | | | |
| MaREJ with BP | .32 | 0.15 | 2.13 | .03 | .26 | 0.15 | 1.75 | .08 |
| PaREJ with BP | .36 | 0.15 | 2.38 | .02 | .37 | 0.16 | 2.31 | .02 |
| MaREJ with PaREJ | .22 | 0.19 | 1.16 | .25 | .26 | 0.18 | 1.43 | .15 |
| **Within-person concurrent associations** | | | | | | | | |
| MaREJ with BP (P) | .27 | 0.22 | 1.22 | .22 | .31 | 0.17 | 1.78 | .07 |
| PaREJ with BP (P) | −.12 | 0.24 | −0.52 | .60 | −.30 | 0.20 | −1.45 | .15 |
| MaREJ with PaREJ (P) | −.06 | 0.17 | −0.36 | .72 | −.10 | 0.18 | −0.58 | .57 |
| MaREJ with BP (1) | .40 | 0.26 | 1.56 | .12 | .27 | 0.26 | 1.04 | .30 |
| PaREJ with BP (1) | .16 | 0.21 | 0.75 | .45 | .02 | 0.26 | 0.08 | .94 |
| MaREJ with PaREJ (1) | .28 | 0.18 | 1.58 | .12 | .40 | 0.19 | 2.17 | .03 |
| MaREJ with BP (6) | .17 | 0.13 | 1.32 | .19 | .33 | 0.14 | 2.31 | .02 |
| PaREJ with BP (6) | .07 | 0.13 | 0.55 | .58 | .28 | 0.15 | 1.85 | .06 |
| MaREJ with PaREJ (6) | .13 | 1.98 | 0.05 | .05 | .27 | 0.12 | 2.17 | .03 |

**TABLE 1** (Continued)

| | Internalizing problems | | | | Externalizing problems | | | |
|---|---|---|---|---|---|---|---|---|
| | Est.(std) | SE | t | p | Est.(std) | SE | t | p |
| MaREJ with BP (12) | .33 | 0.11 | 2.89 | .00 | .07 | 0.13 | 0.53 | .59 |
| PaREJ with BP (12) | .19 | 0.12 | 1.57 | .12 | .23 | 0.13 | 1.75 | .08 |
| MaREJ with PaREJ (12) | .09 | 0.13 | 0.66 | .51 | .03 | 0.13 | 0.19 | .85 |

*Note:* 1 = 1 month; 6 = 6 months; 12 = 12 months. Demographic variables which were significantly related to the study variables in Table S1 were included as covariates.

Abbreviations: BP, behavior problems; Est.(std), standardized estimates (i.e., $\beta$ or $r$); MaREJ, maternal rejection; P, prenatal; PaREJ, paternal rejection; RI-CLPM, random intercepts cross-lagged panel model.

# DISCUSSION

The birth of a baby sibling represents an important developmental transition for both parents and firstborn children. Due to the reversal of the one-child policy in China starting in 2016, this developmental transition has even more cultural significance. After decades of one-child families, few parents or professionals have experience with raising two children, dealing with the adjustment issues of firstborn children when the infant sibling is born, and having practical information available for Chinese parents as to how to manage the transition for both themselves and their children. Thus, macro-level policy changes by the Chinese government resulted in a different ecological and developmental context in which to understand the transition to siblinghood. By using the developmental cascade framework, the current study, advanced research on the transition following the birth of a second child in several ways. First, the study was conducted in China and provided some of the first longitudinal data on the transition since the one-child policy was lifted in 2016. Second, the study collected information from both mothers and fathers in two-parent families and followed them across four longitudinal time points, once before the infant was born and then 1, 6, and 12 months after the birth. Third, we focused on parental rejection as a disciplinary strategy consistent with the cultural practices of a collectivist society such as China where parents socialize children to regulate their behavior and maintain social harmony in the family. Finally, we examined the bidirectional relations between parental rejection and children's behavior problems with both mothers and fathers across time using newly recommended RI-CLPM modeling to disentangle between-person from within-person relations.

