



Distance education and parents' mental health: the role of resilience, parent-child communication and relationships

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Abstract:

According to a UNESCO survey, 173 countries had closed schools and other educational facilities during the COVID-19 pandemic. As online distance learning became a new normal in disruptive times, researchers began to examine its psychological impact on parents and children. Drawing on Buzzanell's (2010, 2018) communication theory of resilience, this study examined the relationships between Chinese parents' resilience, their attitudes toward distance learning, parent-child communication and relationship, and psychological wellbeing. Participants were 101 Chinese parents who had children that did distance learning during the COVID-19 pandemic. Findings showed that parents' resilience and attitudes toward distance learning had a positive, indirect effect on their psychological wellbeing through the mediation of parent-child communication and relationships. The study provides empirical support for the CTR theory as a fruitful lens for explaining family communication patterns and relationships, as well as psychological wellbeing during disruptive times. The study yielded important practical insights into how individuals can cope with the negative impact brought forth by unexpected and destructive events.

Keywords: Resilience, distance learning, parent-child communication, parent-child relationship, mental health

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Introduction

According to a UNESCO survey (UNESCO, 2021), by April 1, 2021, 173 countries had closed schools and other educational facilities to reduce the spread of the novel coronavirus, the highest number of school closures globally. China became the second country in the world to implement nationwide school closures. Approximately 278 million students were unable to return to school. With the assistance of China's Ministry of Education and open public education resources, online distance learning became a new normal to address this issue during disruptive times. Although e-learning existed for decades, a large portion of parents and children had never experienced distance education. The sudden outbreak of the pandemic brought significant challenges to their lives while seeking to adapt to this new form of education.

Researchers conducted many studies to understand the psychological impact of the pandemic on family members' resilience and well-being (e.g., McBride et al., 2020; Prime et al., 2020), parent-child relationships during distance education (Zhao, 2020), and the obstacles parents faced when dealing with e-learning (Daniel, 2020). A common theme among these studies is that the pandemic might cause tension in family relationships, increase parent-child conflicts, and exacerbate psychological stress and anxiety. At the same time, parents considered remote learning to be ineffective and an obstacle

to overcome. While these studies provided helpful insights regarding what parents and students found to be (un)helpful during distance education, we knew less about how parents adapted and rebuilt their lives around it during such disruptive times, and how their coping strategies are associated with their attitudes toward distance learning, family communication and relationships, as well as psychological wellbeing.

Resilience refers to the ability to maintain stability, adaptability, and psychological wellbeing in the face of adversity, trauma, tragedy, threats, or significant stress during uncertain and disruptive times (Fletcher & Sarkar, 2013). During the pandemic, parents faced many challenges, including work pressure, economic instability, and childcare responsibilities. Given the dominant role parents play in parent-child relationships and communication, the extent to which parents exhibit and communicate resilience can not only influence children's adaptability (Larson and Almeida, 1999; Gu et al., 2021), but also their own mental health. Drawing on the Communication Theory of Resilience (CTR) that suggests that individuals can rebuild and recover from adversity and destructive events through communication, the current study is designed to assess how Chinese parents' resilience in the COVID-19 pandemic influenced their attitudes toward remote learning, parent-child communication and relationships, and mental health. The following sections review relevant literature that inform the

hypotheses, describe the methods and findings, and discuss the theoretical and practical implications of the study.

Attitudes Toward Remote Education and Mental Health

On March 12, 2020, the World Health Organization (WHO) announced that the outbreak of the novel coronavirus (COVID-19) caused by the SARS-CoV-2 virus had reached the level of a global pandemic (WHO, 2020). Due to the coronavirus, school closures impacted about 862 million students, almost 50% of the global school-age population. The decision to close schools was often based on scientific data from influenza pandemics, aiming to reduce virus transmission and infection rates (Abuhammad, 2020). Because schools were closed, children could only engage in remote education from home. Regardless of whether parents worked from home, they had to invest more effort in managing their children's remote learning, taking on responsibilities typically handled by teachers, such as providing technical assistance and supervising exams (Daniela et al., 2021).

Many scholars have studied parents' perceptions of their roles and responsibilities in remote education during the COVID-19 pandemic (e.g., Abuhammad, 2020; Daniela et al., 2021; Karavida & Tympa, 2021). These studies investigated the barriers parents faced in remote education, including a lack of training and support, insufficient technical expertise, a lack of trained personnel (like teachers) to assist them, insufficient communication with teachers and professionals, and a lack of qualifications. They believed that these barriers negatively impacted the quality of children's remote learning experiences, leading them to feel incapable of helping their children with specific subjects or gaining essential skills (Abuhammad, 2020). Moreover, parents expressed concerns about remote education, such as children lacking autonomy and initiative (Garbe et al., 2020), a significant increase in screen time (Misirli & Ergulec, 2021), attention deficits, unmet social and emotional needs (Jiao et al., 2020), parents' difficulty balancing work and family conflicts (Roy et al., 2022), and heightened stress and emotional distance between parents and children due to increased parental burdens (Russell et al., 2020; Spinelli et al., 2020). Additionally, remote education posed more challenges for students with disabilities, learning difficulties, and parents with lower education levels (Averette, 2021; Li et al., 2023; Misirli & Ergulec, 2021). As a result, parents generally reported a negative attitude toward remote education (Roy et al., 2022).

