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Date: 2019-04-10T00:00:00+00:00

Abstract

Based on family systems theory and attachment theory, this study proposes an indirect effect model in which maternal gatekeeping behavior predicts mother-child attachment through maternal parenting involvement, while simultaneously examining developmental stage differences in this model during adolescence. Using questionnaire methodology, 597 mothers and adolescents from nuclear families were surveyed. The results revealed: (1) Overall, maternal gate-opening behavior positively predicted both maternal parenting involvement and mother-child attachment, and maternal parenting involvement positively predicted mother-child attachment, supporting the indirect effect model; maternal gate-closing behavior did not significantly predict maternal parenting involvement but negatively predicted mother-child attachment, thus the indirect effect model was not supported; (2) From a developmental perspective, the indirect effect model for maternal gate-opening behavior held across all three developmental stages, with no significant differences in indirect effect magnitude; the indirect effect model for maternal gate-closing behavior was only supported in the early and later stages, with opposite effect directions—positive prediction in the early stage and negative prediction in the later stage. These findings supplement and extend research on the effects of maternal gatekeeping behavior, underscore the importance of adolescent developmental stages, and offer implications for family education practice.

Full Text

Maternal Gatekeeping Behavior, Mother Involvement, and Mother-Adolescent Attachment: Developmental Stage Differences

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Abstract

Based on family systems theory and attachment theory, this study proposes an indirect effects model in which maternal gatekeeping behavior predicts mother-adolescent attachment through mother involvement, while examining developmental differences across adolescent stages. Using questionnaire methods, we surveyed 597 mother-adolescent dyads from nuclear families. Results showed: (1) Overall, maternal opening behavior positively predicted both mother involvement and mother-adolescent attachment, with mother involvement positively predicting mother-adolescent attachment, supporting the indirect effects model; maternal closing behavior did not significantly predict mother involvement but negatively predicted mother-adolescent attachment, failing to support the indirect effects model. (2) From a developmental perspective, the indirect effects model for maternal opening behavior held across all three developmental stages with no significant differences in effect size; the indirect effects model for maternal closing behavior was only supported in early and late adolescence, with opposite directional effects—positive prediction in early adolescence and negative prediction in late adolescence. These findings supplement and extend research on the effects of maternal gatekeeping behavior, highlight the role of adolescent developmental stages, and offer practical guidance for family education.

Keywords: maternal opening behavior; maternal closing behavior; mother involvement; mother-adolescent attachment; indirect effects model

1. Introduction

The traditional gender division of labor—“men work outside, women manage the home”—positions mothers as the “primary caregivers” responsible for household duties and child-rearing, granting them greater convenience and authority than fathers in family labor division, information flow, and decision-making (Wu, Guo, Liu, Chen, & Guo, 2012). Influenced by this historical tradition and social change, research on maternal gatekeeping behavior, which emphasizes mothers’ central role in parenting, gradually emerged in the late 1990s (Zou, Wu, & Liu, 2016). Initially, maternal gatekeeping behavior referred only to mothers’ behaviors that constrained, restricted, controlled, and refused fathers’ participation

in housework and child-rearing activities (Allen & Hawkins, 1999)—that is, maternal closing behavior. As researchers examined maternal gatekeeping within the framework of parental coparenting, maternal opening behavior—mothers’ supportive, encouraging, and facilitative behaviors toward fathers’ parenting activities—also gained widespread attention (Puhlman & Pasley, 2013; Fagan & Cherson, 2017).

Since its conceptualization, research on the effects of maternal gatekeeping behavior has been a hot topic in this field. Among these, the maternal gatekeeper effect—the relationship between maternal gatekeeping behavior and father involvement—has been the focus of attention (Zou et al., 2016). Adamsons (2010), based on identity theory, pointed out that mothers, as fathers’ “counterpart role,” provide feedback on fathers’ behaviors, and mothers possess greater family power than fathers, making the impact of maternal gatekeeping behavior (maternal feedback) on father involvement undeniable. Empirical studies have also found that maternal closing behavior hinders father involvement (Barry, Smith, Deutsch, & Perry-Jenkins, 2011), while maternal opening behavior promotes it (Zvara, Schoppe-Sullivan, & Dush, 2013). However, from the perspective of family systems theory, subsystems influence each other (Minuchin, 1974, 1985). As a function of the parental coparenting subsystem, maternal gatekeeping behavior affects not only the father-child subsystem but also the mother-child subsystem. Empirical research on this issue is still in its infancy and requires further supplementation and improvement. Notably, studies on the relationship between maternal gatekeeping behavior and father involvement only verify the crossover hypothesis of family systems theory, whereas the spillover hypothesis is the family interaction principle more widely accepted by researchers (Erel & Burma, 1995; Chen, Wu, & Liu, 2014). In this sense, mothers’ emotions and behaviors generated when interacting with fathers regarding child-rearing issues more commonly affect their own emotions and behaviors than those of fathers, yet relevant empirical research has received little attention. Simultaneously, from the perspective of maternal gatekeeping behavior research, examining the impact of maternal gatekeeping behavior on mother-child subsystem functions also advances research on the effects of maternal gatekeeping behavior. Therefore, the primary purpose of this study is to explore the impact of maternal gatekeeping behavior on mother-child subsystem functions, aiming to further verify the spillover hypothesis of family systems theory in maternal gatekeeping behavior research and expand the study of maternal gatekeeping behavior effects.

