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RESEARCH ARTICLE

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The roles of parenting, resilience, and interpersonal relationships on adolescents' mental health and stress-related growth during COVID-19

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Abstract

Background: The present longitudinal study investigated parenting style as a precursor for Chinese adolescents' stress-related growth and mental health difficulties during the COVID-19 pandemic, as well as the mediating roles of intrapersonal resilience and interpersonal relationships (i.e., peer and parent–adolescent).

Methods: Chinese adolescents in a middle school (7th grade) and their parents in Beijing, China, were invited to complete a survey at two time points (T1: September 2020, T2: June 2021). A total of 206 adolescents (52.9% boys; $M_{age} = 12.90$ years, $SD_{age} = 0.33$) and parents (17.5% fathers, 82.4% mothers; $M_{age} = 43.50$ years, $SD_{age} = 4.76$ years) were included in this study.

Results: Results showed that Chinese parents' authoritarian, not authoritative parenting, predicted adolescents' mental health difficulties nine months later. In addition, parent–adolescent relationships, but not peer relationships nor resilience, mediated the relations between parenting style and stress-related growth. Adolescents' resilience predicted fewer mental health difficulties.

Conclusion: It is important to target multiple ecologies (e.g., family) of adolescents for promoting positive adjustment.

KEYWORDS

mental health, parenting, peer relationship, resilience, stress-related growth

1 | INTRODUCTION

Since the beginning of 2020, COVID-19 has impacted children and families around the world (Hawke et al., 2020; Zhen & Zhou, 2022). Chinese children first experienced the impact as early as January 2020 with school closure, virtual learning, and quarantines for most of the spring semester in 2020 (January to June). As Chinese students returned to in-person learning in fall of 2020, they continued to experience the ongoing impact of COVID-19, including mask mandates in the classroom, social distancing, and some unexpected quarantines due to an increase in COVID-19 cases in the community. Some students may struggle with mental health difficulties, while some may also experience stress-related growth, or positive psychological changes (e.g., closer relationships with family, a new perspective on life) because of the challenges during the COVID-19. Stress-related growth is the "perception or experience of deriving benefits from encountering stressful circumstances and, thus, going beyond one's original level of normative functioning" (Park et al., 1996; Vaughn et al., 2009; p. 132). Stress-related growth reflects positive changes in both intrapersonal (e.g., a greater appreciation of life, a change in life priorities, a change in spirituality) and interpersonal or social resources (e.g., the establishment or appreciation of a closer relationship with family and friends), as well as the enhancement of personal strength (e.g., improved coping skills; Lau et al., 2015; Park et al., 1996). This longitudinal study seeks to examine Chinese students' stress-related growth during COVID-19 pandemic,

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as well as to identify the risk and protective factors for adjustment among Chinese middle school students (7th graders, the first year in middle school). Different from most existing studies up to date during COVID-19, we examine both positive (stress-related growth) and negative (mental health difficulties) adjustment outcomes longitudinally (in September 2020 and June 2021).

To study stress-related growth during COVID-19, we follow the *Developmental Asset Framework* (Sesma et al., 2005). The asset framework is built on Bronfenbrenner's model (Bronfenbrenner & Morris, 2006), which suggests that a child's successful development depends on constant, interwoven transactions between multiple, supportive ecologies (e.g., family, school, and peer), and identifies two major assets (i.e., internal and external). Youth are more likely to engage in "positive, socially constructive behaviors" when equipped with more internal (e.g., intrapersonal capabilities, such as resilience, and optimism) and external assets (e.g., positive relationships; Sesma et al., 2005). Parenting (authoritative and authoritarian parenting) can impact youth positive development (e.g., stress-related growth and less mental health difficulties) by fostering youth's internal assets (e.g., resilience, or an internal capacity of socioemotional skills to cope with stress; Hu, 2008) and external assets (e.g., social support, such as positive family communication, and positive peer interactions; Sesma et al., 2005). In this study, we examined how parenting (based on parent report) at T1 impacted Chinese adolescents' stress-related growth and mental health difficulties at T2, via adolescents' intrapersonal (i.e., resilience) and interpersonal relationships (i.e., peer relationship, parent–child relationship) at T1. We examined these positive outcomes because COVID-19 (e.g., quarantines, school closures) significantly challenged adolescents' resilience and social relationships, but also provided a unique opportunity for stress-related growth.

1.1 | Stress-related growth in adolescents during COVID-19

Given that the post-traumatic growth process involves a cognitive sophistication to identify meaningful changes, as well as losses because of trauma, whether adolescents can attain positive growth by themselves has been questioned (Milam et al., 2004). Yet, a few studies with adolescent survivors (mostly from natural disasters) demonstrated the existence of post-traumatic growth phenomenon (e.g., Meyerson et al., 2011), and pointed to adolescence as an important developmental period to investigate the post-traumatic growth process and its mechanisms (Kilmer & Gil-Rivas, 2010). For instance, researchers found that 93.3% of adolescents reported at least some growth in one area (including 60.7% reported high levels of growth in at least one area) after the 2008 earthquake in China (Lau et al., 2015). This was also similar for adolescents who experienced traumatic situations outside of natural disasters, such as traffic accidents, terrorism, cancer, parental loss, and institutional deprivation (Kilmer et al., 2014).