Nevertheless, some parents saw opportunities in remote education, recognizing that digital devices could help children acquire valuable technical skills that will become increasingly important in the future; they were also keen on teaching children how to leverage these resources to improve academic development and future employment prospects (Karavida & Tympa, 2021). While these studies described the varying perceptions of parents regarding remote education, they paid less attention to how parents coped with these changes and its impact on family relationships and their mental health.

Existing research showed that parents' attitudes toward remote learning indirectly relate to their stress, anxiety, and depression. For instance, research found that parents' perception of school support was negatively correlated with their symptoms of depression and anxiety (McGoron et al., 2022), as the

lack of school support not only influenced parents' attitudes toward remote education but also caused a higher level of disorder and disruption in the family environment. Moreover, a study on the mental health of parents of primary school students in Hong Kong revealed that social support systems outside of schools also affected parents' mental health during the pandemic and remote learning (Ye et al., 2023). These studies provide valuable insights into how to improve parents' experience and mental health in remote education. For example, the education department could offer better technical support to boost parents' self-efficacy and control, while teachers could maintain good communication with parents to enhance their engagement and reduce psychological stress.

The current study seeks to contribute to existing literature by using the Communication Theory of Resilience (CTR, Buzzanell, 2010, 2018) as a theoretical framework to examine how parents' resilience during disruptive times affected their attitudes toward remote education, as well as parent-child communication and relationships, and ultimately their mental health. As a significant disruptive event, remote education during the COVID-19 pandemic offered an ideal context to assess the explanatory power of the Communication Theory of Resilience. The results of this study may bring insights into education, family communication, and mental health research.

Communication Theory of Resilience

The Communication Theory of Resilience (CTR) aims to understand and explain how people use verbal and material resources to rebuild their lives after breakdown, loss, trauma, and disaster (Buzzanell, 2018). CTR suggests that stories and memorable messages from family or public figures about overcoming tough times can offer people experience and confidence, enabling them to better endure future challenges, thus enhancing psychological resilience (Lucas & Buzzanell, 2012). Similarly, Merolla et al. (2017) found that when people viewed memorable information about academic, relationship, or financial matters as positive, they felt more hopeful about their ability to overcome future challenges in those areas.

According to CTR (Buzzanell, 2010), resilience is developed through communication processes that reintegrate individuals from disruptions in life. It acknowledges that "negative" emotions and experiences can serve as catalysts to achieve positive change. Communication processes that contribute to resilience development include: a) establishing normalcy (e.g., creating new norms and patterns and sharing such experiences to help individuals and groups adapt to sudden events), and (b) focusing on constructive actions while downplaying negative emotions (e.g., encouraging and supporting positive actions, reducing or shifting attention on negative experiences, and mitigating negative emotions to help individuals and groups cope with challenges), among others. Resilience building is a collaborative communication process involving family, workplaces, communities, and cross-organizational network members. Constructing new stories, rituals, organizational logic, identity, emotions, and cognitive frameworks requires people to develop a set of methods to reintegrate new realities into their daily lives.

Research has found that psychological resilience is closely related to family communication and mental health (Elder & Pellerin, 1998). Resilience aligns with positive, forward-looking family communication principles, not with negative, pas-

sive, or reactive and punitive approaches (Socha, 2009). The interaction between parents and children, and the feedback they receive physically, emotionally, and psychologically create a vital family environment. When faced with disruptive events, resilient individuals and families do not dwell on what has happened in the past; instead, they seek to establish a new order of normalcy, shape a transformed identity, or inject positive emotions to replace or reduce those that might hinder constructive actions (Buzzanell et al., 2009). This not only provides the foundation for building psychological resilience during adversity, but is also critical to family identity and relationship transformation (Buzzanell, 2018).