## Parental rejection and behavior problems after the birth of an infant sibling in Chinese families

Because of the significant changes noted in the mother–firstborn relationship after the birth of a baby sibling, including decreases in mutual attention, joint play, and being held or cuddled, as well as increases in confrontations and prohibitions between mothers and children (e.g., Kendrick & Dunn, 1980), we reasoned that Chinese parents, in response to children's difficult behavior, may use a form of love withdrawal or parental rejection to manage their children and restore family harmony. Earlier findings on the transition were from predominantly western countries such as the United States and Western Europe, which differ from China not only with respect to cultural practices and beliefs about parenting, but also do not have a history of government restrictions on child-bearing that altered the number of children (i.e., siblings) in Chinese families for decades. This study was the first to explore the bidirectional associations between paternal and maternal rejection and children's internalizing and externalizing problems across this transition with the goal of understanding the family processes that may give rise to children's adjustment problems in Chinese culture.

To examine the bidirectional associations, we also used a relatively novel statistical approach (i.e., the RI-CLPM) recommended to separate the within-person effects from the between-person effects. Hamaker and colleagues (Hamaker et al., 2015; Mulder & Hamaker, 2021) have argued that autoregressive effects are typically smaller in the RI-CLPM (i.e., closer to 0) than the standard CLPM, given the RI-CLPM reflects the stability of the within-person fluctuations from one's average over time. This appeared to be the case here, as most of the autoregressive paths reflecting within-person differences revealed little stability for parental rejection and children's behavior problems (compared with the autoregressive paths in the standard CLPM, which may be found in Supporting Information), once the trait-like between-person variability was partitioned from the within-person variance by including the random intercepts. These results suggest that when parents were relatively high in their rejecting parenting behaviors at one point, they were not necessarily using more rejecting parenting behaviors at another. Similarly, children whose adjustment problems were high at one point were not necessarily high in their adjustment problems several months later. Interestingly, the development of internalizing problems seemed to be stable from 6 to 12 months

(i.e., a time when mothers often return to work), but this was not the case for externalizing problems. Existing evidence based on U.S. children has shown that there was an initial increase in aggression in the 1st month after the birth of a sibling, but then returned to pre-birth levels by 4 months and remained fairly stable for the remainder of the first year (Volling et al., 2017). It seems to be true for internalizing problems in our study, but not for externalizing problems. The bivariate correlations showed that children, whose mothers returned to work after 6 months, were more likely to show externalizing problems than children whose mothers did not return to work. Young children often react with increases in challenging behavior when stressed (Campbell, 2002). Perhaps, mothers' transition back to employment is one additional stressor in these children's lives after already experiencing the stress of the baby sibling's birth and why externalizing symptoms were not stable. Similarly, additional stresses connected to employment may also explain why maternal rejection, but not paternal rejection, was stable from 6 to 12 months. Mothers may also be stressed having to manage the birth and care of a newborn infant at the same time as having to return to work at the end of maternal leave (Symons, 1998). Thus, at the within-person level, children's adjustment problems may be sensitive to changes in parenting that coincide with the sub-transition periods surrounding childbirth in Chinese families. We elaborate further on this issue later when we discuss relations between parental rejection and children's behavior problems.

## Between-person versus within-person effects in the family

When looking at the between-person effects, we found that there were significant positive associations between parental rejection (for mothers and fathers) and children's internalizing problems, and between paternal rejection and children's externalizing problems only. Stable between-person correlations suggested that paternal rejection was positively associated with both children's externalizing and internalizing problems. One potential explanation for why paternal rejection and not maternal rejection was associated with children's behavior problems is that Chinese fathers may be relying on common caregiving beliefs that "strict fathers raise filial children" and that "the misbehavior of children is their fathers' fault." Hence such associations can stably exist across families. In other words, strict discipline, in terms of love withdrawal and rejection in order to maintain social harmony in the family, may be seen as the primary duty of Chinese fathers across childhood and may, therefore, explain these why fathers' parenting was related to both internalizing and externalizing behaviors. Such an interpretation is consistent with recent evidence in the United States showing that fathers'

discipline and child care involvement predicted increases in children's internalizing and externalizing problems after the birth of a sibling (Volling et al., 2017, 2020). Paternal rejection in the early months following the birth may be particularly important for understanding children's overall adjustment across families considering that mothers' main focus may be on the newborn baby during the transition period (Volling et al., 2020).

