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BRIEF REPORT

Chinese Mothers' Parental Burnout and Adolescents' Internalizing and Externalizing Problems: The Mediating Role of Maternal Hostility

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Parental burnout is a state that parents feel exhausted in their parental role. Although past research has examined concurrent correlates of parental burnout, the impacts of parental burnout on adolescent development over time remain largely unknown. The current study explored the indirect mechanisms linking mothers' parental burnout to adolescents' later internalizing and externalizing problems through maternal hostility among Chinese families. Using a sample of 606 adolescents (51.5% boys; $M_{\text{age}} = 12.89$ years old) and their mothers ($M_{\text{age}} = 38.50$ years old), this three-wave longitudinal study showed that mothers' parental burnout was predictive of adolescents' perceptions of their mothers' parental hostility over time, which were in turn related to adolescents' later internalizing and externalizing problems. Moreover, mothers' parental burnout was directly related to adolescents' later externalizing problems. Taken together, parental burnout played a role in adolescents' internalizing and externalizing problems over time through increased parental hostility. These findings underscore the importance of parental burnout on parenting behavior and adolescent adjustment.

Keywords: adolescent, China, hostility, parental burnout, psychopathology

Prolonged exposure to stress in the context of the workplace may lead to job burnout, a feeling of exhaustion about the job (Leiter et al., 2014; Maslach & Leiter, 2016). In a similar vein, parents may also feel exhausted as they take care of their children due to excessive parenting stress. This parental experience—parental burnout—was defined as a state when people feel exhaustion in their parental role, have a low sense of competence and accomplishment, and show a lack of emotional bonding with their

children (Roskam et al., 2017). Since the publications of parental burnout measurements (i.e., the Parental Burnout Inventory by Roskam et al., 2017; and subsequently the Parental Burnout Assessment by Roskam et al., 2018), scholars have become increasingly interested in exploring parental burnout empirically. Existing research has mainly focused on the causes (e.g., Le Vigouroux & Scola, 2018; Mikolajczak, Raes, et al., 2018; Sorkkila & Aunola, 2020), consequences (e.g., parents' escape and suicidal ideation, as well as negative parenting behaviors; see Mikolajczak, Brianda, et al., 2018; Mikolajczak et al., 2019), and treatment (e.g., Brianda, Roskam, Gross, et al., 2020) of parental burnout. However, very little is known about the influence of parental burnout on children's developmental outcomes. To address this issue, the aim of this study was to provide one of the first empirical investigations on how mothers' parental burnout might influence adolescents' internalizing and externalizing problems over time, with attention to the mediating role of maternal hostility.

Parental Burnout and Adolescent Development

Parental burnout is not ordinary parenting stress; instead, it is a condition of repeated exposure to chronic and irrepressible parenting stress (Mikolajczak et al., 2019). Parental burnout arises from the imbalance of parents' expectations about the demands over their access to available resources to meet the demands (Mikolajczak & Roskam, 2018). Prior studies suggest that parental burnout is

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associated with a wide range of risk factors such as high neuroticism, anxiety, depression, perfectionism, and work–family conflict (Kawamoto et al., 2018; Le Vigouroux et al., 2017; Séjourné et al., 2018; Van Bakel et al., 2018). Not surprisingly, as suggested by correlational research, parental burnout may have detrimental effects on parents. For example, parents who report higher parental burnout tend to have escape ideations (Mikolajczak et al., 2019) and exhibit dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis (Brianda, Roskam, & Mikolajczak, 2020). Moreover, in families where parents report heightened parental burnout, adolescents tend to experience more loneliness and exhibit more antisocial behavior (Cheng et al., 2020). Despite a growing number of cross-sectional studies on parental burnout, it remains unclear how parental burnout may affect adolescents over time. Therefore, it is important to adopt longitudinal designs to examine the effects of parental burnout on adolescent development.