Based on the Communication Theory of Resilience (CTR), parents' resilience directly influences their attitudes toward remote education during the pandemic. Despite the significant challenges remote education brings to parents' daily work and life, resilient parents face the disruption in their daily routines with a positive attitude, reducing the impact of negative emotions while taking constructive actions. This might include establishing new daily routines to maintain work-life balance, proactively improving technical skills to help children overcome remote education challenges, reaching out to teachers, or creating or maintaining effective social support systems, thus mitigating the negative impact of remote education. Unlike existing research that tends to define and measure resilience as a static psychological trait or personality characteristic that allows individuals to thrive in the face of disruptive events, the current study will assess resilience as communication processes exhibiting such characteristics (e.g., maintaining old normal, building new normal, foregrounding positive actions and backgrounding negative emotions). The study predicts:

H1: Parents' resilience is positively correlated with their attitudes toward remote learning during the COVID-19 pandemic.

Parent-Child Communication, Parent-Child Relationships, and Mental Health

Research by Tolliver-Lynn et al. (2020) shows that healthy family and parent-child relationships are crucial for cultivating psychological resilience, especially for minorities or disadvantaged groups, such as Native American or Alaska Native families in the United States. Parents can effectively cope with the negative emotions caused by adversity through communication, expressing their own and responding to their children's emotional expressions, while simultaneously enhancing their children's resilience (Theiss, 2018). Procentese et al. (2019) found that parents' open attitude toward communication and relationships among family members, along with active participation in social media sharing, can foster open communication and relationships within the family.

Conceptual models of parent-child relationships either emphasize children or adolescents (individual-centered theories), or relationships themselves (relationship-centered theories). Individual-centered theories generally propose that changes in family relationships and the outcomes of family interactions depend on individual maturity processes (Procentese et al., 2019), whereas relationship-centered theories emphasize the continuity and resilience of communication that fosters generally stable family relationships, even when adolescents' development and interaction content change (Laursen &

Collins, 2004). Confirmation theory, for example, posits that individuals have a fundamental need to gain a strong sense of self through the recognition of others (Dailey, 2010). The more parents validate their children's behaviors, the more willing the children are to communicate with their parents, as the confirmation from parents helps adolescents develop a positive self-image, boosting their self-esteem and autonomy (Dailey, 2010). Families with high resilience and stability usually exhibit open and consistent communication patterns (Theiss, 2018). Research also showed the impact of family interactions on children's and adolescents' emotional wellbeing as well as parent-child relationships. For example, Chiariello & Orvaschel's (1995) study found that passive and negative parent-child interaction patterns have a detrimental impact on the parent-child relationship, and are associated with depressive symptoms.

Although most studies on the relationship between parent-child communication and mental health focus on the impact of family communication on adolescents' mental health, it is not difficult to infer that stable family communication and relationships during sudden crises and difficulties positively impact the mental health of parents as well. Psychologically resilient parents will not only adjust their mindset, emotions, and behavioural patterns to cope with the negative impact of the COVID-19 pandemic, but will also help children struggling with remote learning construct alternative logic. This might involve acknowledging children's negative emotions while providing positive explanations and encouraging innovative thinking, helping children shift their perspectives and thinking patterns, encouraging and supporting positive actions, and reducing or diverting attention from negative thoughts, emotions, or behaviours. These effective parent-child communication patterns help establish open parent-child relationships, which in turn can significantly promote parents' mental health. Therefore, this study predicts (see Figure 1):

H2: Chinese parents' resilience during the COVID-19 pandemic is positively associated with (a) the openness of parent-child communication and (b) the intimacy of parent-child relationships.

H3: Parents' attitudes toward remote education during the COVID-19 pandemic is positively associated with (a) the openness of parent-child communication and (b) the intimacy of parent-child relationships.

H4: During the COVID-19 pandemic, (a) the openness of parent-child communication and (b) the intimacy of parent-child relationships are positively associated with parents' mental health.

H5: During the COVID-19 pandemic, Chinese parents' resilience has a positive impact on their mental health, which is mediated by the openness of parent-child communication and the intimacy of parent-child relationships.

H6: During the COVID-19 pandemic, parents' attitudes toward remote education has a positive impact on their mental health, which is mediated by the openness of parent-child communication and the intimacy of parent-child relationships.

