Abstract

Introduction

The present study calls attention to the longitudinal relations between mothers', fathers', and adolescents' emotion dysregulation and adolescents' internalizing problems. To this end, we tested the associations between family members' emotion dysregulation and adolescents' internalizing problems over time.

Methods

Over a 12-month period, 386 Chinese families from Hong Kong involving mothers, fathers, and adolescent children (children at 12 to 17 years of age; boys = 185, girls = 201) completed a set of questionnaires twice.

Results

Multi-group path analysis revealed unidirectional effects of mothers' emotion dysregulation on fathers' and adolescents' emotion dysregulation over time. Adolescents' emotion dysregulation was also related to their subsequent internalizing problems. The associations did not differ as a function of adolescents' gender.

Conclusion

The present findings underscore the significance of mothers' emotion dysregulation on fathers' and adolescents' emotion dysregulation. As a risk factor, adolescents' emotion dysregulation was also predictive of their internalizing problems 12 months later. Taken

together, this study serves to inform prevention and intervention efforts in promoting emotion regulation as a family asset associated with adolescents' internalizing problems.

Keywords: emotion dysregulation, internalizing problems, mother-child dynamics, father-child dynamics

Emotion Dysregulation between Mothers, Fathers, and Adolescents: Implications for Adolescents' Internalizing Problems

The family emotional context is pivotal to child adjustment (Strayer & Roberts, 2004). According to a tripartite model of familial influence in adolescents' emotion regulation (Morris et al., 2017; Morris et al., 2007) and a heuristic model of intergenerational transmission and interpersonal processes of self-regulation (Deater-Deckard, 2014), parents' emotion regulation and socialization are crucial to children's ability to regulate emotions and lessen internalizing problems (see also Bridgett et al. 2015; Eisenberg et al., 1998; Eisenberg et al., 2010, for reviews). Nevertheless, our understanding about the interplay between mothers', fathers', and adolescents' emotion dysregulation and adolescents' internalizing problems remains largely limited.

Previous research defined emotion regulation as both internal and external mechanisms associated with initiating, modulating, and maintaining the occurrence, expression, and intensity of emotions (Thompson, 1994). Emotion dysregulation, as exemplified by nonacceptance of emotional responses, difficulties engaged in goal-directed activities, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional clarity (Gratz & Roemer, 2004), has far-reaching consequences in heightening adolescents' internalizing problems including symptoms of anxiety and depression (Beauchaine, 2015; Compas et al., 2017; Lougheed & Hollenstein,

2012). During the transition to adolescence, children encounter salient tasks and issues such as puberty, self-identity formation, friendship and school transitions, and attainment of psychological autonomy, all of which may elicit family stress, emotional fluctuations, and children's increased susceptibility to internalizing problems (Arnett, 1999; Cicchetti & Rogosch 2002; Graber, 2004; Pettit & Arsiwalla, 2008; Steinberg, 2005). Thus, it is important to investigate how family dynamics are related to adolescents' emotion regulation and internalizing problems during this critical period.

Supporting family frameworks of intergenerational transmission of emotion regulation (Deater-Deckard, 2014; Morris et al., 2017; Morris et al., 2007), recent findings showed that parents' and children's emotion regulation are closely related (Crespo et al., 2017; Li et al., 2019). Notably, parents' emotion regulation difficulties could hinder adolescents' emotion regulation and adjustment directly (Crespo et al., 2017) or through parents' emotional parenting practices, such as invalidation of adolescents' emotions (Buckholdt et al., 2014; Li et al., 2019). When parents have difficulties in regulating their own emotions, they may be more likely to respond to children's emotions in negative ways, e.g., through neglect or punishment of children's sadness, anger, and shame. On the contrary, parents who are better regulated and more supportive in times of need have children with fewer internalizing problems (Stocker et al., 2007).

The role of family dynamics in adolescents' emotion regulation and internalizing

problems are significant not only in Western societies, but also in Asian contexts and samples (e.g., Han et al., 2015; Park et al., 2011; Quach et al., 2015). Indeed, understanding family-wide emotion regulation is particularly relevant to the Chinese context, given the cultural emphasis of family interconnectedness (Markus & Kitayama, 1991) and harmony (Leung et al., 2002). Traditional Chinese proverbs such as "家和萬事興" (i.e., *All affairs prosper in harmonious families*) suggest that disruption of harmony through emotion dysregulation might dampen family dynamics and adolescents' psychological health. By teasing apart the relation between family members' emotion dysregulation and adolescents' internalizing problems, this study served to enable a more complete understanding of family dynamics in the Chinese context.