1.1 The Relationship Between Maternal Gatekeeping Behavior, Mother Involvement, and Mother-Adolescent Attachment

As mentioned above, maternal gatekeeping behavior represents parental interaction in child-rearing contexts—that is, mothers’ conscious or unconscious reactions to fathers’ parenting behaviors. Its impact on father involvement is thus obvious (Adamsons, 2010). But does mothers’ own involvement get affected

while they encourage or restrict fathers' involvement? This is the first question this study will examine. However, parental behavior is only one functional characteristic of the father-child or mother-child dyadic subsystem. To expand research on the effects of maternal gatekeeping behavior, it is also necessary to explore its impact on other functional characteristics of the parent-child subsystem. In fact, the relationship between maternal gatekeeping behavior and other features of the father-child subsystem (e.g., father-child relationship quality) has gradually attracted researchers' attention in recent years (Stevenson et al., 2014). Therefore, the impact of maternal gatekeeping behavior on other features of the mother-child subsystem besides mother involvement is equally worthy of attention. The behavioral agent of mother involvement is the mother, representing a top-down mother-child dyadic interaction, whereas mother-adolescent attachment not only represents the emotional bond between mother and child but also, to some extent, signifies the child's attachment to the mother, representing a bottom-up mother-child interaction (Cassidy, 2008). In other words, mother involvement and mother-adolescent attachment describe the functions of the mother-child subsystem from two different perspectives. Thus, examining the predictive effects of maternal gatekeeping behavior on mother involvement and mother-adolescent attachment can help us more comprehensively understand the effects of maternal gatekeeping behavior on the mother-child subsystem.

Family systems theory also provides a theoretical framework for understanding the relationships between maternal gatekeeping behavior, mother involvement, and mother-adolescent attachment. This theory states that family systems achieve functions through interacting subsystems (Minuchin, 1974, 1985), where maternal gatekeeping behavior is a function of the coparenting subsystem, located at the highest level of the family system as the family's executive subsystem. Mother involvement and mother-adolescent attachment are functions of the mother-child dyadic subsystem, representing relatively lower-level family subsystems compared to the coparenting subsystem. Furthermore, the spillover hypothesis and compensation hypothesis of this theory propose possible relationships among them (Chen et al., 2014). The spillover hypothesis suggests that emotions and behaviors generated in one subsystem will manifest in another subsystem. Thus, maternal opening behavior, representing positive functioning of the coparenting subsystem, will "spill over" to the mother-child subsystem and manifest as positive predictive effects on mother involvement and mother-adolescent attachment. Correspondingly, maternal closing behavior, representing negative functioning of the coparenting subsystem, will negatively predict mother involvement and mother-adolescent attachment. The compensation hypothesis posits that deficiencies or depletion of function in one subsystem will manifest positively in another subsystem. In this sense, mothers' behaviors that undermine, restrict, and control fathers' participation in child-rearing activities in the coparenting subsystem may indicate their emphasis on their own parenting role or their children, which could instead promote their own involvement and increase children's attachment levels, manifesting as positive predictive effects of maternal closing behavior on mother involvement

and mother-adolescent attachment. Therefore, theoretically, maternal closing behavior may have either positive or negative effects on mother involvement and mother-adolescent attachment. Unfortunately, only a few empirical studies have examined the relationship between maternal gatekeeping behavior and mother-child subsystem functioning. One study using mother-child relationship quality as an outcome found that both maternal opening and closing behaviors had no significant predictive effects (Tu, 2015). Another study found that maternal closing behavior negatively predicted mother involvement and maternal warmth (Holmes, Dunn, Harper, Dyer, & Day, 2013). The inconsistent conclusions may be due to differences in research participants: the former targeted families with middle adolescents, while the latter targeted families with early adolescents, suggesting that the relationships among maternal gatekeeping behavior, mother involvement, and mother-adolescent attachment may differ across developmental stages. In summary, although these empirical studies have not yielded consistent conclusions, they support the spillover hypothesis to some extent. Based on this, this study hypothesizes that maternal opening behavior positively predicts mother involvement and mother-adolescent attachment, while maternal closing behavior negatively predicts mother involvement and mother-adolescent attachment.