So far, no prior research has examined the effects of parental burnout on children's internalizing or externalizing problems. Internalizing problems refer to emotional disorders including anxiety and withdrawal, whereas externalizing problems refer to disruptive behaviors including aggression and hyperactivity (Achenbach & Edelbrock, 1981). Parental burnout may play a role in adolescents' internalizing and externalizing problems over time. Prior empirical studies have examined the link between parenting stress—a key antecedent of parental burnout (Roskam et al., 2017; Van Bakel et al., 2018)—and adolescent adjustment. For example, prior research suggests that heightened parenting stress predicts adolescents' mental health problems such as depression and anxiety over time (Bakoula et al., 2009; Lorenzo-Blanco et al., 2016). In addition, parenting stress is also longitudinally linked to adolescents' less prosocial behavior and more conduct problems (Megahead & Deater-Deckard, 2017; Neece et al., 2012). Although there are no studies specifically exploring the direct link between parental burnout and child outcomes, it is possible that the relationships between parental burnout and adolescent adjustment may be even stronger than those observed between parenting stress and adolescent adjustment, given that parental burnout is a prolonged response to excessive and chronic parenting stress with too few resources to deal with it (Mikolajczak & Roskam, 2018; Roskam et al., 2017).

Parental Burnout and Parental Hostility

As posited by the Parenting Stress Model (Abidin, 1995; Deater-Deckard, 2004), parenting stress may have an indirect influence on child development through the mediating role of parental behavior. Drawing on this theoretical perspective, parental burnout, as a result of excessive exposure to parenting stress, may also play an indirect role in children's adjustment through parental behavior. Therefore, the current study explored how parental hostility may mediate the relations between parental burnout and adolescents' internalizing and externalizing problems.

Parental burnout may contribute to parents' heightened hostility over time. The Parenting Stress Model proposes that parenting stress may disrupt parents' abilities to use positive parenting practices (Abidin, 1995; Crnic & Low, 2002). This viewpoint may apply to parental burnout, because burnout is usually a result of excessive and prolonged stress (e.g., Leiter et al., 2014). Indeed, prior research has found that parental burnout is associated with parental neglect and violence (Mikolajczak, Brianda, et al., 2018). Such associations are

further confirmed in a longitudinal study (Mikolajczak et al., 2019). A more recent study based on a latent profile analysis of parental burnout identifies five profiles of parents (“Not in parental burnout,” “Inefficient,” “At risk of parental burnout,” “Emotionally exhausted and distant,” and “Burned-out parents”), which are linked to different levels and forms of parental neglect and violence (Hansotte et al., 2021). For example, burned-out parents show more emotional neglect, physical neglect, and verbal violence to their children compared to all other types of parents. Similarly, parental burnout may also predict more parental hostility over time. Parental hostility, which is characterized by parents being hostile and coercive toward their children, tends to associate with parents' stress levels (Benner & Kim, 2010). From a physiological perspective, high levels of burned-out state may release the stress hormones which induce hostile behaviors such as anger (Moons et al., 2010). Therefore, parents under the influence of parental burnout are likely to become more hostile toward their adolescents over time.

Parental Hostility and Children's Internalizing and Externalizing Problems

Subsequently, increased parental hostility may result in adolescents' more internalizing and externalizing problems over time. Besides the impact of stress on parenting behavior, another main viewpoint of the Parenting Stress Model is that negative parenting behavior, such as parental hostility, may play a negative role in children's adjustment (Crnic & Low, 2002; Deater-Deckard, 2004). Hostile treatment from their parents may lead children to feel unloved and rejected by their parents, which may eventually contribute to their heightened internalizing (e.g., anxiety and depression) and externalizing problems (e.g., aggression; Rohner et al., 2005). Indeed, the association between parental hostility and child adjustment is widely supported by empirical evidence. For example, prior research indicates that parental hostility is concurrently associated with children's aggression and conduct problems (Knox et al., 2011), as well as internalizing problems (Stocker et al., 2003). In addition, a cross-sectional study across four Asian countries suggests that maternal hostility is related to both anxiety and aggression among children in China, India, the Philippines, and Thailand (Lansford et al., 2010). Some processes may account for the impact of parental hostility on children's internalizing and externalizing problems. First, parents' hostility may be modeled by their children, which may consequently result in more externalizing problems among children (Knox et al., 2011). Second, it is possible that parents' hostility including showing antagonistic emotions has adverse effects on children's emotion regulation (Morris et al., 2007; Stocker & Youngblade, 1999), which ultimately leads to children's internalizing problems. Taken together, parental hostility may contribute to adolescents' heightened internalizing and externalizing problems over time.