Mothers' and Fathers' Behaviors and Adolescents' Adjustment

Although mothers' and fathers' emotion regulation is crucial to child adjustment, existing studies have often focused solely on maternal effects (e.g., Asbrand et al., 2016; Crandall et al., 2016; Crespo et al., 2017). When both maternal and paternal behaviors were investigated, findings revealed differential patterns as a function of parents' gender. In a cross-sectional investigation of parents' and children's emotion regulation, Bariola et al. (2012) found that only some of their regulation strategies were related to each other, and that the relation differed between mothers and fathers. Specifically, mothers' expressive suppression, but not cognitive reappraisal, predicted children's expressive suppression,

whereas fathers' and children's emotion regulation strategies were not related at all. Another study, however, showed that both mothers' and fathers' emotion dysregulation were related to children's emotional lability via mediating processes, namely parents' unsupportive emotions (Li et al., 2019). In an experience sampling study involving repeated daily assessments, mothers' cognitive reappraisal interacted with other variables, such as mother-adolescent relationship quality and adolescents' age, to predict adolescents' cognitive reappraisal. However, neither mothers' nor fathers' emotion regulation strategies alone predicted adolescents' emotion regulation strategies (Silva et al., 2018). These complex findings call for further investigation to understand how, and whether, family members' general dysregulation of emotions are related to each other.

Beyond emotion regulation, other studies similarly showed conflicting findings between mother-child vs father-child dynamics and children's internalizing problems. Notably, one study suggested that mothers' and fathers' negative emotional expressiveness and emotion coaching both predicted adolescents' internalizing problems (Stocker et al., 2007). However, when mothers' and fathers' psychological control were tested simultaneously as predictors, another study showed that only fathers' psychological control accounted for unique variance in adolescents' internalizing problems (Lansford et al., 2014). More recently, Cheung, Boise et al. (2018) found that mothers' emotion socialization practices interacted with inconsistent discipline to predict children's internalizing problems,

whereas fathers' positive parenting and inconsistent discipline additively predicted children's internalizing problems. Taken together, although parents' gender in and of itself was not related to children's internalizing problems (van der Sluis et al., 2015), mothers' and fathers' specific behaviors were differentially linked to children's internalizing problems. The differential findings, however, differed across studies, depending on such variables as parents' specific behavior, age of the child, and methodological approach.

Moderating Role of Adolescents' Gender

Besides parents' gender, some studies showed that children's gender contributed to emotion regulation and internalizing problems in adolescence and beyond (see Nolen-Hoeksema, 2012, for a review), whereas others reported null-findings (Seymour et al., 2014; Silva et al., 2018; van der Sluis et al., 2015). While a majority of studies included children's gender as a covariate (e.g., Crandall et al., 2015; Crespo et al., 2017), studies that included it as a moderator showed complex findings. Notably, Sontag and Graber (2010) found that engagement coping involving emotion regulation, cognitive restructuring, and problem solving buffered the effect of peer stress on disengagement coping and subsequent internalizing symptoms for girls, but not for boys. On the contrary, Chervonsky and Hunt (2018) reported that depressive symptoms were associated with greater cognitive reappraisal concurrently and longitudinally for boys, but not for girls. Turning to the Chinese context, Cheung, Leung et al. (2018) revealed that the link between adolescents' emotional

intelligence (i.e., regulation, use, and appraisal of emotions) and internalizing problems were similar between boys and girls. Given the complex mix of findings involving gender, the next step is to clarify the effects of emotion dysregulation as a function of parents' and adolescents' gender, as well as their implications on the family.