What, then, is the relationship between different characteristics or functions of the mother-child subsystem—that is, between mother involvement and mother-adolescent attachment? Attachment theory states that mothers are generally children’s primary caregivers. If mothers respond to children’s signals in a sensitive, prompt, and adaptive manner, children are likely to form secure attachment with their mothers (De Wolff & van IJzendoorn, 1997; Lin et al., 2014), thus emphasizing the impact of maternal parenting behavior on attachment formation and development. However, these studies have mostly examined the “quality” of maternal parenting behavior—that is, the impact of maternal parenting style on mother-adolescent attachment. Does the “quantity” of maternal parenting behavior, namely mother involvement, have the same effect? Undoubtedly, as children’s primary caregivers, mothers’ nature determines that their involvement remains relatively high (Han & Jun, 2013). Meanwhile, researchers have pointed out that healthy child development requires mothers to invest substantial time and energy (Milkie, Nomaguchi, & Denny, 2015). Therefore, mother involvement may also be key to attachment formation and development. Empirical research has also indicated that the degree of parental involvement plays an important role in parent-child attachment formation (Brown, Mangelsdorf, & Neff, 2012). Thus, this study hypothesizes that mother involvement positively predicts mother-adolescent attachment. In summary, this study proposes an indirect effects model regarding the relationships among maternal gatekeeping behavior, mother involvement, and mother-adolescent attachment (see Figure 1 [Figure 1: see original paper]). On one hand, maternal gatekeeping behavior has direct predictive effects on mother involvement and mother-adolescent attachment; on the other hand, maternal gatekeeping behavior indirectly affects mother-adolescent attachment through mother involvement.

1.2 Differences in Adolescent Developmental Stages

Previous research on the effects of maternal gatekeeping behavior has primarily focused on families with infants and toddlers (Fagan & Cherson, 2017; Brown et al., 2012), which directly limits the external validity of previous findings. Attachment theory posits that adolescence is a critical transitional period for individual attachment system development, with attachment characteristics that differ significantly from those in infancy and toddlerhood. On one hand, adolescents strive for independence from their families (or mothers), actively expanding their attachment systems and reducing dependence on parents, especially mothers. Research shows that as individuals age, their dependence on parents gradually decreases (Brown & Larson, 2009). On the other hand, with the development of adolescents' logical thinking and abstract reasoning abilities, their internal representations of attachment relationships and experiences also develop rapidly (Allen, McElhaney, Kuperminc, & Jodl, 2004; Allen, 2008), leading to significant changes in mother-child relationships during adolescence (Van der Giessen, Branje, Frijns, & Meeus, 2013). Meanwhile, parents are also actively reorganizing and adjusting their parenting behaviors (Liu, Wu, & Zou, 2016). Compared with the caregiving and play of infancy and toddlerhood, parents in adolescence focus more on laying foundations and making plans for their children's future development (Wu, Chen, Liu, & Xing, 2014). Additionally, the parental coparenting subsystem where maternal gatekeeping behavior occurs also changes during adolescence, with parents focusing on how to maintain the original coparenting relationship and achieve consistency in their parenting behaviors to effectively address the challenges brought by adolescents (McHale & Rotman, 2007; Riina & McHale, 2014). In other words, mother-adolescent attachment, mother involvement, and maternal gatekeeping behavior undergo important changes during adolescence compared with infancy and toddlerhood. Therefore, examining the indirect effects model of maternal gatekeeping behavior predicting mother-adolescent attachment through mother involvement in families with adolescents has important value and significance.

Notably, adolescence is also a differentiated group. Previous research on the effects of parental parenting has found different effects in early, middle, and late adolescence (Tian, Zhang, & Chen, 2014), suggesting that the aforementioned indirect effects model may vary depending on adolescent developmental stages—this is the second question this study aims to explore. Adolescence is an important period for the development of individual autonomy (Steinberg, 2001). Individuals in early adolescence gradually reduce their attachment to parents, and by late adolescence, they achieve complete independence from parents and even become attachment figures for others. Therefore, mother-adolescent attachment is a dynamic process throughout adolescence, with relationship strength in late adolescence being weaker than in early and middle adolescence (Allen, 2008). However, adolescence is also a period when mothers maintain relatively high levels of family control (Shek & Law, 2014), including management and control of fathers' parenting behaviors. Thus, maternal gatekeeping behavior

has special significance for families and children during adolescence: the interaction between mothers' increased control over the family and fathers and adolescents' autonomy development may have multiple effects on families and children. Empirical research has also found that in early adolescence, maternal closing behavior negatively predicts mother involvement and maternal warmth (Holmes et al., 2013). However, other studies show that such effects of maternal opening and closing behaviors on mother-child subsystem functioning do not exist in middle adolescence (Tu, 2015). This suggests that as adolescents age and their autonomy develops, the impact of maternal gatekeeping behavior on mother-child subsystem functioning gradually weakens. Therefore, this study hypothesizes that the predictive effects of maternal opening and closing behaviors on mother involvement and mother-adolescent attachment, as well as the predictive effect of mother involvement on mother-adolescent attachment, may differ across developmental stages. Specifically, the later the adolescent developmental stage, the weaker these predictive effects.

Based on the above analysis, this study, taking adolescents and their mothers as participants, measured maternal gatekeeping behavior from both opening and closing behavior dimensions, and proposed an indirect effects model of maternal gatekeeping behavior affecting mother-adolescent attachment through mother involvement based on the spillover hypothesis of family systems theory and attachment theory. Simultaneously, considering the internal differences in adolescent development, this study further examined differences in this indirect effects model across three developmental stages: early, middle, and late adolescence. This research extends the study of maternal gatekeeping behavior effects to the mother-child subsystem and examines impact differences across adolescent developmental stages, which will help researchers further understand the domains and stages of maternal gatekeeping behavior effects and provide more specific and targeted intervention suggestions for family education practice.