The Present Study

The purpose of this study was to explore the associations between mothers' parental burnout, maternal hostility, and adolescents' internalizing and externalizing problems in Chinese contexts. The present study focused on adolescence, because previous literature has shown that adolescence is a developmental stage marked by the onset of several behavioral and emotional problems (e.g., Lee et al., 2014; Steinberg, 2008). In addition, despite that

parents may not experience the highest levels of parental burnout during adolescence (Le Vigouroux & Scola, 2018; Mikolajczak & Roskam, 2018), the potential increase in children's need for autonomy during adolescence could make parenting particularly stressful for parents. For example, adolescents' desire for greater autonomy was found to be significantly related to their mothers' stress (Small et al., 1988). Therefore, it is important to conduct empirical research to examine the negative impacts of parental burnout on adolescents' adjustment over time.

Moreover, the mediating role of parental hostility in the link between Chinese parents' burnout and their adolescents' adjustment deserves scholarly attention. As a Chinese proverb says, "beating and scolding is the emblem of love." Parental hostility is commonly used in Chinese cultural contexts because it is seen as a form of parental love and investment (Chao & Tseng, 2002; Liu & Wang, 2015). Guided by prior research (e.g., Hansotte et al., 2021; Mikolajczak, Brianda, et al., 2018; Mikolajczak et al., 2019), Chinese parents who experience more parental burnout may become more hostile toward their adolescents over time, which further predicts adolescents' greater internalization and externalizing problems. Indeed, even though that parental hostility is culturally accepted in China, Chinese children who experience parental hostility tend to show higher levels of maladjustment (Liu & Wang, 2015). It should be noted that, as one of maladjustment outcomes in adolescents, externalizing problems are strictly discouraged in Chinese society because of its potential threat to social harmony (Chen & Chang, 2012; Ho, 1986). A large body of studies has shown that Chinese children's externalizing problems such as aggressive behaviors are negatively associated with peer acceptance (e.g., Chang et al., 2005; Chen et al., 1999; Schwartz et al., 2010), and teacher liking (Chang et al., 2004).

Furthermore, the current study chose to focus on Chinese mothers because the gender role in child caregiving in Chinese contexts emphasizes that child rearing is a wife's main family responsibility (Li & Lamb, 2015). The norms of breadwinning father and caregiving mother still prevail in most Chinese families (Liong, 2017). For example, Chinese mothers nowadays tend to be highly involved in daily childcare, whereas fathers tend to keep themselves away from everyday child rearing and nurturance (Li & Lamb, 2015). Therefore, Chinese mothers play an essential role in providing a secure and loving environment for their children (Jan-kiwiak, 1992; Wang et al., 2019).

Taken together, the current study recruited Chinese families with adolescents and their mothers in a three-wave longitudinal study. It was hypothesized that maternal hostility would mediate the association between mothers' parental burnout and adolescents' internalizing and externalizing problems. In addition, given the existing literature on gender differences in internalizing and externalizing problems (e.g., Serbin et al., 2015), the moderating role of gender in the relations among mothers' parental burnout, maternal hostility, and adolescents' internalizing and externalizing problems was explored.

Method

Participants

Participants were recruited to this three-wave longitudinal study from an average-achieving middle school in Huzhou, Zhejiang

province, China. Huzhou is a city with a population of approximately 2.64 million (Huzhou Bureau of Statistics, 2019) located in the eastern part of China. Compared to large cities such as Shanghai and Beijing, Huzhou has a significantly lower GDP per capita (about 30% lower) that is closer to the national average (Huzhou Bureau of Statistics, 2019).

Our sample consisted of 606 adolescents (51.5% boys, 48.5% girls) and their mothers. At Time 1 (T1), adolescents were seventh and eighth graders with a mean age of 12.89 years old ($SD = .77$). Mothers' age ranged from 27 to 56, with a mean age of 38.50 ($SD = 4.24$). On average, mothers had completed 9.9 years of education ($SD = 3.01$). At the time of the study, the population aged between 20 and 59 years in China had completed 10.6 years of education (National Bureau of Statistics of China, 2019). Hence, in terms of the educational level, the sample was representative of families in China. According to family types reported by mothers, the sample included 92.72% two-parent biological families, 5.34% single-parent families, and 1.94% stepfamilies.