Adolescents' increased capabilities for managing stressful thoughts and regulating their emotions allow them to engage in a cognitive constructive process of reappraising their experiences (Salmon & Bryant, 2002). A recent study showed that Chinese adolescents (ages 15–18) experienced both post-traumatic growth and maladjustment outcomes (e.g., depressive symptoms and PTSD symptoms) during the COVID-19 pandemic (July 2020; Zhen & Zhou, 2022). Additionally, a study with Australian adolescents showed that coping strategies (e.g., positive reappraisal, emotional processing) and intrapersonal strength facilitated stress-related growth during COVID-19 (Waters et al., 2021). As a result, it is possible that resilience, conceptualized as an internal asset or capacity of socioemotional skills to cope with stress, may predict stress-related growth as well as fewer mental health difficulties. However, no published study has examined what factors could predict adolescents' stress-related growth and mental health difficulties longitudinally, especially among Chinese adolescents.

1.2 | Parenting, mental health, and stress-related growth

Parenting styles play an important role in adolescent adjustment, and studies have shown associations between parenting styles and adolescents' mental health difficulties (Eun et al., 2018; Fong et al., 2022). Among Chinese adolescents, authoritarian parenting, which consists of high parental control and low warmth, has been linked to more depressive symptoms (Liu et al., 2022). In contrast, more authoritative parenting was associated with fewer mental health difficulties among Chinese adolescents during COVID-19 (Ye et al., 2022). However, a limited number of studies have directly examined the role of parenting on adolescents' stress-related growth. Theoretically, parents who used authoritative parenting practices and had a strong relationship with their child can help their child to process and cope with their stressful event(s) more effectively (Waters et al., 2021). For example, Allen and colleagues (2022) found that strength-based parenting (e.g., recognizing children's strengths and abilities, and supporting children to cultivate their strengths) was associated with stress-related growth among Australian adolescents during COVID-19.

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During the pandemic, parents and children are spending more time together at home, and, as a result, children may turn to their parents for support and advice to manage COVID-related stress. Parenting style may "have a significant impact on the degree to which an adolescent is able to grow through the stress they are experiencing" (Allen et al., 2022, p. 180). How parents discuss stress with adolescents, through the positive reframing of the situation, may impact adolescents' coping and emotional regulation (Kilmer et al., 2014). How parenting styles are related to adolescent adjustment may also differ across cultural contexts (Allen and Loeb, 2015; Mousavi et al., 2016; Xia et al., 2015). While a systemic review showed some consistent associations between authoritative and authoritarian styles with depression in Chinese children and adolescents (Liu & Merritt, 2018), cultural relativist perspectives suggested that controlling parenting may be functional among Chinese families (Chao, 2001). Whether parenting is related to adolescent outcomes may also depend on adolescent's appraisal of such parenting behaviors (Soenens et al., 2015). We sought to examine these relations with Chinese parents and their adolescents. We hypothesized that authoritative parenting, but not authoritarian parenting, would be associated with positive youth outcomes (i.e., more stress-related growth and less mental health difficulties).

1.3 | The role of parenting on quality of interpersonal relationships and resilience

Supportive parenting (e.g., authoritative parenting style) has been associated with positive parent–child relationships and peer relationships, given that supportive parents are more likely to model constructive and emotionally regulated ways to manage interpersonal interactions (Eisenberg et al., 2009). Children's skills and relationship patterns developed in their interactions with parents can inform their interactions and relationships with peers (Masud et al., 2019; Russell et al., 1998). For example, when parents used verbal hostility and harsh discipline at home (as one component of authoritarian parenting), adolescents may learn these behaviors by observing the parents and use the same behaviors with peers, which is likely to create difficulty in peer relationships (Allen & Loeb, 2015).

Studies with Western samples have widely established the links between parenting styles and parent–adolescent relationships, such that more authoritative parenting and less authoritarian parenting were associated with greater parent–adolescent cohesion (Nelson et al., 2011) and less conflict (McKinney & Renk, 2011). Similarly, adolescents with parents who used more authoritative parenting and less authoritarian parenting were more likely to have positive peer relationships (Allen & Loeb, 2015). While some studies have shown a similar pattern with Chinese samples (e.g., Zhang et al., 2017), no published studies have examined how parenting impacts stress-related growth through the quality of interpersonal relationships (e.g., peer and family) in Chinese adolescents.

Likewise, parenting style has shown to be associated with adolescents' resilience in times of adversity, suggesting that authoritative parenting can facilitate adolescents' self-regulatory skills and ego resilience of exhibiting "flexible, adaptable behaviors" to bounce back from stressful experience by providing more predictability of the environment and warmth and protection against the potential harm (e.g., Eisenberg et al., 2009). A study with Chinese adolescents who has experienced traumatic event in their life time also showed that authoritative parenting and positive family support predicted adolescents' resilience and better ability to manage post-traumatic symptoms (Zhai et al., 2015).