Bidirectional Parent-Child Effects

According to family systems theory (Cox & Paley, 1997; Minuchin, 1985), family interactions are reciprocal and involve multiple subsystems, such as interparental, mother-child, and father-child subsystems. Apart from the commonly investigated parent-to-child effects (Brock & Kochanska, 2015; Doyle & Markiewicz, 2005), numerous findings suggested that parent and child effects coexist to bidirectionally alter family dynamics (Bell, 1968; Cheung et al., 2016; Lollis & Kuczynski, 1997). Although our grounding frameworks of intergenerational transmission of emotion regulation (Deater-Deckard, 2014; Morris et al., 2017; Morris et al., 2007) primarily discussed parent effects on child adjustment, bidirectional parent-child effects were also acknowledged. Child effects might be particularly prevalent in adolescence, as children's physical maturation, social, and psychological changes could heighten the stress experienced by parents and children (Pettit & Arsiwalla, 2008). Indeed, recent findings suggested that both mothers' and children's emotion dysregulation were associated with mother-child relationship quality and children's emotion dysregulation in adolescence (Jiang et al., 2020). Another study also

showed that positive parenting and children's internalizing problems were reciprocally related (Serbin et al., 2015). In a study spanning across 10 years with three time points, mothers' involvement did not always predict children's internalizing problems. However, children's internalizing problems predicted mothers' involvement across all time points (Hein et al., 2018). Interestingly, the ways adolescents managed information, such as disclosing and concealing strategies, also changed their parents' monitoring behaviors and altered parent-child relationship quality (Keijsers & Laird, 2010). For example, adolescents disclosing more about themselves received greater parental agreement and maternal warmth (Cumsille et al., 2010).

Despite a handful of research demonstrating child effects on parents' behaviors, null findings have also been documented in the literature. Although adolescents' subjective well-being predicted mothers' and fathers' subjective well-being, adolescents' psychological distress did not contribute to parents' distress (Chi et al., 2019). Similarly, in another study, adolescents' unhappiness did not affect parents' mental distress (Webb et al., 2017). In a sample of youths with autism spectrum disorder, youths' externalizing problems, but not internalizing problems, predicted parenting practices over time. Supporting family systems theory (Cox & Paley, 1997; Minuchin, 1985) and models of child effects (Bell, 1968; Pettit & Arsiwalla, 2008), adolescents' behaviors do sometimes contribute to family dynamics. Yet, it has remained inconclusive as to whether parent and child effects take place in the context of

family members' emotion dysregulation.

The Present Study

Guided by family frameworks of intergenerational transmission of emotion regulation (Deater-Deckard, 2014; Morris et al., 2017; Morris et al., 2007), this study examined the longitudinal relations between mothers', fathers', and adolescents' emotion dysregulation and adolescents' internalizing problems. The study served the important function of filling the gap in the literature that is dominated by cross-sectional data, data from Western contexts, and limited and inconsistent findings on gender effects. Embedded in the study were hypotheses concerning reciprocal relations between mothers, fathers, and adolescents. We hypothesized (a) reciprocal predications among mothers', fathers', and adolescents' emotion dysregulation from Time 1 (T1) to Time 2 (T2), with a 12-month lag between time points, and (b) longitudinal predictions about the relationship between mothers', fathers', and adolescents' emotion dysregulation and adolescents' internalizing problems. Given the mixed findings concerning gender effects, we explored the moderating role of adolescents' gender without an a priori hypothesis.

Method

Participants

Participants were 389 Hong Kong Chinese families involving martially intact mothers and fathers, and adolescent children (185 boys, 201 girls) ranging in age from 12 to

17 years (M = 13.64, SD = 1.15). Participants were recruited by mass emails, letters to schools and non-government organizations, and online advertisements. The retention rate between T1 and T2 was 88.17%. At T1, participating families involved 389 adolescents, 378 mothers, and 307 fathers. Among these families, 343 adolescents, 332 mothers, and 292 fathers participated at T2. Participants received a total of HK$100 supermarket coupon (~US$12.82) for their time on this study. The study was approved by the institutional review board prior to its implementation. Informed consent was obtained from participants prior to the survey administration. The demographic variables are presented in Table 1. The dropout and retained participants did not differ on demographic variables and all variables at T1, ps > .05. Boys and girls did not differ on the mean levels of all variables, ps > .05.

Measures

Demographic information

Participants provided demographic data including age, gender, educational level, monthly household income, and housing type.