Method

Participants and Recruitment

Participants were 101 adults whose children engaged in re-

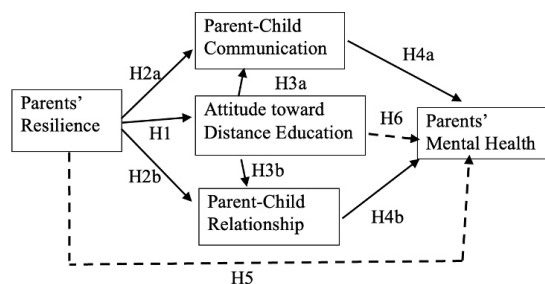


Figure 1: Theoretical Model and Hypotheses

remote learning during the COVID-19 pandemic. Among them, 100 (99%) were Chinese, and one (1%) was non-Chinese. The participants' ages ranged from 30 to 60 years old (average age = 44.75). Regarding participants' relationships with their children, the majority were mothers (N = 50, 49.5%) and 26 were fathers (25.7%). Other relationships accounted for 24.8% (N = 25). Most parents had a college education or above (N = 87; 86.1%), with nearly half having a bachelor's degree (N = 49; 48.5%). Most parents (N = 90; 89.1%) were married, while only a few were single (N = 3; 3.0%), cohabiting (N = 2; 2.0%), or separated (N = 5; 5.0%). The majority of parents had full-time jobs (N = 83; 82.2%), with a smaller portion being homemakers (N = 6; 5.9%), part-time workers (N = 1; 1.0%), retirees (N = 5; 5.0%), or others. Most parents reported having only one child living with them and attending school (N = 83; 82.2%), with a few having two children (N = 11; 10.9%), or three (N = 1; 1%). The age of the first child ranged from 6 to 29 years old (M = 14.68), with most between 10 and 23 years old (N = 85; 84.2%). Regarding children's grade levels, 30 participants (29.7%) reported that their children were in college, accounting for the largest proportion, 28 participants (28.9%) reported that their children were in elementary school, 18 (17.8%) in middle school, and 12 (11.9%) in high school. All participants' children (100%) engaged in remote learning during the pandemic, with 94.1% (N = 95) of the children doing so based on school requirements. Additionally, 79.2% (N = 80) of the children also engaged in additional remote learning outside the classroom. During remote learning, 68.3% (N = 69) of families had only one parent/guardian caring for the child, 26.7% (N = 27) had two adults, and 5% (N = 5) had three or more adults.

Participants were primarily recruited through advertisements on WeChat, a multi-functional social media platform for the Chinese. The original survey questionnaire was in English, but since it targeted Chinese participants, it was translated into Chinese. To ensure linguistic equivalence between the two versions, back-translation was used. Participants were required to sign an informed consent form indicating their willingness to participate in the study after reading a brief description of the study, participants' confidentiality, and voluntariness. The questionnaire took approximately 6-8 minutes to complete.

Instrumentation

Communication Resilience Processes Scale (CRPS). The measurement for resilience referred to the 32-item Communication Resilience Processes Scale developed by Wilson et al. (2021). To minimize participant fatigue and ensure they complete the questionnaire seriously, the study selected 11

questions, focusing on three primary resilience measures: "adjusting old norms," "creating new norms," and "focusing on constructive action while downplaying negative emotions." Since this study revolved around parent-child communication, some questions were modified to fit this context, such as "I continued to participate in my child's learning process." The scale used a 5-point Likert Scale (1 = strongly disagree, 5 = strongly agree). A secondary factor analysis showed that the three factors loaded on one superordinate factor, which accounted for 70% of the variance. The Cronbach's alpha was .876, indicating acceptable internal consistency among items.

Attitude Toward Remote Learning. This section was designed by the researchers using a 5-point Likert Scale (1 = strongly disagree, 5 = strongly agree) with eight questions. Based on existing studies on factors influencing parents' acceptance of remote education, questions were designed to assess whether remote education is useful, its relationship with educational quality, students' learning opportunities during remote learning, and comparisons between remote learning and traditional schooling. All the items loaded on one factor, which accounts for 55% of the variance. The Cronbach's alpha was .882, indicating acceptable internal consistency.

Parent-Child Relationships. The Parent-Child Relationship scale (Driscoll & Pianta, 2011) was adapted to measure parents' perceptions of the parent-child relationship. Six questions measuring the intimacy of the relationship were selected, including statements such as "I have a close and warm relationship with my child," "My child values our relationship," and "If upset, my child would seek comfort from me." The scale used a 5-point Likert Scale (1 = strongly disagree, 5 = strongly agree). All the items loaded on one factor, which accounts for 59% of the variance. The Cronbach's alpha was .849, indicating acceptable internal consistency.

Parent-Child Communication. The scale developed by Barnes and Olson (1985) was adapted to measure parent-child communication. Eight questions were selected to measure the openness of parent-child communication, including statements such as "I can discuss my thoughts and opinions with my child without feeling restrained or embarrassed," "I find it easy to discuss problems with my child," and "when I asked questions, I get honest answers from my child." The scale used a 5-point Likert Scale (1 = strongly disagree, 5 = strongly agree). All the items loaded on one factor, which accounts for 58% of the variance. The Cronbach's alpha was .895, indicating acceptable internal consistency among the items.

Psychological Wellbeing. Questions for assessing parents' mental health were derived from Joseph and Lewis's (1998) study on depression and well-being, measuring participants' "sense of well-being," "disappointment," "sense of accomplishment," and "motivation." This section contained six questions using a 5-point Likert Scale (1 = strongly disagree, 5 = strongly agree). All the items loaded on one factor, which accounts for 61% of the variance. The Cronbach's alpha was .791, indicating acceptable consistency among the questions.