Procedure

There were three waves of data collection, with 6 months apart between two waves. The school principal sent letters to parents that included detailed information about the study (e.g., the research institution, main topics in questionnaires, and the length of time to complete the questionnaires) and an electronic link to consent form. A head instructor (i.e., a teacher who is in charge of a class) also reminded parents of the school principal's letter in the class group chats in WeChat, a commonly used mobile-based social network application in China. Following receipt of parental consent, adolescent assent was obtained prior to data collection. Graduate students administered the adolescents' questionnaire in the classrooms during the regular class periods. Extensive explanations were provided if adolescents had any questions about the questionnaire. In addition, adolescents were asked to take a paper notice with an electronic link for the online questionnaires to their mothers, and reminded their mothers to complete this online survey before the deadline. Mothers logged into a web page by using the electronic link, and completed the online questionnaires at home. It took adolescents and their mothers about 20–30 minutes to complete the questionnaires. Adolescents received small gifts (i.e., a notebook and a pencil) which cost about 5 Chinese Yuan (approximately .77 U.S. dollars) for their participation. This study received ethics approval from the Ethics Committee of the Department of Psychology, Renmin University of China (Study title: Factors that influence school adjustment among children with siblings).

Missing Data Analysis

Approximately 99% of invited families participated in the study. This participation rate is similar to those obtained from other studies using school-recruited Chinese samples (e.g., Fu et al., 2016; Zhang et al., 2018). Among the 606 families who participated at Wave 1, 570 of them continued to participate at Wave 2, and 530 of them continued to participate at Wave 3. The attrition rates were 5.94% from Wave 1 to Wave 2 and 7.02% from Wave 2 to Wave 3. Comparison of participants completing all three waves to those completing only one or two waves showed differences in children's gender, such that there was a higher boy-to-girl ratio in families that dropped out ($\chi^2 = 7.178, p < .01$).

Besides the difference of children's gender, the comparison between the two groups revealed no differences in any of the other variables examined in this report, $F_s < 3.20$, $p_s > .07$. Moreover, results in Little's MCAR test ($\chi^2 = 72.85$, $p = .21$) suggested that missing cases were likely to be missing completely at random (MCAR; Little, 1988). Therefore, it is appropriate to impute missing values using full information maximum likelihood estimations.

Measures

Parental Burnout

Mothers reported on their parental burnout at T1 using the Chinese version (Chen, 2019) of the Parental Burnout Assessment (Roskam et al., 2018). This measure has been commonly used and has proved valid and reliable across countries (Roskam et al., 2021). It consists of 23 items (e.g., "I feel completely run down by my role as a parent"). Mothers were asked to complete the measure on a 7-point Likert scale: *never* (0), *a few times a year or less* (1), *once a month or less* (2), *a few times a month* (3), *once a week* (4), *a few times a week* (5), *every day* (6). The sum score of all 23 items ranges from 0 to 138. For analysis, the item scores were averaged to form a composite score. In the current sample, Cronbach's alpha = .94 at T1.

Maternal Hostility

At T1 and T2, adolescents were asked to report on their experience of their mothers' hostility using the Hostility subscales of the Chinese version (Lansford et al., 2010) of the Parental Acceptance-Rejection/Control Questionnaire (Rohner, 2005). This subscale had acceptable psychometric properties in previous Chinese samples (Lansford et al., 2010; Tian & Chen, 2020). It consists of six items to assess maternal hostility (e.g., "My mother says many unkind things to me"). Adolescents were asked to respond to each item on a 4-point scale ranging from 1 (*almost never true*) to 4 (*almost always true*). The item scores were averaged to form a composite score. Cronbach's alpha = .70 and .72 for maternal hostility at T1 and T2, respectively, in the present sample.

Internalizing and Externalizing Problems

At T1 and T3, adolescents completed the Chinese version (Chang et al., 2019) of the Youth Self Report (Achenbach, 1991) to report on their internalizing and externalizing problems. This measure showed satisfactory reliability and validity in the Chinese samples (e.g., Liu et al., 1997). The sample items of internalizing problem subscale include "feel lonely" and "worry a lot." The sample items of externalizing problem subscale include "argues a lot" and "threatens people." Adolescents were asked to complete these two subscales on a 3-point scale ranging from 0 (*never*) to 2 (*often*). The item scores were averaged to form composite scores for each subscale. Cronbach's alpha = .89 and .93 for internalizing problems at T1 and T3, respectively, and .83 and .88 for externalizing problems at T1 and T3, respectively, in the present sample.