In the context of the COVID-19 pandemic, adolescents' peer interactions are restricted while their time and contact with family members are renegotiated (Cassinat et al., 2021). In fact, one recent study suggested adolescents reported a perception of decreased friend support and increased family support during COVID-19 (Rogers et al., 2021). Such a decrease in peer relationships during the pandemic may strengthen the importance and reliance on their intrapersonal assets and interpersonal relationship with parents.

1.4 | The roles of adolescents' resilience on mental health and stress-related growth

Resilience, as a personal asset, refers to an individual's ability to show a positive adaptation and bounce back despite the experience of adversity (Hu, 2008). While resilience and stress-related growth are related constructs, they are distinct in that stress-related growth involves a transformation that incorporates a qualitative change in functioning or thriving that goes beyond the individual's original functioning before experiencing the stressful event (Cryder et al., 2006; Tedeschi & Calhoun, 1996). Studies have suggested that individuals with high resilience are more likely to exhibit effective coping, optimism, and cognitive flexibility, see adverse experiences with a different perspective or with hope, and find new meaning in life, which can facilitate stress-related growth (Kong et al., 2018; Lau et al., 2015; Salloum et al., 2019; Southwick & Charney, 2012). Youth resilience has also been associated with fewer mental health problems (Lau et al., 2015). Moreover, a study with Chinese adolescents during COVID-19 has shown that resilience serves as a psychological resource for coping with stressful life events and alleviating mental health difficulties (Cheong et al., 2023).

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A recent study with COVID-19 frontline healthcare workers in China showed an association that individuals with higher resilience were more likely to develop stress-related growth as traumatic events unfolded, and this stress-related growth further propelled greater resilience to cope with stressors over time, suggesting reciprocal relations between resilience and stress-related growth (Lyu et al., 2020). Wu and colleagues (2020) also suggested that the role of resilience on mental health difficulties outcomes tends to have a chain effect, in which individuals experiencing mental health difficulties may exhibit less resilience, and the resilience further predicts later mental health outcomes. We hypothesized that adolescents' resilience will be a mediating mechanism for the positive impact of authoritative parenting on adolescents' stress-related growth and mental health.

1.5 | The role of interpersonal relationships on mental health and stress-related growth

The positive role of parent–child relationships and peer relationships on adolescents' mental health is well-documented (Cao et al., 2021; Mackin et al., 2017; Roach, 2018). For example, a study with Chinese adolescents (Li et al., 2020) and with Australian adolescents (Magson et al., 2020) found that youth with positive peer relationships had a decreased risk of mental health problems during COVID-19. However, little research has investigated how the quality of peer relationships promotes stress-related growth following adversity (Tillery et al., 2017).

When adolescents have the opportunity to self-disclose in the context of meaningful relationships (e.g., parent–child relationships, peer relationships), adolescents are better positioned to cope with adversity and achieve stress-related growth (Yuan et al., 2018; Thrower et al., 2020). For example, friendship has been associated with more challenge-related growth among adolescents (Tillery et al., 2017). Additionally, following the Wenchuan earthquake, a positive parent–child relationship predicted more stress-related growth among adolescents by facilitating constructive cognitive reprocessing of the events and discussing the events with a positive reframing (Zhou et al., 2019). The present study examines how parent–child relationships and peer relationships, as adolescents' external assets, facilitate their stress-related growth and mental health outcomes during the COVID-19 pandemic. We hypothesized that adolescents' quality of interpersonal relationships will be mediating mechanisms for the positive impact of authoritative parenting on adolescents' stress-related growth and mental health.

2 | CURRENT STUDY

This longitudinal study examined how parent-reported parenting styles at Time 1 (T1; September 2020) predicted adolescent-reported stress-related growth and mental health difficulties at Time 2 (T2; June 2021) during the COVID-19 pandemic through intrapersonal (i.e., resilience) and interpersonal resources (i.e., parent–child relationship and peer relationship) reported by adolescents at T1 (as potential mediators). We hypothesized that (a) Chinese adolescents would experience stress-related growth during the COVID-19 pandemic; (b) more parent-reported authoritative parenting and less authoritarian parenting at T1 would predict better adolescent outcomes (i.e., more adolescent-reported stress-related growth and less mental health difficulties) at T2; (c) adolescents' intrapersonal (resilience at T1) and interpersonal resources (parent–adolescent relationship at T1, peer relationship at T1) would mediate the associations between parenting styles and T2 adolescent outcomes.

3 | METHOD

3.1 | Procedures

Students from one middle school in Beijing, China and their parents were invited to complete a survey in September 2020 (T1) and again in June 2021 (T2). This high-achieving middle school was affiliated with a prestigious university in Beijing, China, and students had an overall very high academic performance. Due to COVID-19, schools in Beijing were closed during the spring of 2020 and reopened in the fall of 2020. Part of the data from Wave 1 was used in a separate manuscript (Cheong et al., 2023). All 7th graders and their parents in the school were invited to participate in this study. At T1 (September 2020), classroom teachers posted the survey link for parents on the class social media page and encouraged all parents of 7th graders (one parent per family) to respond to survey items based on their experiences during the COVID-19 school closure. Parents gave consent to participate before they completed the survey online. Parents were reminded by the online survey platform to complete each survey question to reduce missing data, but they were allowed to skip items after the reminder. Students completed the surveys in the classroom using paper and pencil in September 2020 and June 2021. Parent's passive consent format was used for adolescents to participate as part of the

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student mental health screening at school. Parents were notified about the survey, and parents could withdraw their child from the survey. No parents withdrew their adolescents. Adolescents gave assent before they completed the survey. It took approximately 20 min for parents and adolescents to complete the respective surveys. Parent surveys were then linked with the adolescent surveys based on student ID. A total of 297 students completed surveys at both time points, and 206 of their parents completed the survey at T1. We only analyzed data from these 206 students and their parents for this paper.