Descriptive Statistics

A one-way ANOVA analysis was performed to generate descriptive statistics for mothers, fathers, and other family members (e.g., grandparents) on all of the dependent variables, which are summarized in Table 1. Only the openness of parent-child communication varied significantly across the three groups, $F(2, 98) = 3.25, p = .04$, with fathers engaging in

Table 1. Descriptive Statistics of Dependent Variables by Parent Groups.

		N	Mean	Std.		
				Deviation	Minimum	Maximum
Resilience	Mother	50	4.00	.56	2.64	5.00
	Father	26	3.84	.75	1.73	5.00
	Other family members	25	3.98	.62	3.00	5.00
	Total	101	3.96	.63	1.73	5.00
Attitudes for Remote Education	Mother	50	3.24	.68	1.38	4.63
	Father	26	3.29	.77	1.88	4.75
	Other family members	25	3.22	.92	1.00	4.88
	Total	101	3.25	.76	1.00	4.88
Openness of Parent-child Communication	Mother	50	3.78	.62	1.88	5.00
	Father	26	3.43	.72	2.13	5.00
	Other family members	25	3.85	.64	2.38	5.00
	Total	101	3.71	.67	1.88	5.00
Intimacy of Parent-child Relationship	Mother	50	4.26	.58	2.33	5.00
	Father	26	4.06	.61	3.00	5.00
	Other family members	25	4.23	.47	3.33	5.00
	Total	101	4.20	.56	2.33	5.00
Psychological Wellbeing	Mother	50	3.91	.65	2.83	5.00
	Father	26	3.78	.74	2.00	5.00
	Other family members	25	3.86	.55	2.67	5.00
	Total	101	3.86	.65	2.00	5.00

Table 3. Regression Analysis Results for Hypotheses H1–H4b (N = 101)

Model	B	SE	β	t	p	F	p	Adjusted R ²	R ²
<i>Simple Regressions</i>									
H1: Resilience \hat{a} Attitude for Remote Education (ATRE)	.12	.09	.14	1.37	.17	1.88	.17	.14	.02
H2a: Resilience \hat{a} Openness of Parent-Child Comm (OPCC)	.03	.01	.29	3.00	.003	8.97	.003	.29	.08
H2b: Resilience \hat{a} Intimacy Parent-Child Relation (IPCR)	.04	.01	.53	6.26	.001	39.15	.001	.53	.28
H3a: ATRE \hat{a} OPCC	.04	.01	.32	3.39	.001	11.48	.001	.32	.10
H3b: ATRE \hat{a} IPCR	.03	.01	.31	3.24	.002	10.51	.002	.31	.10
<i>Multiple Regressions</i>									
H4a: OPCC \hat{a} Psychological Wellbeing (PWB)	.23	.11	.24	2.10	.039	19.89	.001	.54	.29
H4b: IPCR \hat{a} PWB	.40	.13	.35	3.10	.003				

significantly less open communication with the children (M = 3.42, SD = .72) than mothers (M = 3.78, SD = .62) and other family members (M = 3.70, SD = .67).

Results

H1 and H2 predict that Chinese parents' resilience is positively related to their attitudes toward remote learning (H1), the openness in parent-child communication (H2a), and the intimacy of parent-child relationships during the pandemic (H2b). We conducted three simple linear regression analyses to evaluate these hypotheses, with parental communication resilience as the independent variable, and attitudes toward remote learning, parent-child communication, and parent-child relationships as dependent variables. The results, summarized in Table 3, showed no significant positive association between parents' communication resilience and their attitudes toward remote learning. H1 was not supported. However, the results revealed a significant positive association between parents' resilience and the openness of their communication with their children. H2a was supported. Additionally, there was a significant positive association between parents' communication resilience and the intimacy of parent-child relationships during the pandemic. H2b was also supported.

H3 predicts that parents' attitudes toward remote learning are positively related to the openness in parent-child communication (H3a) and the intimacy of parent-child relationships during the pandemic (H3b). Simple linear regression analyses

Table 2. Correlation Matrix of Dependent Variables (N = 101)

	Resilience	ATRE	OPCC	IPCR	PWB
Resilience	1				
Attitude toward Remote Education (ATRE)	.136	1			
Openness of Parent-child Communication (OPCC)	.288**	.322**	1		
Intimacy of Parent-child Relationship (IPCR)	.532**	.310**	.658**	1	
Psychological Wellbeing (PWB)	.200*	.323**	.468**	.507**	1

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 4. Bootstrapping Mediation Analyses Results for Hypotheses H5–H6 (Bootstrapping N = 5,000; CI = .95).