Data Analysis Procedure

Two sets of analyses were performed in the present study. First, descriptive analyses were conducted. Second, to test the relationships between mothers' parental burnout, maternal hostility, and adolescents' internalizing and externalizing problems, a path

analysis was conducted using Mplus 7.0 (Muthén & Muthén, 2012) and using full information maximum likelihood (FIML) estimation procedures to handle missing data (Schafer & Graham, 2002). Evaluation of model fit was based on inferential goodness-of-fit statistics (χ^2), and a number of other 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 .95 are desirable on the CFI, while the RMSEA and SRMR should preferably be less than or equal to .08 (Hu & Bentler, 1999; MacCallum et al., 1996). Point estimates of the indirect effects, and the 95% confidence intervals for the effects, were calculated using a bootstrapping method of 10,000 samples (Preacher et al., 2007).

In addition, the normality test was performed. It indicated that parental burnout was positively skewed and leptokurtic (skewness = 3.46, kurtosis = 16.58). The parental burnout variable was normalized using log transformations. Then main analyses were run twice, one with the original values and the other with log-transformed values. Estimates and model fit indices were very similar. Therefore, only the findings obtained from the analyses based on original values were reported. Data and study materials and analysis code for this study are available by emailing the corresponding authors. This study was not preregistered.

Results

Descriptive Analyses

Table 1 shows descriptive statistics and the Pearson correlations among variables. Parental burnout was positively associated with parental hostility at T1 and T2, and adolescents' internalizing and externalizing problems at T1 and T3. Parental hostility at T1 and T2 were correlated with each other. Both of them were correlated with internalizing and externalizing problems at T1 and T3. Internalizing problems at T1 and T3 were correlated with each other. The same was for externalizing problems. Internalizing problems at T1 and T3 were correlated with externalizing problems at T1 and T3. According to Cohen's (1988) criteria, a correlation coefficient of .1 represents a small effect, .3 a moderate effect, and .5 a large effect. Generally, the magnitudes of the autocorrelations were high. The correlations between different constructs were small to moderate in size. In particular, the correlations between parental burnout and other constructs were small in size.

Linkages Between Mothers' Parental Burnout, Maternal Hostility, and Adolescents' Internalizing and Externalizing Problems

The structural equation model was developed to test the hypotheses. The model was shown in Figure 1. Controls from initial levels at T1 (i.e., maternal hostility at T1; and adolescents' internalizing and externalizing problems at T1) were included for each dependent variable (i.e., maternal hostility at T2; and adolescents' internalizing and externalizing problems at T3). And concurrent associations between variables at T1 and T3 were included. In addition to the paths shown in Figure 1, paths from covariates (i.e., adolescent age, adolescent sex, mothers' age, and mothers' educational level) to all constructs were included as demographic controls. However, none of the

Table 1
Descriptive Statistics and Correlations of Variables

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|------------------------------|--------|--------|--------|---------|---------|--------|------|-------|------|---------|------|
| 1. T1 Parental burnout | — | | | | | | | | | | |
| 2. T1 Parental hostility | .18*** | — | | | | | | | | | |
| 3. T2 Parental hostility | .20*** | .58*** | — | | | | | | | | |
| 4. T1 Internalizing problems | .12* | .35*** | .27*** | — | | | | | | | |
| 5. T3 Internalizing problems | .14** | .19*** | .32*** | .58*** | — | | | | | | |
| 6. T1 Externalizing problems | .13* | .27*** | .16*** | .52*** | .28*** | — | | | | | |
| 7. T3 Externalizing problems | .23*** | .17*** | .26*** | .34*** | .60*** | .60*** | — | | | | |
| 8. Adolescent age | .09 | .05 | .03 | .08 | -.01 | .07 | .01 | — | | | |
| 9. Adolescent gender | .02 | .01 | .02 | -.19*** | -.23*** | -.03 | -.05 | .07 | — | | |
| 10. Mother education | -.06 | .05 | .01 | .02 | .02 | -.05 | -.03 | -.07 | -.08 | — | |
| 11. Mother age | .09 | .08 | .08 | .07 | .00 | .06 | -.00 | .11* | .05 | -.18*** | — |
| <i>M</i> | .51 | 1.69 | 1.73 | .44 | .46 | .31 | .35 | 12.89 | .51 | 9.91 | 38.5 |
| <i>SD</i> | .76 | .60 | .60 | .30 | .35 | .20 | .24 | .77 | .50 | 3.01 | 4.24 |