3.2 | Participants

The final sample included 206 middle school students (52.9% boys; M_{age} = 12.90 years, SD_{age} = 0.33) and their parents (17.5% fathers and 82.4% mothers; M_{age} = 43.50 years, SD_{age} = 4.76 years). The majority of the parents were highly educated. About 34.0% of parents had a bachelor's degree, 43.2% held a master's degree, and 21.4% held a doctorate.

4 | MEASURES

4.1 | Parenting styles

The *Parenting Practice Questionnaire-Short Version* (Robinson et al., 1995) was used to measure parenting styles. This measure captures common parenting stylistic dimensions, and both the English and Chinese versions of the measure have been widely used (e.g., Cheah et al., 2009). Specifically, the authoritative parenting (15 items) pattern is comprised of three stylistic dimensions: (a) warmth (e.g., "I gave praise when my child is good"); (b) reasoning induction (e.g., "I give child reasons why rules should be obeyed"); and (c) autonomy granting/democratic participation (e.g., "I allow my child to give input into family rules"). Authoritarian parenting (12 items) pattern is comprised of four dimensions: (a) verbal hostility ("I yell or shout when child misbehaves"), (b) corporal punishment (e.g., "I slap child when the child misbehaves"), (c) nonreasoning/punitive strategies ("I punish by taking privileges away from child with little if any explanation"), and (d) directiveness (e.g., "I scold or criticize when child's behavior doesn't meet my expectations"). Authoritative and authoritarian parenting styles were assessed at T1. Fathers and mothers responded separately to items on a 5-point scale (1 = *never*, 5 = *always*). In the current study, the measure suggested good internal consistency and model fit. The Cronbach's α of authoritative and authoritarian scales were 0.869 and 0.842. The combined authoritative and authoritarian parenting model fit the data well, χ^2 = 130.284, *df* = 89, CFI = 0.961, RMSEA = 0.047, SRMR = 0.044.

4.2 | Resilience

Adolescents' intrapersonal capability to effectively cope with stress and adversity during COVID-19 at T1 and at T2 were evaluated using the *Chinese Resilience Scales for Chinese Adolescents* (Hu, 2008). The measure has been widely used in research on resilience among Chinese children and adolescents (Wang et al., 2014; Ye et al., 2016), demonstrating good internal consistency and model fit in a previous study (e.g., α = .86, CFI = 0.92, RMSEA = 0.07; Hu, 2008). Adolescents responded to 15 items from 3 subscales on a 7-point Likert scale (1 = *not like me at all*, 7 = *like me very much;* α = .880/.897): *personal resilience* subscale measures students' perseverance with goals (5 items, e.g., "Generally, I have a solution plan to deal with challenges."), *emotional regulation* (6 items, e.g., "I am able to regulate my emotion very well in a short time."), and *positive thinking/optimism* (4 items, e.g., "I believe everything has a positive aspect."). The model fit the data well at T1, χ^2 = 204.978, *df* = 85, CFI = 0.939 RMSEA = 0.069, SRMR = 0.052.

4.3 | The quality of parent–adolescent and peer relationships

Adolescents' quality of relationships with their parents and peers was assessed at T1 using the *Questionnaire of Interpersonal Quality* for Chinese students (Liu, 2010). The questionnaire was developed based on the *Network of Relationship Inventory* (Furman & Buhrmester, 1992). The measure has demonstrated good reliability (α = .78) and structural validity (GFI = 0.93, CFI = 0.90, RMSEA = 0.051; Liu, 2010) among Chinese adolescents. Adolescents responded to 7 items of parent–adolescent relationship (α = .831) and 7 items of peer relationship (α = .79) on a 7-point Likert scale (1 = *not like me at all*, 7 = *like me very much*). The questionnaire includes both positive (4 items, e.g., "Generally, parents will respect my opinions."/"My friends and I often encourage each other.") and negative (3 items, e.g., "I often quarrel with my parents."/"I often have

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conflicts with my friends.") aspects. Six items with negative quality were reverse coded for the overall score to reflect positive parent–child and peer relationships. The model fit of parent–child and peer relationship subscales were $\chi^2 = 22.799/15.150$, $df = 12/10$, CFI = 0.986/.993, RMSEA = 0.056/.042, and SRMR = 0.031/.028.