2. Method

2.1 Participants

A total of 746 nuclear families participated in this study, with 597 mother-adolescent dyads providing valid data (effective response rate = 80.03%). Adolescents' mean age was 13.56 ± 2.54 years. In this study, they were divided into three age groups: early adolescence (10-12 years, $n = 283$, mean age = 11.20 ± 0.43 ; 137 boys, 146 girls), middle adolescence (13-15 years, $n = 165$, mean age = 14.24 ± 0.48 ; 73 boys, 92 girls), and late adolescence (16-18 years, $n = 149$, mean age = 17.28 ± 0.57 ; 61 boys, 88 girls). The sample included 271 boys (45.40%) and 326 girls (54.60%); 332 only children (55.60%) and 265 non-only children (44.40%). Adolescents' subjective evaluations of their family's socioeconomic status (SSS) in their province/city and school averaged 6.21 ± 1.52 and 6.84 ± 1.64 , respectively (range = 10). Mothers' mean age was 40.62 ± 4.16 years. In this study, adolescent age, gender, only-child status, and subjective socioeconomic status were controlled as covariates.

2.2.1 Maternal Gatekeeping Behavior

We used a translated and revised version of the Maternal Gatekeeping Scale developed by Puhlman and Pasley (2017) (Zou, 2016). This mother-report questionnaire includes 11 items divided into two dimensions: maternal opening behavior and maternal closing behavior, rated on a 7-point Likert scale from 0 (“never”) to 6 (“very frequently”). Maternal opening behavior assesses mothers’ positive behaviors that facilitate and encourage father involvement, with sample items such as “expressing appreciation for husband’s parenting behaviors,” comprising 4 items. Higher scores indicate more opening behavior. Maternal closing behavior assesses mothers’ negative behaviors that control and denigrate father involvement, with sample items such as “controlling the amount of time husband spends with children,” comprising 7 items. Higher scores indicate more closing behavior. In this study, Cronbach’s coefficients were 0.77 for maternal opening behavior and 0.83 for maternal closing behavior.

2.2.2 Mother Involvement

This study used the Parental Involvement Questionnaire developed by Wu et al. (2015) to measure mother involvement. Previous research indicates that father and mother involvement share the same structure (Fagan, Day, Lamb, & Cabrera, 2014), and this questionnaire is applicable to both father and mother populations (Wu, Liu, Zou, & Hou, 2018). The questionnaire uses first-person statements (e.g., “I correct my child’s misbehavior”) and was self-reported by mothers in this study to assess their involvement level. The questionnaire comprises three dimensions: engagement, accessibility, and responsibility, with 56 items rated on a 5-point Likert scale from 0 (“never”) to 4 (“always”). In this study, Cronbach’s coefficients for the three dimensions of mother involvement ranged from 0.82 to 0.92.

2.2.3 Mother-Adolescent Attachment

We used the mother attachment subscale of the Inventory of Parent and Peer Attachment (IPPA) developed by Armsden and Greenberg (1987) to measure mother-adolescent attachment. This adolescent-report questionnaire includes 25 items divided into three dimensions: trust, communication, and alienation, rated on a 5-point Likert scale from 1 (“very untrue”) to 5 (“very true”). In this study, Cronbach’s coefficients for mother-adolescent attachment dimensions ranged from 0.78 to 0.91.

2.3 Procedure

This study used different questionnaires for adolescents and their mothers. The adolescent questionnaire was the mother-adolescent attachment questionnaire, while the mother questionnaire included the maternal gatekeeping behavior questionnaire and mother involvement questionnaire. All questionnaires used self-report methods, completed independently by adolescents and their mothers. To

protect participants' privacy and obtain their genuine responses, all questionnaires were sealed in envelopes with uniform numbering on both envelopes and questionnaires. Data collection was completed in two steps. First, school teachers distributed questionnaire packets to students, who removed the mother-adolescent attachment questionnaire and completed it on-site under teacher guidance. Teachers collected the questionnaires after completion. Second, students took the questionnaire packets home, where mothers independently completed the survey under student supervision. Students returned the completed parent questionnaires to school, and teachers collected them. Trained psychology graduate students checked the returned questionnaires, excluding those with excessive missing data due to missing pages or obviously patterned responses. Professionals entered and organized the data. The individual-level missing data rate in this study was below 10%, with missing values replaced using the EM algorithm. Data were saved and managed in SPSS 21.0, and structural equation modeling was conducted using Mplus 7.11.

2.4 Common Method Bias Control and Assessment

To control common method bias, this study used separate self-reports from mothers and adolescents, avoiding sequential bias from single-reporter data, and employed procedural controls such as anonymous evaluation and reverse-coded items (Zhou & Long, 2004). Harman's single-factor test results showed 16 unrotated common factors with eigenvalues greater than 1, with the largest factor explaining 22.57% of the variance, indicating no serious common method bias in this study.