Once stable interindividual differences in parental rejection were taken into consideration, however, there was very little evidence at the within-person level that what mothers and fathers did at one point in time predicted increases or decreases in children's behaviors at a subsequent point in time, and vice versa. We should note though that there were concurrent associations between maternal rejection and children's behavior problems at 6 and 12 months post-birth, as well as paternal and maternal rejection at 1 and 6 months post-birth. Therefore, even if there are few cross-lag associations over time for either mothers or fathers, both mothers' and fathers' parenting was related to children's behavior problems within time, especially at 1 and 6 months after the birth of the sibling. Our findings are consistent with a family systems perspective wherein children, fathers, and mothers are viewed as interdependent, each influencing one another after the birth of a sibling. We now turn to the principal findings from the RI-CLPM to address within-family effects across time in order to understand how parents and children managed the transition.

## Children's behavior problems increase maternal rejection

The findings from the within-family effects showed that higher levels of internalizing and externalizing problems before the infant sibling's birth, relative to the child's own average, were associated with increased maternal rejection at 1 month following the birth, relative to the mother's own average. Similarly, higher levels of internalizing and externalizing problems at 6 months were associated with increased maternal rejection at 12 months. However, children's behaviors did not predict paternal rejection. In addition, there were no significant paths between maternal rejection and children's behavior problems at any point in time. Only higher levels of paternal rejection at 1 month, relative to the father's own average, predicted increases in children's internalizing problems 5 months later, relative to the child's own average.

One possible explanation for the findings with mothers may lie in Chinese collectivist cultural values. Although maternal rejection is thought to be harmful as it undermines children's feelings of emotional connection from their mothers (Rohner et al., 2005), collectivism and Confucianism traditions in Chinese societies emphasize that individuals should actively accommodate

themselves to others in their social interactions (Fung & Lau, 2012). Therefore, socialization goals are aimed at educating children to regulate both behavioral and emotional expressions, and to promote affiliative skills that maintain family harmony and the social hierarchy in the family (Chao & Tseng, 2002; Chen & Chang, 2012; Eisenberg et al., 2006). In prior work, both internalizing problems (e.g., withdrawn behaviors) and externalizing problems (e.g., aggressive behaviors) were regarded by Chinese mothers as problematic and undermined the socialization goals of social harmony and interdependence (Cheah & Rubin, 2004). Once the infant sibling was born, Chinese mothers guided by these traditional cultural values may consciously or unconsciously adopt parental rejection as a disciplinary approach to train children to be good role models during the early stages of the developing sibling relationship. Chinese mothers have reported that responding in a timely manner to children's behavior problems is the basis for establishing harmonious sibling relationships consistent with collectivistic cultural values (Chen & Tan, 2021).

With respect to cultural practices, it is also important to consider how children's problematic behaviors are managed by Chinese mothers given the two sub-transition periods (i.e., the postpartum recovery period and the period of the transition back to work), both of which may result in high levels of maternal stress on top of the birth of a newborn infant and caring for two children. Problematic child behaviors may elicit more maternal rejection when mothers are more stressed (Yan et al., 2021). Chinese mothers may be more inclined to decrease warmth, affection, and love toward children to try and curb problematic behavior. Further, finding child effects from prenatal to 1 month and 6 to 12 months (but not 1 to 6 months) coincides with the timing of the additional stresses experienced by mothers and children during the two sub-transitions. Child-driven effects may be more pronounced during more stressful periods during the sub-transitions and these effects may be stronger for Chinese mothers than fathers.

For the parent-driven effects, only paternal rejection at 1 month predicted increases in children's internalizing problems at 6 months. Some have argued that when fathers take an active and supportive role shortly after the transition, children adjust better to becoming an older sibling, whether through direct child care (Kuo et al., 2018), effective discipline (Volling et al., 2017) or supportive coparenting with the mother (Volling et al., 2020). When fathers use more rejection immediately following the birth, rather than supporting their emotionally and behaviorally distressed children, this may actually increase children's maladaptive coping and internalizing problems. Further, children's internalizing behavior at 6 months predicted greater maternal rejection at 12 months, suggesting that negative spillover may also be occurring across family subsystems and creating a negative cycle between parental rejection and children's

internalizing behaviors over time (see the indirect effects in Table S5). Together, there appears to be a cascade of coercive influence across the family system such that fathers' use of rejection shortly after birth predicts increases in mothers' rejection at 6 months, which, in turn, continues to predict more paternal rejection at the end of the first year. These results underscore the interdependent connections and potential spillover across father–child and mother–child relationships consistent with the perspective of the developmental cascade model.