4.4 | Mental health difficulties

Adolescents' mental health difficulties (i.e., emotional and behavioral difficulties) for both T1 and T2 were assessed using *The Strengths and Difficulties Questionnaire-Chinese* (SDQ; Goodman et al., 1998). The measure has shown good convergent and discriminant validity (Du et al., 2008), and good internal consistency (e.g., $\alpha = .80$, Ye et al., 2022) in Chinese adolescents. Adolescents reported emotional difficulties (e.g., emotional symptoms and peer relationship problems) and behavioral difficulties (e.g., hyperactivity, conduct problems) using a 3-point Likert scale (0 = *not true*, 2 = *certainly true*). Sample items included "Often loses temper," "Many worries or often seems worried," and "Often fights with other youth or bullies them." A sum score of all 20 items was used to estimate the total difficulty score (Goodman et al., 1998). In the current study, the internal consistencies of the scale were 0.840 and 0.785 at T1 and T2.

4.5 | Stress-related growth

We used the *Chinese Version of the Revised Post-traumatic Growth Inventory for Children* (*PTGI-C-R*; Lau et al., 2015) to measure adolescents' stress-related growth during COVID-19. *PTGI-C-R* was validated among Chinese adolescents after the Sichuan Earthquake in 2008, suggesting good reliability and validity (Cronbach's $\alpha = .86$; *PTGI-C-R* was negatively correlated with depression and positively correlated with social support; Lau et al., 2015). Adolescents responded to 8 items (e.g., "I know what is important to me better than I used to before COVID-19."), using a 4-point Likert scale (1 = *no changes at all*, 4 = *great changes*). In the current study, Cronbach's α was 0.93. The models fit was $\chi^2 = 57.184$, $df = 18$, CFI = 0.977, RMSEA = 0.086, SRMR = 0.026.

5 | ANALYTIC APPROACH

We first used *SPSS (v. 28)* to examine changes in resilience and mental health difficulties over two time points. We then analyzed data using *Mplus 7.4*. Only four participants skipped some items. We used maximum likelihood estimation (ML) in *Mplus* to handle missing data and analyze the results. We used 5000 bootstrapping to test the mediation model. The path or indirect effect was considered to be significant if the 95% bootstrap confidence intervals (CI) did not contain a zero. We first tested the relationship between parenting at T1 and two adolescent adjustment outcomes at T2 while controlling for resilience and mental health difficulties at T1 (Figure 1). We then examined how the parent–adolescent relationship, peer relationships, and resilience at T1 mediated the relationship between parent-reported parenting at T1 and outcomes into one final model (see Figure 2). Additionally, in all regression analyses on youth mental health difficulties, age and gender were

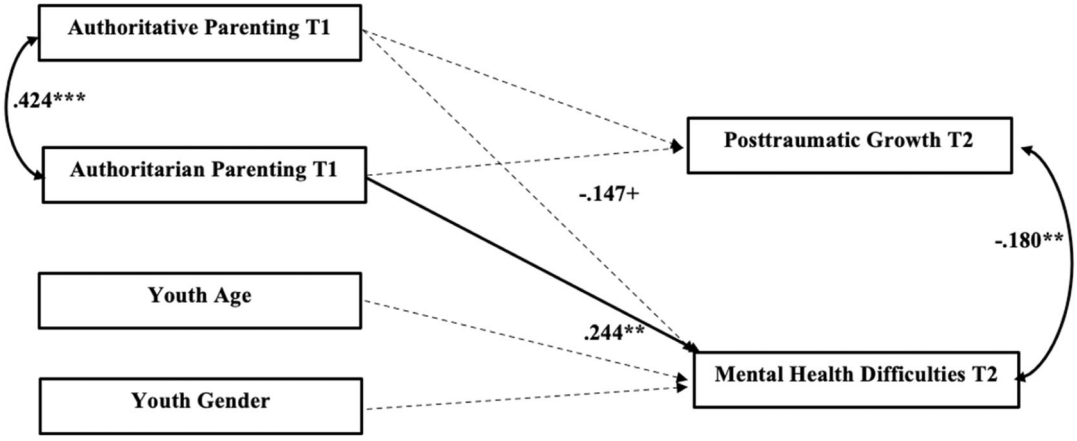

FIGURE 1 The effects of parenting styles at T1 on youth's stress-related growth, and mental health difficulties at T2. All estimates are standardized. Significant paths were indicated by solid lines, while nonsignificant paths were indicated by dotted lines. †$p < .10$ *$p < .05$, **$p < .01$, ***$p < .001$.