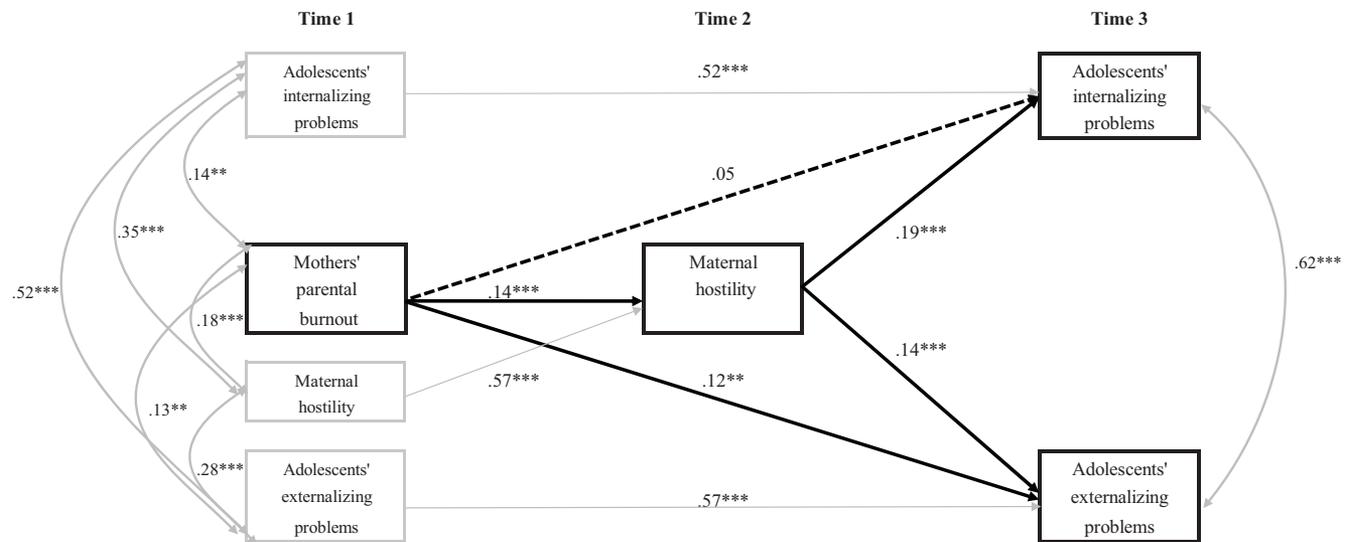
Note. Adolescent gender was coded as 0 = girl and 1 = boy.
* $p < .05$. ** $p < .01$. *** $p < .001$.

covariates were statistically significant except one significant path between adolescent sex and internalizing problems at T3. These non-significant covariates were removed from the final model analysis to avoid over control.

The model fit the data well: $\chi^2(12) = 59.25, p < .001, CFI = .95, RMSEA = .08, SRMR = .05$. It indicated that mothers' parental burnout at T1 was significantly related to adolescents' externalizing problems at T3, but the direct path between mothers' parental burnout at T1 and adolescents' internalizing problems at T3 became statistically nonsignificant. Mothers' parental burnout at T1 was significantly related to maternal hostility at T2. In addition, maternal hostility at T2 was significantly related to both adolescents' internalizing and externalizing problems at T3.

The significances of the indirect paths from mothers' parental burnout to adolescents' internalizing and externalizing problems through maternal hostility were tested. The standardized indirect effect of mothers' parental burnout at T1 on adolescents' internalizing problems at T3 through maternal hostility at T2 was significant (point estimate = .03, $SE = .01, p < .05, 95\% CI [.005, .049]$); the standardized indirect effect of mothers' parental burnout at T1 on adolescents' externalizing problems at T3 through maternal hostility at T2 was also significant (point estimate = .02, $SE = .01, p < .05, 95\% CI [.001, .038]$). Therefore, maternal hostility served as a mediator of the link between mothers' parental burnout and adolescents' internalizing and externalizing problems.

Figure 1
The Model Depicting the Associations Among Mothers' Parental Burnout, Maternal Hostility, and Adolescents' Internalizing and Externalizing Problems



Note. Solid dark arrows indicate hypothesized paths that were statistically significant; Dashed dark arrows indicate hypothesized paths that were estimated but were not statistically significant. Faded arrows signify effects of controls. Faded double curved arrows signify concurrent associations between the variables in Time 1 and Time 3. The path coefficients are standardized.
** $p < .01$. *** $p < .001$.