## LIMITATIONS AND CONCLUSIONS

Despite the many strengths of this research, we must also acknowledge the limitations. First, we focused on the bidirectional associations between parental rejection and children's problem behaviors across a short time frame in the first year after the birth of an infant sibling. It remains unclear what the long-term implications are for children's sibling relationships when parental rejection is a primary means of responding to children's problematic behaviors. Research with families in the United States and Canada has found that mothers' use of child-centered discipline that focused children's attention on the needs of others (e.g., the baby) and constructive problem-solving skills (e.g., compromise and reconciliation) to settle sibling conflicts resulted in more constructive conflict (reasoned arguments, negotiation, and justification) than destructive sibling conflict (aggression, coercion and avoidance) over time (e.g., Howe et al., 2001; Kramer et al., 1999). Future research will need to determine if such child-centered practices predict similar sibling relationship outcomes in Chinese families.

Second, parental rejection was assessed using parent reports and few items from a widely used and validated measure of parental rejection. Social desirability may have played a role in the results (Rohner et al., 2005). We relied on parent reports due to the young age of the children, but future research should consider children's perceptions of parental rejection, favoritism or differential treatment at older ages, which could provide important insights into the family processes that connect parenting, children's behavioral adjustment, and sibling relationship quality (Chen et al., 2021; Jensen & Whiteman, 2014; Rohner et al., 2005). We should also note that even though parental rejection may be used as a parenting strategy more often in China than some Western countries, it is still infrequently used compared to some other practices (e.g., induction; Helwig et al., 2014). Future studies should include more commonly used parental practices such as guilt induction, shaming, and critical comparison in Chinese contexts (Chen et al., 2021; Fung & Lau, 2012).

Third, although there are individual differences within samples of parents having a second child in

China, it should be noted that parents in our study grew up under the one-child policy and most of them did not have siblings themselves. Chinese parents who did not have siblings during their own childhoods may have greater anxiety and less confidence in their abilities to intervene in sibling conflict compared to those parents who had siblings (Chen & Tan, 2021). Also, in prior work with Chinese families, parents with siblings used less authoritative parenting compared to those parents without siblings (Fan & Chen, 2020). Because parents from rural China are more likely to have siblings than those parents from urban China, these differences in parenting may also be related to socioeconomic differences across rural and urban areas. Even though this is the first study to systematically conduct a longitudinal investigation of the transition to siblinghood to examine individual differences in Chinese children's adjustment, we advise caution in generalizing our results to Chinese parents with siblings, as well as to families undergoing the transition in other countries.

Finally, the present sample included parents in Shanghai from relatively higher SES, mostly college-educated families. Additional research is needed to explore how the transition is managed in Chinese families with limited financial resources. Also, there is economic, cultural and ethnic variation across geographic regions of China, and we did not assess cultural practices that reflect collectivist ideology. Future research must also acknowledge macro-level differences in government mandates and healthcare policies (e.g., paid maternal and paternal leave) that differ across countries, as these differences may also offer explanations for how parents and children experience important developmental transitions that go beyond individualistic and collectivistic childrearing ideologies.

Overall, by using RI-CLPM, this four-wave longitudinal research allowed a more rigorous exploration of the bidirectional, within-person associations between parental rejection and children's internalizing and externalizing problems across the transition to siblinghood in Chinese families. Taken as a whole, the results underscore the importance of "child-driven effects" and how Chinese parents react to their children's problematic behaviors across the transition to siblinghood, as well as how mothers and fathers work together to parent their children within a family system. The current findings have potential implications for intervention and prevention by improving positive parental practices in response to children's problematic behaviors in an effort to assist Chinese parents having a second child.

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## REFERENCES

Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for ASEBA preschool forms & profiles*. University of Vermont, Research Center for Children, Youth, & Families.