3. Results

3.1 Descriptive Statistics and Correlation Analysis

Means, standard deviations, and Pearson correlation coefficients for all variables across participant groups are presented in Table 1. Descriptive statistics revealed that, except for maternal closing behavior, mean scores for all variables across groups were above the midpoint. ANOVA results showed significant developmental stage differences in mother-adolescent attachment ($F(2,594) = 12.56$, $p < 0.001$, $p^2 = 0.06$), with early adolescence scoring significantly higher than middle and late adolescence, and middle adolescence scoring significantly lower than late adolescence. Similarly, significant developmental stage differences emerged for mother involvement ($F(2,594) = 3.24$, $p < 0.001$, $p^2 = 0.04$), with early adolescence showing significantly higher mother involvement than middle and late adolescence, and middle adolescence showing significantly lower involvement than late adolescence. No significant developmental stage differences were found for maternal opening behavior ($F(2,594) = 2.52$, $p = 0.08$) or maternal closing behavior ($F(2,594) = 1.86$, $p = 0.17$).

Correlation analyses revealed that in the full sample, maternal opening behavior was significantly positively correlated with mother involvement and mother-

adolescent attachment; maternal closing behavior was significantly negatively correlated with mother involvement and mother-adolescent attachment. In the early adolescence group, maternal opening behavior was significantly positively correlated with mother involvement, while the correlation between maternal closing behavior and mother involvement was non-significant; neither opening nor closing behavior was significantly correlated with mother-adolescent attachment. In the middle adolescence group, maternal opening behavior was significantly positively correlated with mother involvement, while maternal closing behavior was significantly negatively correlated with mother involvement; neither opening nor closing behavior was significantly correlated with mother-adolescent attachment. In the late adolescence group, maternal opening behavior was significantly positively correlated with both mother involvement and mother-adolescent attachment, while maternal closing behavior was significantly negatively correlated with both. Across the full sample and all three adolescent groups, mother involvement was significantly positively correlated with mother-adolescent attachment.

Table 1 Correlations and descriptive statistics for maternal gatekeeping behavior, mother involvement, and mother-adolescent attachment

[Note: The lower-left portion of the table shows correlation coefficients and descriptive statistics for the groups listed in the left column; the upper-right portion shows correlation coefficients and descriptive statistics for the groups listed in the right column. SSS = subjective socioeconomic status, MGOB = maternal opening behavior, MGCB = maternal closing behavior, MI = mother involvement, MA = mother-adolescent attachment. Gender reference group is male; only-child reference group is non-only-child. † $p < 0.01$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, same below.]

3.2 Indirect Effects Model of Maternal Gatekeeping Behavior on Mother Involvement and Mother-Adolescent Attachment

Based on our hypotheses, we tested the relationships among maternal gatekeeping behavior, mother involvement, and mother-adolescent attachment using structural equation modeling. Because the mother involvement and mother-adolescent attachment scales contained many items, we simplified the model by using the dimensions of each scale as new indicators for latent variables according to item parceling strategies. Results showed good model fit ($\chi^2/df = 2.83$, RMSEA = 0.06, RMSEA 90% CI = 0.04–0.07, CFI = 0.97, TLI = 0.96, SRMR = 0.02), with absolute factor loadings ranging from 0.70 to 0.95, all reaching significance ($p < 0.001$). Maternal opening behavior was significantly positively correlated with mother involvement but not with mother-adolescent attachment; maternal closing behavior was not significantly correlated with mother involvement but was significantly negatively correlated with mother-adolescent attachment. Mother involvement was significantly positively correlated with mother-adolescent attachment (see Figure 2 [Figure 2: see original paper]). Results indicated that the mediating effect of mother involvement in the relationship

between maternal opening behavior and mother-adolescent attachment was significant, while the mediating effect in the relationship between maternal closing behavior and mother-adolescent attachment was non-significant. Following Wen and Ye's (2014) recommendations, we used bias-corrected percentile bootstrap methods with 1,000 bootstrap samples to further test the significance of the mediating effects. Results showed that the 95% confidence interval for the mediating effect of mother involvement between maternal opening behavior and mother-adolescent attachment was [0.03, 0.10], not containing zero, indicating a significant mediating effect with a value of 0.12, which according to Kenny (2018) represents a medium effect size. The 95% confidence interval for the mediating effect between maternal closing behavior and mother-adolescent attachment was [-0.02, 0.01], containing zero, indicating a non-significant mediating effect.

Figure 2 Relationship model among maternal gatekeeping behavior, mother involvement, and mother-adolescent attachment

3.3 Indirect Effects Model: Developmental Stage Differences

First, we tested the model separately for the three developmental stage samples to determine whether multi-group SEM analysis was appropriate (Wang, Wang, & Jiang, 2011). Results showed that the indirect effects model fit well for early, middle, and late adolescence groups (see Table 2). Second, we constrained measurement model factor loadings and intercepts to be equal across the three groups and further constrained structural path coefficients among maternal gatekeeping behavior, mother involvement, and mother-adolescent attachment to be equal (Model 1). Results showed poor model fit. Third, with measurement model factor loadings and intercepts constrained equal across groups, we freely estimated structural path coefficients among maternal gatekeeping behavior, mother involvement, and mother-adolescent attachment (Model 2). Results showed good model fit. Compared with Model 2, Model 1 showed significantly worse fit: $\Delta^2/\Delta df = 11.20$, $\Delta RMSEA = 0.03$, $\Delta CFI = -0.06$, $\Delta TLI = -0.07$, $\Delta SRMR = 0.06$. These results indicate that structural path coefficients among maternal gatekeeping behavior, mother involvement, and mother-adolescent attachment differed across the three developmental stages.