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Additional Analyses

Sex differences in the relations among mothers' parental burnout, maternal hostility, and adolescents' internalizing and externalizing problems were examined using the multigroup invariance test. Specifically, the constrained model (i.e., the equal-path models in which the key paths from mothers' parental burnout to maternal hostility to adolescents' internalizing and externalizing problems were forced to be equal between boys and girls) was compared with the unconstrained model (i.e., the baseline model in which all the key paths were estimated freely without any constraint). The results found no difference between the unconstrained model and the constrained model, $\Delta\chi^2(5) = 4.71, p = .45$. Moreover, the constrained models that forced each key path to be equal for boys and girls fit the data as well as the unconstrained model, $\Delta\chi^2(1)s < 1.11, ps > .29$. Therefore, the relations among mothers' parental burnout, maternal hostility, and adolescents' internalizing and externalizing problems were similar for boys and girls.

Discussion

In a sample of over 600 Chinese families, mothers' parental burnout was related to adolescents' perceptions of their mothers' hostility, which were in turn related to adolescents' both internalizing and externalizing problems. The effects of mothers' parental burnout on maternal hostility and the effects of maternal hostility on internalizing and externalizing problems were sizable given that earlier levels of maternal hostility and adolescents' internalizing and externalizing problems were controlled. The current study provides empirical support on the indirect effects of parental burnout on adolescents' internalizing and externalizing problems via adolescents' perceptions of parental hostility.

Our results demonstrated that parental burnout was predictive of parental hostility over time, controlling for adolescents' age, adolescent sex, parents' age, parents' education attainment, and parents' prior hostility. This finding is consistent with previous research showing that parental burnout was longitudinally associated with higher parental violence (Mikolajczak et al., 2019). Emotional and physical exhaustion in one's parental role and lack of parental competence and accomplishment may lead to negative parenting behavior. Negative parenting behaviors such as parental hostility toward children (e.g., "say many unkind things to children") may be considered as part of parents' dysfunctional coping behavior in response to exhaustion experienced in the caregiving context. As a consequence, parental burnout may influence children by exposing children to their parents' hostile behavior during parent-child interactions.

In addition, the findings provide insights into the mechanisms of associations between earlier parental burnout and later adolescents' internalizing and externalizing problems by identifying parental hostility as a mediator. These findings are in line with the theoretical hypothesis derived from the Parenting Stress Model that parenting stress is linked to parental behavior, which is in turn related to children's adjustment (Abidin, 1995; Deater-Deckard, 2004). It should be noted that parental burnout is not ordinary parenting stress. Parental burnout results from excessive and prolonged exposure to parenting stress with too few resources to deal with it (Mikolajczak et al., 2019; Mikolajczak & Roskam, 2018). The present study extended the central tenets of parenting stress to

parental burnout. Our current findings provide a new theoretical perspective about the effect of parental burnout on child development, and elucidate how parental burnout has negative consequences for children as it occurs for parents who experience excessive and chronic parenting stress (Mikolajczak, Brianda, et al., 2018). Moreover, according to Rohner et al. (2005), when adolescents perceived their parents' behavior as hostile, such behavior might have adverse influences on their developmental outcomes. It is mainly because even for adolescents, they are in need of parental warmth to facilitate their positive development (Chen, 2017; Dykas & Cassidy, 2007). Therefore, adolescents' interpretation of their parents' behaviors as hostile may result in maladjustment.

In addition to the indirect effects identified in this study, it is important to note that the direct relations between mothers' parental burnout and adolescents' externalizing problems (vs. internalizing problems) were also found. For adolescents, mothers' parental burnout seems to directly exacerbate adolescents' externalizing problems, suggesting that high levels of parental burnout could create a negative family climate, which, in turn, might sensitize adolescents toward externalizing problems (Liu & Wang, 2015). It is interesting that although a significant concurrent correlation between mothers' parental burnout and adolescents' internalizing problems was detected, the longitudinal impact of parental burnout on adolescents' internalizing problems was statistically nonsignificant after controlling for other variables in the structural equation model. There are several reasons to explain this finding. First, it is possible that parental burnout may play a direct role in adolescents' internalizing problems over a longer period of time or during a time when adolescents' mental health may be more vulnerable to change (e.g., during the COVID pandemic; Yang et al., 2021). Second, this finding may imply that mother-child relationships (i.e., parental hostility toward the child) may be more predictive of adolescents' internalizing problems than mothers' individual factors (i.e., parental burnout). It is possible that parental hostility toward children may directly worsen children's psychological adjustment (Price et al., 2010), whereas parental burnout acts as a distal factor of internalizing problems.