	B (B)	SE (BootSE)	t	p	LLCI (BootLLCI)	ULCI (BootULCI)	Sobel test
<i>H5:</i>							
<i>Total Effect</i>							
Resilience \hat{a} Psychological Wellbeing	.21	.10	2.03	.05	.0044	.4079	
<i>Direct Effect</i>							
Resilience \hat{a} Psychological Wellbeing	-.08	.10	-.77	.44	-.2881	.1271	
<i>Indirect effect</i>							
Resilience \hat{a} Psychological Wellbeing	.07	.04			-.0021	.1499	1.28*
M1: Openness of P-C Communication	.22	.07			.0875	.3628	2.77***
M2: Intimacy of P-C Relationship							
<i>H6:</i>							
<i>Total Effect</i>							
Att. 4 Remote Edu. \hat{a} Psych.Wellbeing	.27	.08	3.40	.00	.1152	.4343	
<i>Direct Effect</i>							
Att. 4 Remote Edu. \hat{a} Psych.Wellbeing	.13	.08	1.75	.08	-.0179	.2848	
<i>Indirect effect</i>							
Att. 4 Remote Edu. \hat{a} Psych.Wellbeing	.06	.04			-.0081	.1503	1.59*
M1: Openness of P-C Communication	.09	.03			.0237	.1587	2.14*
M2: Intimacy of P-C Relationship							

were performed with parent-child communication and parent-child relationships as dependent variables and attitudes toward remote learning as the independent variable. Results (see Table 3) showed a significant positive association between parents' attitudes toward remote learning and the openness in their communication with children. H3a was supported. Similarly, there was a significant positive association between parents' attitudes toward remote learning and the openness in parent-child communication. H3b was supported.

H4 predicts that the openness in parent-child communication and the intimacy of parent-child relationships are positively related to parents' mental health. Multiple linear regression analysis showed a significant positive association between the openness in parent-child communication and parents' mental health (see Table 3), as well as a significant positive association between the intimacy of parent-child relationships and parents' mental health. Both H4a and H4b were supported.

H5 predicts that parents' communication resilience during the COVID-19 pandemic has a positive impact on their mental health, which is mediated by (a) the openness in parent-child communication and (b) the intimacy of parent-child relationships. To test H5, we used Hayes' (2013) bootstrapping procedure to test for mediation effects (5,000 samples, N = 101). The results showed that parents' communication resilience had a significant positive impact on the openness in parent-child communication, $\beta = .31$, $p = .004$, explaining 8% of the variance, $F = 8.97$, $p = .003$, as well as a significant positive impact on the intimacy of parent-child relationship, $\beta = .48$, $p =$

.000, explaining 28% of the variance, $F = 34.15$, $p = .000$. Additionally, there was no direct significant impact of resilience on mental health, $\beta = -.08$, $p = .44$. However, the openness in parent-child communication significantly impacted parents' mental health, $\beta = .22$, $p = .048$, so did intimacy in parent-child relationship, $\beta = .45$, $p = .003$, with both variables collectively explaining 29.3% of the variance in the dependent variable, $F = 13.40$, $p = .000$. The mediation test showed that resilience had a significant indirect impact on parents' mental health through the mediation of intimacy of parent-child relationship, whereas openness of parent-child communication only had a marginally significant mediation effect. H5a was marginally supported whereas H5b were fully supported. Total, direct and indirect effects are summarized in Table 4.

H6 predicts that parents' attitudes toward remote education during the COVID-19 pandemic have a positive impact on their mental health, with the openness in parent-child communication and the intimacy of parent-child relationships mediating this impact. Results from bootstrapping procedure (5,000 samples, $N = 101$) showed that parents' attitudes toward remote education had a significant positive impact on the openness in parent-child communication, $\beta = .28$, $p = .001$, explaining 10.39% of the variance, $F = 11.48$, $p = .001$, as well as intimacy of parent-child relationship, $\beta = .23$, $p = .002$, explaining 9.59% of the variance, $F = 10.51$, $p = .002$. Additionally, parents' attitudes toward remote education had only a marginally significant impact on their mental health, $\beta = .13$, $p = .08$. Openness in parent-child communication also had a marginally significant impact on parents' mental health, $\beta = .20$, $p = .075$, whereas intimacy in parent-child relationship had a significant positive effect, $\beta = .37$, $p = .005$, with all the variables collectively explaining 31.05% of the variance, $F = 14.56$, $p = .000$. The mediation test showed that parents' attitudes toward remote education had a significant indirect impact on parents' mental health through the mediation of intimacy of parent-child relationship, but was only marginally mediated by openness of parent-child communication. H6a was marginally supported whereas H6b were fully supported. Total, direct and indirect effects are summarized in Table 4.