Baydar, N., Greek, A., & Brooks-Gunn, J. (1997). A longitudinal study of the effects of the birth of a sibling during the first 6 years of life. *Journal of Marriage and Family*, *59*, 939–956. https://doi.org/10.2307/353794

Becker, T. E. (2005). Potential problems in the statistical control of variables in organizational research: A qualitative analysis with recommendations. *Organizational Research Methods*, *8*, 274–289. https://doi.org/10.1177/1094428105278021

Berry, D., & Willoughby, M. T. (2017). On the practical interpretability of cross-lagged panel models: Rethinking a developmental workhorse. *Child Development*, *88*, 1186–1206. https://doi.org/10.1111/cdev.12660

Besnard, T., Verlaan, P., Davidson, M., Vitaro, F., Poulin, F., & Capuano, F. (2013). Bidirectional influences between maternal and paternal parenting and children's disruptive behaviour from kindergarten to grade 2. *Early Child Development and Care*, *183*, 515–533. https://doi.org/10.1080/03004430.2012.711597

Bornstein, M. H. (1995). Form and function: Implications for studies of culture and human development. *Culture & Psychology*, *1*, 123–137. https://doi.org/10.1177/1354067x9511009

Campbell, S. B. (2002). *Behavior problems in preschool children: Clinical and developmental issues*. Guilford Press.

Chang, L., Chen, B.-B., & Ji, L. Q. (2011). Attributions and attitudes of mothers and fathers in China. *Parenting: Science and Practice*, *11*, 102–115. https://doi.org/10.1080/15295192.2011.585553

Chao, R. K., & Tseng, V. (2002). Parenting of Asians. In M. H. Bornstein (Ed.), *Handbook of parenting* (Vol. *4*, 2nd ed., pp. 59–93). Lawrence Erlbaum Associates.

Cheah, C. S. L., & Rubin, K. H. (2004). European American and mainland Chinese mothers' responses to aggression and social withdrawal in preschoolers. *International Journal of Behavioral Development*, *28*, 83–94. https://doi.org/10.1080/01650250344000299

Chen, B.-B. (2012). The association between self-reported mother–child attachment and social initiative and withdrawal in Chinese school-aged children. *The Journal of Genetic Psychology*, *173*, 279–301. https://doi.org/10.1080/00221325.2011.609847

Chen, B.-B. (2020). The relationship between Chinese mothers' parenting stress and sibling relationships: A moderated mediation model of maternal warmth and co-parenting. *Early Child Development and Care*, *190*, 1350–1358. https://doi.org/10.1080/03004430.2018.1536048

Chen, B.-B., & Chang, L. (2012). Are 'Machiavellian' Chinese children well-adapted in the peer group? The relationship between resource acquisition strategies and social functioning and status. *Asian Journal of Social Psychology*, *15*, 122–131. https://doi.org/10.1111/j.1467-839X.2012.01373.x

Chen, B.-B., Qu, Y., & Chen, X. (2021). Chinese parents' comparisons of siblings and adolescents' internalizing and externalizing problems. *Development and Psychopathology*, *33*, 914–921. https://doi.org/10.1017/S095457942000022X

Chen, B.-B., & Tan, J.-P. (2021). Brothers and sisters in China: No longer the one-child family. In A. Buchanan & A. Rotkirch (Eds.), *Sibling relationships across the life course* (pp. 185–201). Palgrave Macmillan.

Ding, G., Tian, Y., Yu, J., & Vinturache, A. (2018). Cultural postpartum practices of 'doing the month' in China. *Perspectives in Public Health*, *138*, 147–149. https://doi.org/10.1177/1757913918763285

Du, F., Dong, X.-Y., & Zhang, Y. (2019). Grandparent-provided childcare and labor force participation of mothers with preschool children in urban China. *China Population and Development Studies*, *2*, 347–368. https://doi.org/10.1007/s42379-018-00020-3

Eisenberg, N., Zhou, Q., Liew, J., Champion, C., & Pidada, S. U. (2006). Emotion, emotion-related regulation, and social functioning. In X. Chen, D. C. French, & B. H. Schneider (Eds.), *Peer relationships in cultural context* (pp. 170–198). Cambridge University Press.