Emotion dysregulation

The 36-item Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) was used to assess parents' and adolescents' emotion dysregulation. The DERS consisted of six subscales, including nonacceptance of emotional responses, difficulties engaged in goal-directed activities, impulse control difficulties, lack of emotional awareness, limited

access to emotion regulation strategies, and lack of emotional clarity. The original measure was translated from English to Chinese using back-translation procedures (Brislin, 1970). Discrepancies were discussed and resolved by the research team and the first author. The DERS had previously been validated in Chinese participants ranging in age from 16 to 60 years (Li et al., 2018; Wang et al., 2007). Based on validation studies, the factor structure of DERS was similar between adolescents and adults (Sarıtaş-Atalar et al., 2015; Neumann et al., 2010), with adequate concurrent validity and internal consistency. Mothers, fathers, and adolescents indicated the applicability of each statement to their daily lives on a 5-point scale ranging from 1 (*almost never*) to 5 (*almost always*). Sample items included "I have difficulty making sense out of my feelings" and "when I'm upset, I feel out of control." The item scores were averaged, with higher scores reflecting greater levels of emotion dysregulation. Cronbach's alphas ranged from .90 to .93 at T1 and T2.

Internalizing problems. Adolescents completed the existing Chinese version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). To test study's hypotheses, the 10-item internalizing problem subscale was extracted. The SDQ had been validated in samples of Chinese children and adolescents and yielded adequate validity and reliability (Lai et al., 2010). Adolescents each rated adolescents' behaviors over the last six months on a 3-point scale from 0 (*not true*) to 2 (*certainly true*). Sample items included, "I am often unhappy, depressed or tearful" and "I am nervous in new situations and easily lose

confidence." Higher scores indicating more difficulties. Cronbach's alphas were .71 and .72 at T1 and T2, respectively.

Data Analysis

MPLUS, Version 8 (Muthén & Muthén, 2017) was used to conduct data analyses. Full information maximum likelihood method was used to handle missing data. Correlations, means, standard deviations, and other descriptive statistics were conducted for all variables. Multi-group path analysis was then used to test the central hypotheses between boys and girls. Maximum likelihood method was used to examine the model fit to the observed matrices of variance and covariance.

In the path analysis, all parameters were first estimated freely between boys and girls in an unconstrained model. To examine adolescents' gender as a moderator, χ^2 difference test was used, with parameter estimates constrained to be equal between genders. Specifically, a significant χ^2 difference relative to the *df* difference between the unconstrained and the constrained models would indicate differences between boys and girls (i.e., gender moderation). A non-significant χ^2 difference between the models would indicate similarities between boys and girls (i.e., no gender moderation). The procedure was repeated until all parameter estimates were constrained and tested.

Results

Tables 2 and 3 shows the means, standard deviations, and correlations for all

variables in the path model for boys and girls, respectively. In step 1, all parameters were freely estimated between boys and girls. This unconstrained baseline model demonstrated adequate fit to the data, $\chi^2(8) = 11.74$, $p > .16$, CFI = .99, TLI = .96, RMSEA = .03, SRMR = .05. To examine the moderating effect of gender, the estimates were constrained to be equal, one by one, between boys and girls in the subsequent models. Among the 32 path estimates under study, the χ^2 differences were non-significant between the constrained and the unconstrained models, *p*s > .05. The final model with 32 constrained estimates had adequate fit, $\chi^2(40) = 42.49$, $p > .05$, CFI = 1.00, TLI = .99; RMSEA = .02, SRMR = .06. The overall χ^2 difference between the unconstrained and constrained models was non-significant, $\Delta\chi^2(32) = 30.75$, $p > .05$. Consequently, the gender-constrained model was selected based on the parsimony principle, i.e., no moderating effect was found between boys and girls.