Discussion

The sudden outbreak of COVID-19 forced people around the world to face significant changes brought about by this pandemic. Although there has been substantial research focused on the impact of global lockdowns on mental health (e.g., Brooks et al., 2020), studies on how people specifically cope with the challenges brought by catastrophic events and how they improve interpersonal relationships and mental health through adjusting their psychological cognitions, emotional responses, and behavioral patterns are relatively limited. This study primarily focuses on the mental health of parents with school-age children who had to cope with the new challenges caused by school closures and the implementation of remote learning during the pandemic. These parents had to address the public health threats from the pandemic and face the challenges of remote learning and home schooling, adapting to new educational modes while devoting more time and energy to assist their children. Using the Communication Theory of Resilience (CTR) as a framework, this study investigates the effects of parental resilience during the pandemic, including parents' acceptance of remote learning, parent-child communi-

cation and relationships, and their mental health. The following sections summarize key findings of this study, discuss their theoretical and practical implications, limitations, and future research directions.

Psychological Resilience and Mental Health

Drawing on the Communication Theory of Resilience, the study found that, although resilience did not directly impact mental health, it had a significant effect on openness in parent-child communication and intimacy of parent-child relationships. The research also revealed that parent-child communication and parent-child relationships during the pandemic are key sources of mental well-being for parents with school-age children. These results not only help validate the Communication Theory of Resilience by providing empirical evidence for the indirect impact of resilience on mental health, but also confirms the significant mediating role of family communication and parent-child relationships in this effect. The study therefore contributes to the mental health literature by demonstrating the intricate relationships between resilience, communication, and psychological wellbeing.

Despite extensive research on resilience, traditional studies often define resilience as a stable personality trait. Buzzanell's (2010) Communication Theory of Resilience (CTR) challenges this conventional definition by examining how people use verbal and non-verbal resources to rebuild normalcy after difficulty, loss, trauma, and disaster, thereby enhancing psychological resilience. In this theoretical framework, communication plays a central role in constructing resilience. CTR identifies five processes that contribute to resilience development: establishing new normalcy, reinforcing identity, maintaining and utilizing communication networks, constructing alternative logic, and focusing on constructive action while downplaying negative emotions. Many studies on CTR are qualitative, using interviews or focus groups to understand how people use communication and cooperation to rebuild new stories, rituals, organizational logic, identity, emotions, and cognitive frameworks, thus integrating new realities into daily life (e.g., Agarwal & Buzzanell, 2015). Using the Communication Resilience Processes Scale (CRPS) developed by Wilson et al. (2021), this study measured two primary resilience development processes—"maintaining old normalcy and establishing new normalcy" and "focusing on constructive action while downplaying negative emotions"—partially validating the scale's reliability and providing empirical evidence for CTR's applicability and practicality in real life. When resilience is no longer just an abstract concept or an inherent trait, but can be cultivated and enhanced through communication processes, it gains greater theoretical and practical significance.

Secondly, this study is significant for understanding how people respond to large-scale catastrophic events, such as the COVID-19 pandemic, and the resulting consequences. Psychological resilience is not just a quality that allows individuals to maintain a positive mindset and adaptability when facing life's challenges and stresses—it is a dynamic social process. This study finds that resilience plays a crucial role in family relationships and communication, making it a useful strategy for coping with crises. Parents with strong resilience development skills are more adaptable when facing difficulties, demonstrating greater openness in family communication and fostering more harmonious and intimate family relationships. During the pandemic, when family members were isolated from the

outside world but spent more time with each other, parental resilience played a significant role in coping with stress and maintaining family and personal mental health. Consistent with existing literature on confirmation theory, effective parent-child communication is vital for building positive relationships between parents and children, with notable impacts on emotional regulation and parental mental health. Studying parents' mental states during the pandemic, with school-age children engaged in remote learning, helps us understand the impact of the pandemic on family and individual mental health, providing insights for future public health crises and the need for mental health support.

Attitudes Toward Remote Education

While theoretically, one would expect more resilient and adaptable parents to be more accepting of remote learning during the pandemic, this study's results show no significant impact of resilience on parents' attitudes toward online courses. This might be due to the small sample size of 101 participants; with a larger sample, this relationship might become significant. Furthermore, research has shown that numerous factors influence parents' attitudes toward remote education, including technical barriers, lack of training and technical support, insufficient communication with teachers and professionals, children's lack of independence and initiative, children's increased screen time, attention deficits, unmet social and emotional needs, and parents' difficulty in balancing work and family conflicts. The study's results indicate that having strong communication resilience alone is not sufficient to overcome these varied obstacles affecting parents' attitudes toward remote education.

Nevertheless, this study finds a significant positive association between parents' attitudes toward online courses and family communication and relationships. When parents maintain a positive attitude toward online education with reduced negative biases, they are more proactive in family communication, adopting more open strategies to listen to and understand their children's challenges, leading to a more positive and intimate family relationship. Conversely, when parents have negative attitudes toward online education, their cognitive and emotional biases might overshadow parent-child communication, resulting in more closed and less supportive interactions, impacting parent-child relationships negatively.