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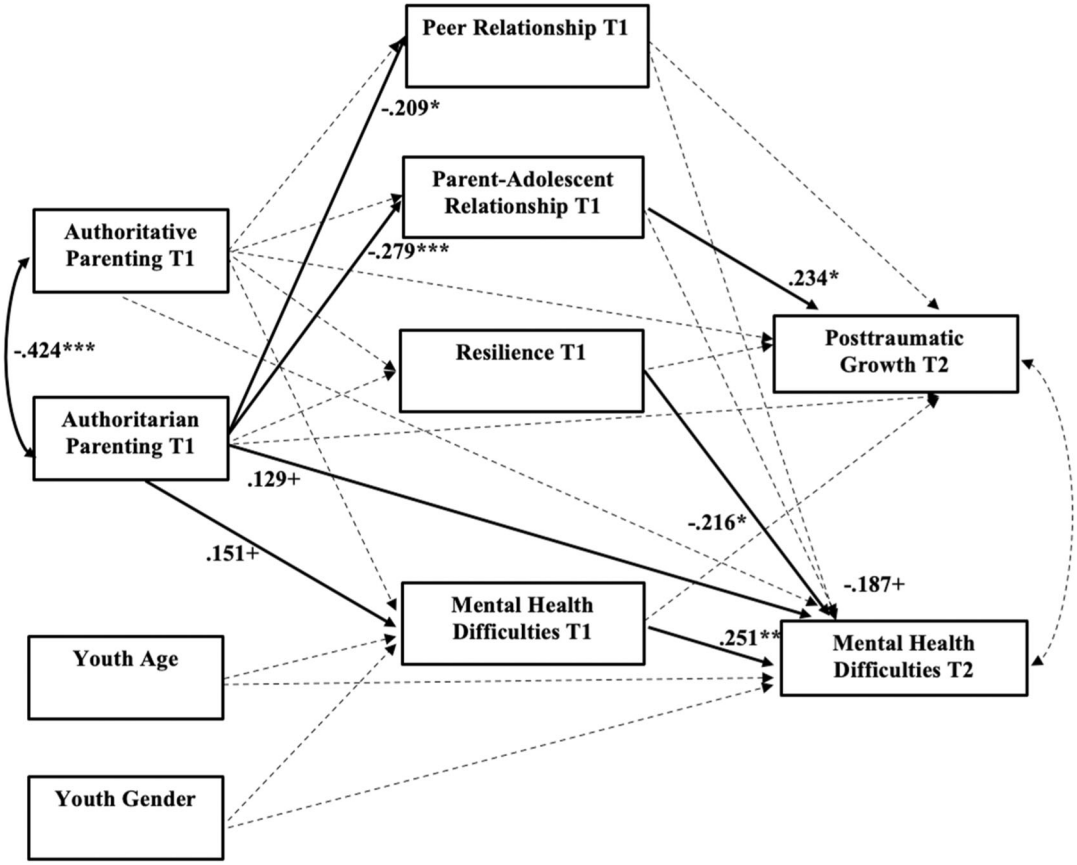

FIGURE 2 The indirect effects of parenting styles at T1 on youth's stress-related growth, and mental health difficulties at T2 via peer relationship, parent–adolescent relationship, and resilience at T1. All estimates are standardized. Significant paths were indicated by solid lines, while nonsignificant paths were indicated by dotted lines, and the correlations among mediators were all significant but not shown to facilitate reading. †$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$.

controlled. The model is considered to fit well if the comparative fit index (CFI) > 0.950, the root mean square error of approximation (RMSEA) < 0.650, and the standardized root mean square residual (SRMR) < 0.850 (Hancock & Mueller, 2013).

6 | RESULTS

6.1 | Descriptives

In the current study, 83.0% of adolescents reported experiencing some or great stress-related growth (the mean of the overall score in PTGI-C-R > 2). Adolescents reported significantly higher mental difficulties at T2 than T1 (Mean Difference = 5.393, $t(200) = 12.049$, $p < .001$). Specifically, at T1, 4.85% ($n = 10$) of the adolescents reported slightly elevated scores based on *SDQ* (15–17), 2.91% ($n = 6$) reported high scores (18–19) indicating a high risk of clinically significant problems, and 6.31% ($n = 13$) reported very high scores (20–40) indicating a very high risk of clinically significant problems. At T2, 16.02% ($n = 33$) of the adolescents reported slightly elevated scores, 5.33% ($n = 11$) reported high scores indicating a high risk of clinically significant problems, and 13.11% ($n = 27$) reported very high scores indicating a very high risk of clinically significant problems. See Table 1 for mean, standard deviation, and correlations. Authoritative and authoritarian parenting styles were negatively correlated. Authoritative parenting style was not significantly correlated with any outcome variables, but authoritarian parenting style was correlated with greater mental health difficulties at T2 but not significantly correlated with stress-related growth at T2. Qualities of peer relationships and parent–adolescent relationships were each correlated with fewer mental health difficulties at T2 and greater stress-related growth at T2. Resilience at T1 was correlated with fewer mental health difficulties at T2. Mental health difficulties at T1 were correlated with greater mental health difficulties at T2.

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TABLE 1 Mean, standard deviation (SD), and correlation among variables of interest.

	1	2	3	4	5	6	7	8
1. Authoritative Parenting T1								
2. Authoritarian Parenting T1	−0.421**							
3. Peer Relationship T1	0.128	−0.222**						
4. Parent–Adolescent Relationship T1	0.100	−0.260**	0.564**					
5. Resilience T1	0.058	−0.115	0.544**	0.607**				
6. Mental Health Difficulties T1	−0.118	−0.172*	−0.391**	−0.541**	−0.599**			
7. Stress-related Growth T2	0.003	0.013	0.222**	0.301**	0.225**	−0.244**		
8. Mental Health Difficulties T2	−0.085	0.146*	−0.197**	−0.357**	−0.347**	0.394**	−0.081	
Mean	4.078	1.821	6.063	5.461	5.491	8.572	2.928	14.121
SD	0.459	0.476	0.867	1.161	1.051	6.289	0.845	5.289

Abbreviations: T1, Time 1; T2, Time 2.