Fan, J., & Chen, B.-B. (2020). Parenting styles and coparenting in China: The role of parents and children's sibling status. *Current Psychology*, *39*, 1505–1512. https://doi.org/10.1007/s12144-019-00379-7

Fearon, R. M. P., & Belsky, J. (2011). Infant–mother attachment and the growth of externalizing problems across the primary-school years. *Journal of Child Psychology and Psychiatry*, *52*, 782–791. https://doi.org/10.1111/j.1469-7610.2010.02350.x

Feldman, R., Sussman, A. L., & Zigler, E. (2004). Parental leave and work adaptation at the transition to parenthood: Individual, marital, and social correlates. *Journal of Applied Developmental Psychology*, *25*, 459–479. https://doi.org/10.1016/j.appdev.2004.06.004

Fung, H., & Chen, E. C. H. (2001). Across time and beyond skin: Self and transgression in the everyday socialization of shame among Taiwanese preschool children. *Social Development*, *10*, 420–437. https://doi.org/10.1111/1467-9507.00173

Fung, J., & Lau, A. S. (2012). Tough love or hostile domination? Psychological control and relational induction in cultural context. *Journal of Family Psychology*, *26*, 966–975. https://doi.org/10.1037/a0030457

Hale, W. W., VanderValk, I., Akse, J., & Meeus, W. (2008). The interplay of early adolescents' depressive symptoms, aggression and perceived parental rejection: A four-year community study. *Journal of Youth and Adolescence*, *37*, 928–940. https://doi.org/10.1007/s10964-008-9280-0

Hamaker, E. L., Kuiper, R. M., & Grasman, R. P. P. P. (2015). A critique of the cross-lagged panel model. *Psychological Methods*, *20*, 102–116. https://doi.org/10.1037/a0038889

Harkness, S., & Super, C. M. (1996). *Parents' cultural belief systems: Their origins, expressions, and consequences*. Guilford Press.

Helwig, C. C., To, S., Wang, Q., Liu, C., & Yang, S. (2014). Judgments and reasoning about parental discipline involving induction and psychological control in China and Canada. *Child Development*, *85*, 1150–1167. https://doi.org/10.1111/cdev.12183

Hong, X., & Liu, Q. (2021). Parenting stress, social support and parenting self-efficacy in Chinese families: Does the number of children matter? *Early Child Development and Care*, *191*, 2269–2280. https://doi.org/10.1080/03004430.2019.1702036

Howe, N., Aquan-Assee, J., & Bukowski, W. M. (2001). Predicting sibling relations over time: Synchrony between maternal management styles and sibling relationship quality. *Merrill-Palmer Quarterly*, *47*, 121–141.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1–55. https://doi.org/10.1080/10705519909540118

Huston, A. C., & Aronson, S. R. (2005). Mothers' time with infant and time in employment as predictors of mother–child relationships and children's early development. *Child Development*, *76*, 467–482. https://doi.org/10.1111/j.1467-8624.2005.00857.x

Jensen, A. C., & Whiteman, S. D. (2014). Parents' differential treatment and adolescents' delinquent behaviors: Direct and indirect effects of difference-score and perception-based measures. *Journal of Family Psychology*, *28*, 549–559. https://doi.org/10.1037/a0036888

Kendrick, C., & Dunn, J. (1980). Caring for a second baby: Effects on interaction between mother and firstborn. *Developmental Psychology*, *16*, 303–311. https://doi.org/10.1037/0012-1649.16.4.303

Khaleque, A., & Rohner, R. P. (2002). Perceived parental acceptance-rejection and psychological adjustment: A meta-analysis of cross-cultural and intracultural studies. *Journal of Marriage and Family*, *64*, 54–64. https://doi.org/10.1111/j.1741-3737.2002.00054.x

Kramer, L., Perozynski, L. A., & Chung, T.-Y. (1999). Parental responses to sibling conflict: The effects of development and parent gender. *Child Development*, *70*, 1401–1414. https://doi.org/10.1111/1467-8624.00102

Kreppner, K. (1988). Changes in parent-child relationships with the birth of the second child. *Marriage & Family Review*, *12*, 157–181. https://doi.org/10.1300/J002v12n03_09

Kuo, P. X., Volling, B. L., & Gonzalez, R. (2018). Gender role beliefs, work–family conflict, and father involvement after the birth of a second child. *Psychology of Men & Masculinity*, *19*, 243–256. https://doi.org/10.1037/men0000101

Lansford, J. E., Chang, L., Dodge, K. A., Malone, P. S., Oburu, P., Palmérus, K., Bacchini, D., Pastorelli, C., Bombi, A. S., Zelli, A., Tapanya, S., Chaudhary, N., Deater-Deckard, K., Manke, B., & Quinn, N. (2005). Physical discipline and children's adjustment: Cultural normativeness as a moderator. *Child Development*, *76*, 1234–1246. https://doi.org/10.1111/j.1467-8624.2005.00847.x