Table 2 Model fit indices for indirect effects models across early, middle, and late adolescence

[Table content shows fit indices for early adolescence, middle adolescence, late adolescence, constrained model (Model 1), and freely estimated model (Model 2), including χ^2/df , RMSEA, RMSEA 90% CI, CFI, TLI, and SRMR values.]

Results for Model 2 are shown in Figure 2, with 95% bootstrap confidence intervals and effect sizes for mediating paths across stages presented in Table 3. Critical ratio tests for parameter differences revealed that the positive relationship between maternal opening behavior and mother involvement in early adolescence was stronger than in late adolescence ($c.r. = 2.22$, $p = 0.03$, Cohen's $d = 0.72$), while differences between early and middle adolescence ($c.r. =$

0.76, $p > 0.05$) and between middle and late adolescence (c.r. = 1.21, $p > 0.05$) were non-significant. Maternal closing behavior showed a positive relationship with mother involvement in early adolescence but a negative relationship in late adolescence, with this structural path coefficient difference being significant (c.r. = 4.69, $p < 0.001$, Cohen's $d = 0.91$); the relationship was non-significant in middle adolescence. The positive relationship between mother involvement and mother-adolescent attachment was significant across all three groups, with the relationship in early adolescence being weaker than in late adolescence (c.r. = -2.82, $p = 0.02$, Cohen's $d = -0.81$); differences between early and middle adolescence (c.r. = -1.51, $p > 0.05$) and between middle and late adolescence (c.r. = -1.15, $p > 0.05$) were non-significant. The relationship between maternal opening behavior and mother-adolescent attachment was non-significant across all three groups. The relationship between maternal closing behavior and mother-adolescent attachment was non-significant in early and middle adolescence but significantly negative in late adolescence.

Table 3 95% confidence intervals, effect sizes, and statistical power for mediating paths

[Table content shows for each developmental stage: B(SE), 95% CI, effect size, and power for the paths maternal opening behavior \rightarrow mother involvement \rightarrow mother-adolescent attachment and maternal closing behavior \rightarrow mother involvement \rightarrow mother-adolescent attachment.]

Additionally, we analyzed gender differences in this indirect effects model between male and female adolescents. Results showed no significant differences in fit indices between Model 3 (constraining structural path coefficients equal across gender groups) and Model 4 (freely estimating structural path coefficients across gender groups) ($\Delta^2/\Delta df = 1.33$, $\Delta RMSEA = 0.02$, $\Delta CFI = 0.00$, $\Delta TLI = 0.00$, $\Delta SRMR = 0.01$), indicating no significant gender differences in the indirect effects model.

4. Discussion

Guided by family systems theory and attachment theory, this study examined the relationships among maternal gatekeeping behavior, mother involvement, and mother-adolescent attachment. Findings revealed that maternal opening behavior was positively related to mother-adolescent attachment through the mediating role of mother involvement. Additionally, the effect of maternal opening behavior on mother involvement was stronger in early adolescence than in late adolescence. These results support the spillover hypothesis of family systems theory and partially confirm the hypothesis that the impact of maternal opening behavior on the mother-child subsystem gradually weakens with adolescent age. Furthermore, the relationships among maternal closing behavior, mother involvement, and mother-adolescent attachment showed clear developmental stage differences. In early adolescence, maternal closing behavior was positively related to mother-adolescent attachment through positive prediction

of mother involvement, supporting the compensation hypothesis of family systems theory. In late adolescence, maternal closing behavior was negatively related to mother-adolescent attachment through negative prediction of mother involvement, supporting the spillover hypothesis. These findings also demonstrate that the effects of maternal closing behavior on the mother-child subsystem differ qualitatively across adolescent stages.

4.1 Relationship Between Maternal Gatekeeping Behavior and Mother Involvement and Its Developmental Stage Differences

Overall, maternal opening behavior was positively related to mother involvement. This result indicates that maternal gatekeeping behavior, as a component of parental coparenting, importantly influences family functioning and supports the spillover hypothesis of family systems theory (Chen et al., 2014). When mothers encourage, help, and support fathers' participation in parenting activities, they increase father involvement (Makusha & Richter, 2016) while also increasing their own involvement. The likely reason is that maternal opening behavior creates a positive family atmosphere, symbolizing harmonious coparenting relationships and indicating mothers' high satisfaction with parenting activities (Stevenson et al., 2014), thus positively affecting their own involvement. Difference tests revealed that the positive predictive effect of maternal opening behavior on mother involvement was strongest in early adolescence and weakest in late adolescence, consistent with our hypothesis. As adolescent autonomy develops, individuals in late adolescence show declining overall dependence on family and parents (Van der Giessen et al., 2013), and the functions of the coparenting and mother-child subsystems also weaken (De Goede, Branje, & Meeus, 2009). Consequently, the relationship between maternal opening behavior and mother involvement gradually diminishes with adolescent development.