*$p < .05$; **$p < .01$.

6.2 | Parenting styles at time 1 predicting adolescent adjustments at time 2

This model fitted very well, χ^2 (6) = 5.800, CFI = 1.000, RMSEA = 0.000, SRMR = 0.029 (see Figure 1). Authoritarian parenting at T1 significantly predicted mental health difficulties ($\beta = .244$, 95% CI [0.100–0.387], $p = .001$) at T2, controlling for adolescent's gender and age. However, authoritative parenting at T1 was not a significant predictor for any adolescent outcomes at T2.

6.3 | Resilience, peer and parent–adolescent relationships at time 1 as mediators

The mediation model showed a good model fit, χ^2 (10) = 13.890, CFI = 0.990, RMSEA = 0.044, SRMR = 0.033 (see Figure 2). Authoritarian parenting at T1 had a marginally significant indirect effect on adolescents' stress-related growth at T2 (indirect effect = −0.065, 95% CI [−0.136 to −0.005], $p = .068$) via parent–adolescent relationship at T1. In specific, authoritarian parenting at T1 predicted lower quality of parent–adolescent relationship at T1 ($\beta = -0.279$, 95% CI [−0.416 to −0.143], $p < .001$), which then was associated with greater stress-related growth at T2 ($\beta = .234$, 95% CI [0.029–0.440], $p = .025$). In addition, neither peer relationship nor resilience significantly mediated the association between parenting styles and adolescents' mental health difficulties. However, adolescents' resilience at T1 predicted less mental health difficulties at T2 ($\beta = -0.216$, 95% CI [−0.393 to −0.038], $p = .017$.

7 | DISCUSSION

Based on our knowledge, this is the first study to examine the longitudinal predictors for adolescents' stress-related growth and mental health during COVID-19 among Chinese adolescents and their parents. This longitudinal study extended prior research (e.g., Waters et al., 2021; Zhen & Zhou, 2022) by investigating parenting style as a precursor for Chinese adolescents' stress-related growth, and mental health during school reopening in 2020-2021 academic year, as well as the role of internal (i.e., resilience) and external (i.e., peer and parent–adolescent relationships) assets in mediating these relations. The findings showed that the majority of the Chinese adolescents in our sample reported stress-related growth even though adolescents reported more mental health difficulties at T2 (June 2021) compared with T1 (September 2020). The finding is encouraging and points to the importance of examining stress-related growth during the pandemic to gain a full understanding of adolescent development during adversity.

The role of parenting style on stress-related growth and mental health was partially supported, with Chinese parents' authoritarian, not authoritative, parenting as a significant predictor for adolescents' mental health difficulties over time. Parent–adolescent relationships, but not personal resilience or peer relationship, mediated the relations between authoritarian parenting at T1 and stress-related growth at T2. As hypothesized, authoritarian parenting predicted poor quality of the parent–adolescent relationship, perhaps because adolescents may feel unsatisfied and unsupported by parents who are overly harsh, punitive, and inflexible (Bi et al., 2018; McKinney & Renk, 2011). In turn, adolescents who had a poor

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relationship with their parents were less likely to report stress-related growth, social connections, and resilience, but more likely to report mental health difficulties, suggesting that parent–adolescent relationship has long-term consequences on adolescents' adaptive adjustment following adverse events (Yuan et al., 2018; Zhou et al., 2019).

Similarly, authoritarian parenting also predicted poor peer relationships. As supported by the internal working model (Bowlby, 1969) and social learning theory (e.g., Russell et al., 1998), adolescents may learn particular behaviors from their parents that shape their schemas of approaching interpersonal relationships and negatively impact their peer relationships. When parents used verbal hostility, adolescents may learn these negative interpersonal interactions, which may transmit their difficulty in peer relations (Allen & Loeb, 2015). On the other hand, it is surprising that the peer relationship at T1 did not predict any adolescent outcomes at T2. This may be because Wave 1 data were collected at the beginning of the school year shortly after students (first year in the middle school) returned to in-person learning from virtual learning during the previous school year, and relationships with new peers were not fully formed at that time. As adolescents and parents spend more time together and less time with peers due to social distancing during COVID-19, it is important to promote a positive quality of parent–adolescent relationships as a mechanism for altering the trajectory of negative adjustment and/or facilitating positive growth in adolescents. These findings suggest that, in the context of restricted access to other social resources, parents, compared to peers, can play a more important role as an external asset, in adolescents' coping and adjustments.

Moreover, the role of resilience in adolescent adjustment was partially supported. Personal resilience (one's ability to bounce back from hardship, Lau et al., 2015) at T1 predicted a decrease in mental health difficulties at T2 but did not predict stress-related growth. The finding provides further support that having the capability and internal assets to cope effectively (e.g., emotion regulation, optimism, perseverance with goals) during stressful events is important to minimizing mental health difficulties over time (Lau et al., 2015).