Leary, M. R., Twenge, J. M., & Quinlivan, E. (2006). Interpersonal rejection as a determinant of anger and aggression. *Personality and Social Psychology Review*, *10*, 111–132. https://doi.org/10.1207/s15327957pspr1002_2

Lemmon, M., Patterson, S. E., & Martin, M. A. (2018). Mothers' time and relationship with their adolescent children: The intersecting influence of family structure and maternal labor force participation. *Journal of Family Issues*, *39*, 2709–2731. https://doi.org/10.1177/0192513x18756929

Li, X. (2020). Fathers' involvement in Chinese societies: Increasing presence, uneven progress. *Child Development Perspectives*, *14*, 150–156. https://doi.org/10.1111/CDEP.12375

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, *83*, 1198–1202. https://doi.org/10.2307/2290157

Little, T. D. (2013). *Longitudinal structural equation modeling*. Guilford Press.

Masten, A. S., & Cicchetti, D. (2010). Developmental cascades. *Development and Psychopathology*, *22*, 491–495. https://doi.org/10.1017/S0954579410000222

Miranda, M. C., Affuso, G., Esposito, C., & Bacchini, D. (2016). Parental acceptance–rejection and adolescent maladjustment: Mothers' and fathers' combined roles. *Journal of Child and Family Studies*, *25*, 1352–1362. https://doi.org/10.1007/s10826-015-0305-5

Mulder, J. D., & Hamaker, E. L. (2021). Three extensions of the random intercept cross-lagged panel model. *Structural Equation Modeling*, *28*, 638–648. https://doi.org/10.1080/10705511.2020.1784738

Muthén, L. K., & Muthén, B. O. (2012). *Mplus user's guide* (7th ed.). Muthén & Muthén.

National Bureau of Statistics of China. (2020). *A press conference on China's economic performance in 2019*. http://www.stats.gov.cn/

National Health Commission of China. (2019). *Communiqué on statistics of national health development in 2018*. http://www.nhc.gov.cn/

Putnick, D. L., Bornstein, M. H., Lansford, J. E., Malone, P. S., Pastorelli, C., Skinner, A. T., Sorbring, E., Tapanya, S., Uribe Tirado, L. M., Zelli, A., Alampay, L. P., al-Hassan, S. M., Bacchini, D., Bombi, A. S., Chang, L., Deater-Deckard, K., di Giunta, L., Dodge, K. A., & Oburu, P. (2015). Perceived mother and father acceptance-rejection predict four unique aspects of child adjustment across nine countries. *Journal of Child Psychology and Psychiatry*, *56*, 923–932. https://doi.org/10.1111/jcpp.12366

Raven, J. H., Chen, Q., Tolhurst, R. J., & Garner, P. (2007). Traditional beliefs and practices in the postpartum period in Fujian Province, China: A qualitative study. *BMC Pregnancy and Childbirth*, *7*, 8. https://doi.org/10.1186/1471-2393-7-8

Rohner, R. P. (2005). Parental Acceptance-Rejection Questionnaire (PARQ): Test manual. In R. P. Rohner & A. Khaleque (Eds.), *Handbook for the study of parental acceptance and rejection* (4th ed., pp. 43–106). Center for the Study of Parental Acceptance and Rejection, University of Connecticut.

Rohner, R. P., Khaleque, A., & Cournoyer, D. E. (2005). Parental acceptance-rejection: Theory, methods, cross-cultural evidence, and implications. *Ethos*, *33*, 299–334. https://doi.org/10.1525/eth.2005.33.3.299

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, *7*, 147–177. https://doi.org/10.1037//1082-989X.7.2.147

Serbin, L. A., Kingdon, D., Ruttle, P. L., & Stack, D. M. (2015). The impact of children's internalizing and externalizing problems on parenting: Transactional processes and reciprocal change over time. *Development and Psychopathology*, *27*, 969–986. https://doi.org/10.1017/S0954579415000632

Shanghai Municipal Bureau of Statistics. (2021). *2021 Shanghai statistical yearbook*. China Statistics Press.

Shek, D. T. L. (2005). Perceived parental control and parent–child relational qualities in Chinese adolescents in Hong Kong. *Sex Roles*, *53*, 635–646.