Taken together, our findings reported here are novel and important in several ways. First, few studies have examined the role of parental burnout in child development, and none that we are aware of focuses on parental burnout in relation to adolescents' internalizing and externalizing problems. This study provides insights into understanding how parental burnout plays a role in parental hostility and adolescents' internalizing and externalizing problems. Second, this study used a longitudinal design with path analyses to assess the hypothesized model that controls for earlier levels of parental hostility and adolescents' internalizing and externalizing problems. This approach allowed our model to take into account not only the concurrent associations between parental hostility and adolescents' adjustment, but also the temporal stability of each. In other words, the current study assessed the degree to which changes in maternal hostility influenced by mothers' parental burnout predicted change in adolescents' internalizing and externalizing problems. Finally, this study has theoretical implications by emphasizing the indirect role of parental burnout in adolescents' internalizing and externalizing problems via parenting behaviors. It is necessary to have more theoretical attention to the role of parental burnout in adolescent adjustment, and develop interventions to alleviate the negative impacts of parental burnout.

Limitations and Future Directions

There are some limitations in the present study that point to directions for future research. First, although the theoretical model that parental burnout predicts parenting behaviors, which in turn influences adolescent adjustment, was empirically examined in the current study, it is possible that the reciprocal associations between parental burnout and adolescent adjustment may also exist. For example, parents who have children with maladjustment may be much more likely to experience burnout over time. It remains unclear whether adolescents' internalizing and externalizing problems may promote parental burnout over time. Therefore, future studies should assess parental burnout for two or more times to test the transactional processes and reciprocal influences among parental burnout, parenting behaviors, and adolescent adjustment.

Second, given that this study focused on negative parenting behaviors, it remains unclear whether positive parenting behaviors such as parental warmth and acceptance also serve as a mechanism through which parental burnout plays a role in children's adjustment. For example, when parents experience high levels of parental burnout, they may not show parental warmth toward their children. In other words, parental burnout seems to disrupt parents' abilities to exhibit positive parenting practices (e.g., parental warmth), which, in turn, may lead to an increase in children's maladjustment (Khaleque, 2013). Future studies should include both positive and negative parenting behaviors to investigate their unique effects.

Third, we only examined the role of mothers' parental burnout in adolescent development; thus it remains unknown whether Chinese fathers' burnout has a similar impact on adolescents. Paternal parenting plays a crucial role in child development, and differs from maternal parenting (e.g., Cabrera et al., 2018; Li, 2020). Moreover, how fathers and mothers influence child development tends to diverge more during the transition into adolescence due to children's maturational changes (Collins & Russell, 1991). Therefore, future research can investigate how fathers' burnout influences their adolescents' internalizing and externalizing problems, and compare the similarities and differences of fathers and mothers in this process. Moreover, grandparents may also play an important role in caregiving in some Chinese families (Li & Liu, 2019; Luo et al., 2020). For example, previous evidence suggests that, similar to Chinese mothers whose parenting stress was related to mother-child conflict, grandmothers' parenting stress was also related to grandmother-child conflict (Zou et al., 2020). Future studies can assess both parents and grandparents' burnout to examine their impacts on adolescent adjustment.

Finally, it is important to note that the longitudinal associations between parental burnout and parenting behaviors (or children's adjustment) may be due to their common links with other unmeasured or "third" variables such as parenting stress. Although parental burnout was conceptually distinguished from parenting stress (Roskam et al., 2017; Van Bakel et al., 2018), the present study did not assess parenting stress and control for it in the analyses. Therefore, it cannot rule out the possibility that parenting stress underlies the relations between parental burnout and parenting behaviors (or children's adjustment). Future research can address this issue by simultaneously testing both parental burnout and parenting stress in the same model. Moreover, it is also informative for future studies to compare burned-out parents with stressed but

not burned-out parents (as a control group), with attention to the unique consequences of parental burnout on parenting behaviors and children's adjustment.

Conclusion

To summarize, this study makes significant contributions by elucidating the associations between parental burnout, parenting behaviors, and adolescents' adjustment in China. Specifically, the present findings provide the first empirical evidence that mothers' parental burnout was related to adolescents' perceptions of their mothers' parental hostility, which were in turn related to adolescents' both internalizing and externalizing problems. These findings highlighted that exposure to parental burnout may be a risk factor for children's adjustment. As this study marks a first but significant step, more investigations are necessary to enhance our understanding of the influence of parental burnout on children's developmental outcomes.

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