Surprisingly, at the overall level, the relationship between maternal closing behavior and mother involvement was non-significant. As previously discussed, research on the effects of maternal gatekeeping behavior originated from maternal closing behavior (Allen & Hawkins, 1999), and its role in family functioning has been supported by numerous studies (Saini, Drozd, & Olesen, 2017). Theoretically, maternal closing behavior may either negatively predict mother involvement (spillover hypothesis) or positively predict it (compensation hypothesis). This suggests that the direction of their relationship may not be mutually exclusive but simultaneous—that maternal closing behavior has a double-edged sword effect. It is precisely because these opposing effects coexist that they statistically cancel each other out, underestimating the relationship between maternal closing behavior and mother involvement. This also suggests that a third variable may be creating a masking effect that requires further investigation (Wen & Ye, 2014). Notably, the non-significant relationship between maternal closing behavior and mother involvement found in this study does not indicate the absence of a relationship. Researchers have noted that parental behaviors generally have situational or target specificity (Wang & Cai, 2017), and studies

on the situational specificity of maternal gatekeeping behavior have found different effects on different aspects of father involvement (Zou et al., 2016). In other words, maternal closing behavior may only affect certain aspects of mother involvement, while this study examined overall mother involvement across all dimensions, thus failing to detect the relationship. Furthermore, the developmental stage differences examined in this study also support the situational specificity perspective of maternal gatekeeping behavior.

This study found that the relationship between maternal closing behavior and mother involvement varied by adolescent developmental stage, being positive in early adolescence, non-significant in middle adolescence, and negative in late adolescence. Thus, in early adolescence, the relationship between maternal closing behavior and mother involvement supports the compensation hypothesis, while in late adolescence, it supports the spillover hypothesis. One perspective suggests that maternal closing behavior represents mothers' efforts to maintain their gender role advantage by restricting father involvement to preserve their status as primary caregivers (Allen & Hawkins, 1999). In this sense, maternal closing behavior is negatively related to father involvement but positively related to mother involvement. If so, why does this effect only appear in early adolescence but reverse in late adolescence? In this study, early adolescents had a mean age of 11.20 years ($SD = 0.43$), equivalent to 5th-6th grade elementary school students. This stage represents the budding phase of transition, where children still depend on parents (Tian et al., 2014). Although mothers may be dissatisfied with fathers' parenting behaviors, controlling the time and process of father-child interactions while denigrating fathers' parenting decisions and behaviors, thereby reducing father involvement (Kulik & Sadeh, 2015), mothers as primary caregivers still do not reduce their own involvement due to children's needs and maternal nature. Instead, they may increase their involvement, thus maintaining a positive relationship between maternal closing behavior and mother involvement, which reflects the role of maternal subjective agency to some extent. In middle and late adolescence, as parent-child conflict increases and intimacy decreases, parents face major challenges in reorganizing their parenting roles (Riina & McHale, 2014). Mothers gradually abandon their primary caregiver role, so their subjective agency is insufficiently expressed, allowing negative emotions and behaviors from the coparenting subsystem to "contaminate" mother-child interactions in the mother-child subsystem, manifesting as negative predictive effects on mother involvement. Of course, to verify the validity of this explanation, future research should examine whether this positive predictive effect of maternal closing behavior on mother involvement also exists in infancy and childhood, and investigate the role of maternal subjective agency, such as mothers' identification with their parenting value, in the relationship between these variables.

4.2 Relationship Between Maternal Gatekeeping Behavior and Mother-Adolescent Attachment and Its Developmental Stage Differences

Both across the entire adolescent period and within each specific developmental stage, maternal opening behavior was not directly correlated with mother-adolescent attachment but indirectly influenced it through mother involvement. This supports our hypothesis that predictive relationships exist among functional features within the mother-child subsystem and also supports the view that mother involvement continues to matter during adolescence (Milkie et al., 2015). More importantly, these results indicate that maternal opening behavior not only affects behavioral characteristics of parental parenting (e.g., parental involvement, parenting warmth) (Holmes et al., 2013; Tu, 2015) but also predicts relational-emotional features—mother-adolescent attachment—thereby supplementing previous research limited to the parenting domain. Additionally, developmental stage difference tests revealed that the positive relationship between mother involvement and mother-adolescent attachment was stronger in late adolescence than in early adolescence, further demonstrating that the “quantity” of mother involvement may be important throughout adolescence (Milkie et al., 2015). Notably, although the correlation between mother involvement and mother-adolescent attachment was stronger in late adolescence, this does not necessarily mean the mediating effect of mother involvement in the relationship between maternal opening behavior and mother-adolescent attachment was larger, because maternal opening behavior’s predictive effect on mother involvement was stronger in early adolescence. Therefore, we further tested differences in the mediating effect across the three developmental stages and found no significant differences among the three groups. Thus, the mediating effect of mother involvement appears equally important across adolescent developmental stages, though the specific pathways differ: in early adolescence, the primary pathway is the effect of maternal opening behavior on mother involvement, while in late adolescence, it is the effect of mother involvement on mother-adolescent attachment.