In the final model, T1 mothers' emotion dysregulation predicted T2 fathers' and adolescents' emotion dysregulation, $B = .18$, $SE = .06$, $p < .01$ and $B = .22$, $SE = .06$, $p < .001$, respectively. T1 adolescents' emotion dysregulation predicted their own internalizing problems at T2, $B = 1.14$, $SE = .41$, $p < .01$. The autoregressive control variables were significant, i.e., T1 predicted T2 mothers' emotion dysregulation, $B = .46$, $SE = .06$; T1 predicted T2 fathers' emotion dysregulation, $B = .41$, $SE = .07$; T1 predicted T2 adolescents' emotion dysregulation, $B = .52$, $SE = .06$; and T1 predicted T2 adolescents' internalizing problems, $B = .36$, $SE = .06$, *p*s < .001, respectively. Age did not predict the variables at T2,

*p*s > .05. The covariance and error covariance were related within time, *p*s < .05, except for the error covariance between T2 fathers' emotion dysregulation and T2 adolescents' internalizing problems, *p* > .05. Details are shown in Figure 1 and Table 4.

Discussion

Grounded in family frameworks of intergenerational transmission of emotion regulation (Deater-Deckard, 2014; Morris et al., 2017; Morris et al., 2007), the present study was designed to shed light on the relations between family members' emotion dysregulation and adolescents' internalizing problems. Unique to the findings was that fathers' and adolescents' emotion dysregulation was dependent on mothers' behaviors. Surprisingly, adolescents' emotion dysregulation and internalizing problems failed to predict mothers' or fathers' subsequent emotion dysregulation, thereby contradicting previous work on the reciprocity of parent-child dynamics (Bell, 1968; Cheung et al., 2016; Serbin et al., 2015). Fathers' dysregulation also was not associated with mothers' and adolescents' subsequent dysregulation. These processes were similar between boys and girls and extended the literature by demonstrating gender universality of the path model in the Chinese context.

Consistent with previous findings on the association between maternal behaviors and adolescents' adjustment (e.g., Bariola et al., 2012), our data indicated that mothers' emotion dysregulation emerged as the only predictor of adolescents' emotion dysregulation over and above paternal and child effects. These findings resonated with a recent study showing that

emerging adult children's negative dynamics with mothers, but not with fathers, were related to the children's expressive suppression in the Chinese context (Cheung et al., 2019). Likewise, mothers' emotion dysregulation predicted fathers' dysregulation longitudinally. Hence, mothers' overall dysregulated behaviors are crucial in changing both fathers' and adolescents' behaviors in the Chinese context.

Surprisingly, adolescents' emotion dysregulation and internalizing problems were not related to mothers' and fathers' future emotion dysregulation. Although our findings did not resonate with the literature that evidenced child effects on parents' behaviors (e.g., Serbin et al., 2015), they did suggest that adolescents' own emotion dysregulation and internalizing problems were longitudinally related (see also Beauchaine, 2015; Cheung & Park, 2010), thereby showing emotion dysregulation as a risk factor for psychological adjustment. Another unexpected finding was that fathers' emotion dysregulation at T1 only predicted fathers', but not others', emotion dysregulation at T2. Although the significant T1 correlations between fathers', mothers', and adolescents' behaviors did suggest mother-father-adolescent cross-sectional relations, the longitudinal significance of fathers on mothers and adolescents dissipated upon the inclusion of other members' behaviors. Conforming with research showing a lack of relation between fathers' and children's emotion regulation (e.g., Bariola et al., 2012), the present study also indicated that fathers' behaviors, specifically their dysregulation of emotions, might be less crucial than mothers' behaviors in predicting

adolescents' future adjustment.

Limitations and Future Directions

Despite the strengths of this study involving mothers', fathers', and adolescents' longitudinal data, the utilization of a full autoregressive control model, and a rigorous test of gender effects, several caveats are warranted. First, given that the correlational self-report data were collected 12 months apart, findings precluded us from drawing long-term conclusions or momentary dynamics between family members over time. Hence, future studies should extend these findings by utilizing a long-term and multi-method approach, with the inclusion of questionnaire, observational, physiological, and momentary data. Next, a majority of the participants were Chinese families having a low to middle socioeconomic status in Hong Kong. Hence, future research is necessary to generate these findings to families in Chinese contexts with a more diverse socioeconomic background. Also, further investigation between culture and family-wide emotion dysregulation may be helpful to understand how cultural values are associated with family dynamics. Along the same lines, another fruitful avenue may be to statistically compare the mean levels and strengths of associations between diverse Eastern and Western cultures, so that a more conclusive inference could be drawn across cultures. Finally, due to the relatively small sample, we tested a model between family members' emotion dysregulation and adolescents' internalizing symptoms only. Future studies should collect a larger sample to minimize

potential biases in further understanding adolescents' internalizing problems, externalizing problems, and socioemotional adjustment.