According to the *Developmental Asset Framework*, adolescents who report having more internal and external assets are more likely to engage in adaptive behaviors (Sesma et al., 2005). Our findings demonstrated that parenting can impact adolescents' developmental assets that have consequences for adaptive coping and growth. Authoritarian parenting can result in fewer external assets (i.e., qualities of peer and parent–child relationships) among adolescents, contributing to negative adjustment outcomes. Moreover, our results suggested that an internal asset (i.e., resilience) plays an important role in maintaining adolescents' mental health, whereas external assets (parent–adolescent relationships) facilitate the growth process amid the ongoing and lingering pandemic. More specifically, parents may help their adolescents engage in more positive reframing and meaning-making of stressful situations that can foster their adaptive coping responses (Kilmer et al., 2014; Zhou et al., 2019).

The nonsignificant finding of authoritative parenting on Chinese adolescents' adjustment outcomes reflects some inconsistency in the current parenting literature. While it contrasts prior studies showing the positive role authoritative parenting has on youth's adjustment and mental health (e.g., Eisenberg et al., 2009; Liu & Merritt, 2018), it aligns with repeated calls for including more culture-specific parenting measures to further investigate the role of parenting on Chinese adolescents' adjustment (e.g., Cheah et al., 2015). It is possible that some constellations of parental support are not beneficial for Chinese adolescents as parental affirmation using items based on Western research may be perceived by adolescents as permissive (e.g., Xia et al., 2015), suggesting that more studies are needed to understand the distinct conceptions of parental support with a cultural lens, especially during a stressful situation like COVID-19. Parenting approaches not captured in these parenting typologies (e.g., authoritarian) constructed based on European American samples, such as parental protection, instrumental support, and involvement, may also impact Chinese adolescents' adjustment (Wu et al., 2002). Given some research suggesting discrepancies in parent-reported and youth-reported parenting (e.g., Bouffard & Armstrong, 2021; De Los Reyes et al., 2010) as well as youth's perception of parental support more strongly correlating with youth adjustment outcomes (e.g., Huang et al., 2019), it is also possible that, instead of the parental perception of their parenting, youth's perception of parenting or perceptions reported by multi-informants, can be a stronger predictor of youth mental health outcomes.

8 | LIMITATIONS AND FUTURE DIRECTIONS

The current study has several limitations. First, data were only collected at two time points, and the predictors and mediators were examined cross-sectionally (but from different informants). Future researchers should collect data on the same variables at three or more time points to assess the directionality of these relations. Future studies can also investigate mediators measured at a point between the first and the last phases to strengthen the understanding of the developmental process and mechanisms of these relations. Second, our sample size is relatively small considering the complexity of our model. Future studies should recruit a larger sample to replicate studies and establish the robustness of our findings. Third, the parenting variable was limited to assessing general parenting styles. Future studies can include culture-specific parenting practices to further unpack how different dimensions of parenting may impact Chinese adolescents' adjustment. In addition, we only

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collected data from one parent for each family and mixed paternal and maternal parenting styles together in the analysis. Future studies should collect parenting data from both parents or only include the primary caregiver's parenting style to examine their unique contributions. Fourth, the current sample was drawn from students with highly educated parents who have an affiliation with a top university in China. Thus, findings cannot be generalized to the broader population of Chinese families with different demographic characteristics. Lastly, stress-related growth was assessed while the pandemic and its disruptions to students' daily lives were still present. Adolescents' reports reflected their growth and adjustment in the midst of the pandemic (data from June 2021), which may be different from if data were collected at the end of the pandemic. Future studies should follow up with the same participants during a recovery phase of the pandemic.

9 | CONCLUSION AND IMPLICATIONS

Understanding the role of intrapersonal strength and interpersonal relationships on Chinese adolescents' stress-related growth and mental health during the COVID-19 pandemic is important for identifying factors that promote adaptive adjustment in youth in the midst of school reopening. The present longitudinal study showed authoritarian parenting to be a risk factor for Chinese adolescents' quality of relationship with parents and peers, as well as adjustment outcomes over time. Whereas personal resilience was an important predictor for reducing mental health difficulties, family processes (i.e., authoritarian parenting, parent–adolescent relationship) were salient for hindering or facilitating stress-related growth. Intervention efforts must focus on multiple ecologies of adolescents, promoting skill development as adolescents' intrapersonal resilience serves as an important source for effective coping, and fostering positive parent–adolescent relationships to aid adolescents' growth and prevent mental health difficulties during ongoing stressful life events, such as the global pandemic.

AUTHOR CONTRIBUTIONS

Yeram Cheong conceptualized the present study, interpreted the results, and drafted and edited the manuscript. Qianyu Zhu performed data analysis and drafted portions of the manuscript. Cixin Wang conceptualized the design and coordination of the project, assisted with data collection, and drafted portions of the manuscript. Ami Patel helped with the literature review and edit of the manuscript. Yijun Ye coordinated data collection. All authors read and approved the final manuscript.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

ETHICS STATEMENT

Data collection and study procedures involving human participants performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and approved by the Ethical Review board at Tsinghua University Middle School and Institutional Review Board of the University of Maryland, College Park. Informed consent was obtained from all participating parents and youth in the present study.

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