The relationship between maternal closing behavior and mother-adolescent attachment warrants careful consideration in this study. Across the entire adolescent period, maternal closing behavior was directly negatively related to mother-adolescent attachment, but the mediating effect of mother involvement was non-significant. However, in early adolescence, maternal closing behavior was positively related to mother-adolescent attachment through its positive relationship with mother involvement. In middle adolescence, neither the direct relationship between maternal closing behavior and mother-adolescent attachment nor the mediating effect of mother involvement was significant. In late adolescence, maternal closing behavior was negatively related to mother-adolescent attachment through its negative relationship with mother involvement. Why does maternal closing behavior have qualitatively different relationships with mother-adolescent attachment in early versus late adolescence? The key to the

positive effect of maternal closing behavior on mother-adolescent attachment in early adolescence lies in its positive predictive effect on mother involvement. As previously discussed, this reflects children's needs and the role of maternal subjective agency. In late adolescence, as adolescent autonomy develops, they gain greater behavioral and decision-making autonomy in the family (Wu & Fang, 2006). Therefore, if mothers exhibit considerable control, denigration, and inhibition in interactions with fathers, adolescents may also reduce interactions with mothers behaviorally and cognitively, negatively predicting mother involvement. However, the roles of maternal subjective agency and adolescent autonomy in this process require further investigation. Overall, the mediating effect of mother involvement in the relationship between maternal opening behavior and mother-adolescent attachment showed medium effect sizes in both the full sample and across adolescent stages, indicating relatively large and stable mediating effects. However, the mediating effect of mother involvement between maternal closing behavior and mother-adolescent attachment showed small effect sizes in early and late adolescence, suggesting that mother involvement explains relatively little of the relationship between maternal closing behavior and mother-adolescent attachment.

Two findings are particularly meaningful for understanding the effects of maternal gatekeeping behavior. First, compared with maternal closing behavior, maternal opening behavior has stable and enduring relationships with mother involvement and mother-adolescent attachment throughout adolescence, particularly the relationship between maternal opening behavior and mother-adolescent attachment, which remains consistent across the three adolescent stages. This finding highlights the important role of maternal opening behavior for adolescents and supports the inclusion of maternal opening behavior in the conceptual framework of maternal gatekeeping (Fagan & Cherson, 2017). Second, developmental stage differences are mainly reflected in the relationships among maternal closing behavior, mother involvement, and mother-adolescent attachment, as these relationships show not only quantitative but also qualitative differences across the three adolescent stages, with special significance for families in early adolescence. This finding has important value and implications for evidence-based family education practice. These two points illustrate the important influence of maternal gatekeeping behavior on mother-child subsystem functioning from different perspectives and warrant further in-depth investigation by future researchers.

4.3 Research Significance and Future Directions

This study makes several contributions. First, it examined the impact of maternal gatekeeping behavior on mother-child subsystem functioning, supplementing research on the effects of maternal gatekeeping behavior and verifying the spillover hypothesis of family systems theory in this context, demonstrating the important influence of maternal gatekeeping behavior on family functioning. It also extended research on maternal gatekeeping behavior effects from

the parenting behavior domain to the mother-child relational-emotional domain. Second, it explored developmental stage differences, further specifying the conditions under which maternal gatekeeping behavior produces different effects as an initial investigation of the situational specificity of maternal gatekeeping behavior, which also has implications for research on relationships among maternal gatekeeping behavior, father-adolescent attachment, and father involvement. Additionally, this study offers important practical guidance for family education, suggesting that mothers should minimize arbitrary criticism and blame toward fathers while discussing child-rearing issues with fathers as equals. Moreover, mothers' behaviors toward fathers and their own parenting should be adapted to adolescent developmental stage characteristics. In early adolescence, mothers should primarily encourage and help fathers complete parenting tasks, increasing their own involvement while enhancing father involvement. However, when fathers' parenting behaviors deviate, mothers may also adopt controlling approaches, as maternal closing behavior has special significance in early adolescence. In late adolescence, mothers should reduce denigration and control of fathers to prevent these behaviors from undermining their own involvement and mother-adolescent relationships.

However, this study has several limitations. First, although it examined developmental stage differences, it could not accurately examine the developmental change processes of these differences. While theory emphasizes the important impact of maternal gatekeeping behavior on family functioning, we cannot rule out the predictive effect of mother involvement on maternal gatekeeping behavior. The cross-sectional design used in this study cannot accurately address these issues; future research should use longitudinal designs to address these limitations. Second, although this study used paired data from adolescents and their mothers, it relied on self-report methods for measuring relevant variables, making it difficult to avoid subjective reporting bias. Future research should use multi-informant methods to collect more objective and comprehensive information. Third, although this study examined the predictive effect of maternal gatekeeping behavior on mother involvement, it did not further investigate its mechanism, particularly the mediating mechanism through which maternal closing behavior affects mother involvement. Fourth, although this study examined developmental stage differences to demonstrate the situational specificity of maternal gatekeeping behavior effects, it did not differentiate specific features of mother involvement and mother-adolescent attachment. Future research should further explore the effects of maternal gatekeeping behavior on different aspects of mother involvement and different features of mother-adolescent attachment. Fifth, this study selected only intact families with good marital relationships, in which mothers are more likely to exhibit positive opening behaviors than negative closing behaviors when interacting with fathers. Future research should include more family types to more comprehensively examine different forms of maternal gatekeeping behavior.

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