Conclusion and Implication for Practice

The present study calls attention to the association between mothers', fathers', and adolescents' emotion dysregulation and adolescents' internalizing problems. While mothers' emotion dysregulation was related to fathers' and adolescents' subsequent dysregulation, fathers' emotion dysregulation was comparatively less pivotal in predicting other members' behaviors. Additionally, a unidirectional mother-to-child effect on emotion dysregulation was demonstrated, regardless of the gender of the adolescents. Taken together, the study informs practitioners and researchers about family dynamics between mothers, fathers, and adolescents in child adjustment within time and over time. Psychological interventions and translational programs gearing toward enhancing parents' and adolescents' emotion regulation merit future investigation.

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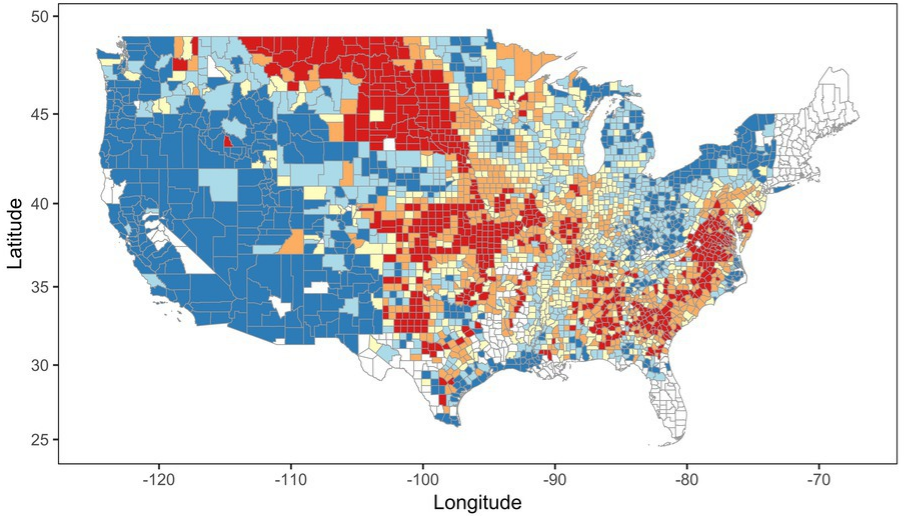
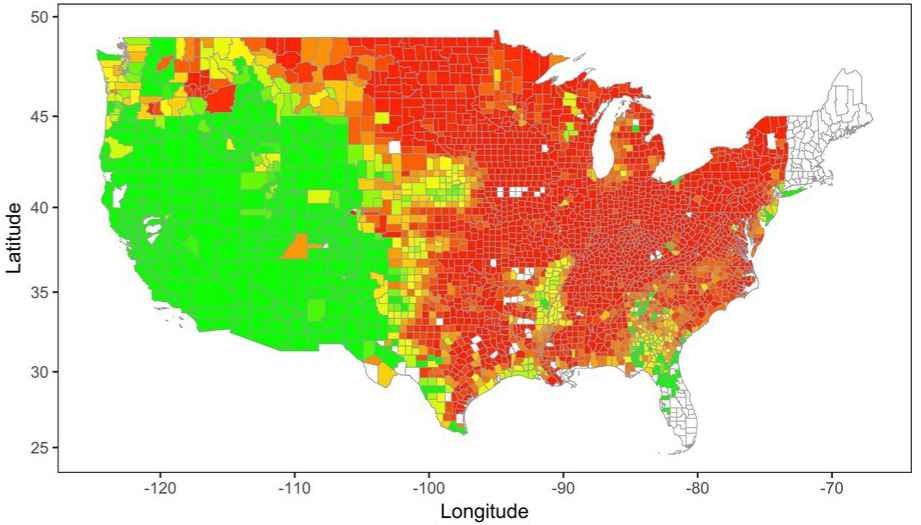
Agriculture Drought Sensitivity Index



ADVI

Highest sensitivity | Medium-high sensitivity | Medium sensitivity | Medium-low sensitivity | Lowest sensitivity

Percentage of Acres Irrigated



Percent

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%