Smeijers, D., Brazil, I. A., Bulten, E. B. H., & Verkes, R.-J. (2018). Retrospective parental rejection is associated with aggressive behavior as well as cognitive distortions in forensic psychiatric outpatients. *Psychology of Violence*, *8*, 495–504. https://doi.org/10.1037/vio0000134

Stevenson, M. M., Volling, B. L., & Gonzalez, R. (2019). An examination of father vulnerability and coercive family process after the birth of a sibling: A spillover cascade model. *Development and Psychopathology*, *31*, 573–586. https://doi.org/10.1017/S095457941800010X

Symons, D. K. (1998). Post-partum employment patterns, family-based care arrangements, and the mother–infant relationship at age two. *Canadian Journal of Behavioural Science*, *30*, 121–131. https://doi.org/10.1037/h0085802

Szabó, N., Dubas, J. S., & van Aken, M. A. (2012). And baby makes four: The stability of coparenting and the effects of child temperament after the arrival of a second child. *Journal of Family Psychology*, *26*, 554–564. https://doi.org/10.1037/a0028805

Teti, D. M., Sakin, J. W., Kucera, E., Corns, K. M., & Eiden, R. D. (1996). And baby makes four: Predictors of attachment security among preschool-age firstborns during the transition to siblinghood. *Child Development*, *67*, 579–596. https://doi.org/10.1111/j.1467-8624.1996.tb01752.x

The Law Committee Under The Standing Committee of The Shanghai Municipal People's Congress and Shanghai Population and Family Planning Commission. (2016). *Regulations of Shanghai municipality on population and family planning* (2nd rev.). Shanghai People's Publishing House.

The State Council of the People's Republic of China. (2012). *Provisions on female labor protection under special circumstances (state council decree No. 619)*.

Tran, D., Braungart-Rieker, J., & Wang, L. (2021). Indirect effects of parental physical discipline on child literacy through child externalizing and internalizing problems: A longitudinal mediation. *Developmental Psychology*, *57*, 47–59. https://doi.org/10.1037/dev0001129

Volling, B. L. (2012). Family transitions following the birth of a sibling: An empirical review of changes in the firstborn's adjustment. *Psychological Bulletin*, *138*, 497–528. https://doi.org/10.1037/a0026921

Volling, B. L., Gonzalez, R., Oh, W., Song, J.-H., Yu, T., Rosenberg, R., Kuo, P. X., Thomason, E., Beyers-Carlson, E., Safyer, P., & Stevenson, M. M. (2017). Developmental trajectories of children's adjustment across the transition to siblinghood: Pre-birth predictors and sibling outcomes at one year. *Monographs of the Society for Research in Child Development*, *82*, 7–183. https://doi.org/10.1111/mono.v82.3/issuetoc

Volling, B. L., Oh, W., Gonzalez, R., Bader, L. R., Tan, L., & Rosenberg, L. (2021). Changes in children's attachment security to mother and father after the birth of a sibling: Risk and resilience in the family. *Development and Psychopathology*, 1–17. https://doi.org/10.1017/S0954579421001310

Volling, B. L., Steinberg, E. J., & Kuo, P. X. (2020). Is it easier the second time around? Fathers' roles across the transition from one child to two. In H. E. Fitzgerald, K. von Klitzing, N. J. Cabrera, J. Scarano de Mendonça, & T. Skjøthaug (Eds.), *Handbook of fathers and child development: Prenatal to preschool* (pp. 245–265). Springer.

Wan, G.-B., & Lam, L. T. (2010). The Child Behaviour Scale Chinese (CBSC)—A validation study. In L. T. Lam (Ed.), *Psychological and health-related assessment tools developed in China* (pp. 1–9). Bentham eBook.

Yan, N., Ansari, A., & Peng, P. (2021). Reconsidering the relation between parental functioning and child externalizing behaviors: A meta-analysis on child-driven effects. *Journal of Family Psychology*, *35*, 225–235. https://doi.org/10.1037/fam0000805

Zheng, X., Morrell, J., & Watts, K. (2018). Changes in maternal self-efficacy, postnatal depression symptoms and social support among Chinese primiparous women during the initial postpartum period: A longitudinal study. *Midwifery*, *62*, 151–160. https://doi.org/10.1016/j.midw.2018.04.005

## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.