Additionally, the results indicate that parents' attitudes toward remote education have a marginally significant positive impact on their mental health. A larger sample might reveal more significant associations. The mediation analysis showed that with parent-child communication and relationships as mediating variables, parents' attitudes toward remote education had a significant indirect positive impact on their mental health. Open communication and maintaining good family relationships allow parents' positive attitudes toward remote education to help children face social isolation and the challenges of remote education, promoting positive communication and reducing stress; when family relationships improve, parents' wellbeing is also enhanced. Given the increasing prominence of remote education, the study's results have implications for both educational institutions and parents. Specifically, policymakers, schools, and teachers should be more mindful of the role of parents in the diffusion of educational technologies; they can help parents develop more confidence and positive attitudes toward remote education through timely and effective

communication, technical support and training especially for young children and their parents, and technological innovations that provide a more engaging and independent educational experience for students.

These findings offer interesting perspectives for future research. Since this study focused only on resilience and attitudes toward remote education from parents' perspectives, future research can examine the processes from the perspective of school-age children, investigating whether parental communication plays a dominant role in (re)constructing their resilience and coping with unexpected challenges. The current understanding can also be expanded by investigating other factors that may influence parents' attitudes toward remote education, such as socioeconomic status, technological literacy, and support systems for a more nuanced understanding. As shown by the study's findings, parent-child relationships and communication significantly affect parents' mental health. Incorporating qualitative methods, such as interviews or focus groups, can provide deeper insights into the lived experiences of parents and children, as well as the complexities of their resilience communication strategies. Future studies can also explore a greater range of resilience development processes, particularly using a longitudinal approach, to establish stronger causal relationships, track changes in resilience communication and mental health over time, and provide more comprehensive evidence-based suggestions on improving resilience development.

Limitations

While the study's results have important theoretical and practical significance, limitations necessitate caution when interpreting the findings. Firstly, the questionnaire was distributed via China's social media platform WeChat, potentially affecting sample and data representativeness. The sample might have distinct geographical features or consist of more educated individuals with stable income, rather than representing all regions and populations. Additionally, researchers relied on convenience sampling, with recruitment notices widely distributed to parents of university students, leading to nearly 30% of the survey's participants having children in university. Given the higher independence of university students, parental attitudes toward remote education may have lower impact. Future research should use a more diverse and representative sample to minimize biases in the findings.

Secondly, the study collected only 101 valid responses, which is a relatively small sample size and may limit the generalizability of the findings. Larger-scale data collection in future studies can generate more robust findings and increase representativeness. Additionally, the study did not consider factors such as children's age and grade level, parents' income, and employment status, which might impact the study's key variables. Parents of younger children face more challenges and obstacles, generally resulting in more negative attitudes toward remote education (Dong et al., 2020). Future studies could delve into how parents of younger children cope with the challenges and build resilience.

Third, the study only focused on the "openness" of parent-child communication and the "intimacy" of parent-child relationship. Future research should focus on broader aspects of parent-child communication, such as the use of confirmation versus disconfirmation strategies (Dailey, 2010), as well as more dimensions of parent-child relationships, such as

supportiveness, control, and conflict (Pierce, 1994), to further validate the findings and shed light on the role of family communication in the (re)construction of resilience.

Fourth, while the study found no impact of resilience on attitudes toward remote education, it only measured two types of resilience building, “establishing new normalcy” and “focusing on constructive action while downplaying negative emotions.” Other resilience development processes, like “maintaining and utilizing communication networks” and “constructing alternative logic,” might have a significant impact on parents’ attitudes toward remote education, given that technical barriers, insufficient teacher communication, and potential negative thoughts under stress are significant obstacles. Future research could measure a broader range of resilience development processes to understand better how parents cope with the challenges posed by remote education.

Finally, the study employed simple and multiple regression analyses, as well as bootstrapping methods to assess the hypotheses, largely due to the small sample size. Future research that has a larger sample should consider using alternative analytical methods, such as structural equation modelling analysis, to assess all of the hypothesized relationships at once, both to advance our theoretical understanding of the mechanism through which resilience influences mental health through positive communication and relationships, and for greater methodological rigor.

The sudden outbreak of COVID-19 brought remote learning into Chinese people’s lives with unprecedented speed and scope, significantly altering many families’ lifestyles and educational approaches. By examining the impact of students’ remote learning on parents’ mental health, the study helps us understand the important roles of parents’ resilience, their attitude toward remote education, parent-child communication and relationships, offering specific coping strategies for potential similar disruptive situations in the future, such as building a new normal and foregrounding positive actions over negative emotions.

Data Availability Statement

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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