



Relationship among Child Maltreatment, Parental Conflict, and Mental Health of Children during the COVID-19 Lockdown in China

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Abstract

Children are more likely to experience maltreatment and parental conflict in a pandemic context, which can exacerbate their vulnerability to psychological disorders. The purpose of the present study was to examine mental health symptoms in children aged 0 to 10 years and consider related factors from the perspectives of maltreatment and parental conflict during the COVID-19 lockdown. Participants were 1286 parents aged 18 years and over with children aged 0 to 10 years were included. Several multivariable linear regressions were used to analyze the data. The largest variance in child mental health was explained by child maltreatment, as more maltreatment predicted higher reported psychological problems (standardized beta=0.49, $P<0.001$). Comparatively, parental conflict predicted less variance in mental health problems than maltreatment (standardized beta=0.18, $P<0.001$). Children who experienced more maltreatment experience and exposure to COVID-19 showed elevated levels of mental health symptoms (standardized beta=0.06, $p<0.05$), as did those who experienced parental conflict and pandemic exposure (standardized beta=0.06, $p<0.05$). The findings highlight that tailored programs that focus on a healthy family environment and strategic parental support services may be particularly effective in reducing children's mental health problems due to COVID-19 exposure.

Keywords Child Maltreatment · Parental Conflict · Mental Health · COVID-19

1 Introduction

Since late 2019, the world has changed dramatically with the outbreak of the coronavirus disease 2019 (COVID-19) pandemic (World Health Organizing, 2020). To control the crisis, most countries have adopted strategies such as isolation, school closure, and social distancing. Under such

circumstances, parents were asked to support their children with home schooling while working from home, during which time children were more likely to experience maltreatment and parental conflict (Lawson et al., 2020; Singh et al., 2020). These disadvantages exacerbate the vulnerability of children to psychological disorders in a pandemic context (Fegert et al., 2020). Specifically, previous studies reported that during the COVID-19 pandemic, as many as 40.1% of parents in the United States had observed signs of distress in their children (Rosen et al., 2020), and approximately 20% of children in China had developed psychological problems such as depression and anxiety (Xie et al., 2020). Due to difficulties in accessing respondents, most studies have focused on school-aged children or adolescents (Duan et al., 2020; Tang et al., 2021), and only a few have explored mental health in younger children. As it has been indicated that this pandemic may have increased long-term adverse consequences on younger children (Shen et al., 2020), while life course theory claims a persisting negative effect of mental health disorders from early childhood to adulthood (Sonuga-Barke et al., 2017), it is necessary to examine the mental health of young children under

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pandemic threats. Thus, this study examines mental health symptoms in children aged 0 to 10 years and explores the relationship of maltreatment and parental conflict with children's mental health.

1.1 Child Maltreatment and Children's Mental Health

In general, child maltreatment comprises behaviors of physical and psychological aggression that have negative effects on children's health; these behaviors include nonviolent discipline, psychological aggression, physical assault, and neglect (Straus et al., 1998). As noted by the ecological-transactional model (Cicchetti & Lynch, 1995), an increase in individual-level risk factors associated with maltreatment at any ecological level represents a deviation from the normal development conditions. Thus, children who are maltreated are more likely to have negative developmental outcomes and psychopathologies (Osofsky & Lieberman, 2011). A previous study indicated that children who are maltreated have a greater risk of developing internalizing and externalizing disorders than those who are not (Osofsky & Lieberman, 2011). Whether different types of child maltreatment predicted the same level of mental health remained unclear. While one prior study assumed different levels of impact on mental health from abusive behaviors (Scott et al., 2010), another meta-analysis found no appreciable differences across maltreatment types (Norman et al., 2012). Thus, the first aim of this study was to examine whether child maltreatment increased the risk of psychological problems among Chinese children in the COVID-19 context, with a specific discussion of each type of maltreatment.

1.2 Parental Conflict and Children's Mental Health

On the household level, the pandemic has disrupted every family member's daily life. Parents cope with overwhelming stress from lockdown, homeschooling, and income reduction. Stresses in such a context may result in conflicts between family members, which in turn may exacerbate the negative effects of the pandemic on children's mental health. As the spillover hypothesis demonstrates (Nelson et al., 2009), destructive conflicts between parents spill over into the parent-child relationship, leading to increased negative parenting, while negative parenting behaviors such as harsh discipline and neglect were associated with negative emotions with respect to aggression, anxiety, and depression among children (Sturge-Apple et al., 2006). The hypothesis also posits that negative parental conflict, including physical and verbal aggression, requires excessive emotions and energy that make parents less emotionally available

to their children (Engfer, 1988; Sturge-Apple et al., 2006). In response, children become more vulnerable to developing psychological problems. Meanwhile, prior studies have shown that parental conflict predicts internalizing and externalizing problems among children (Carmody et al., 2015; Coln et al., 2013; Hosokawa & Katsura, 2017). Hence, it is reasonable for this study to assume that children who live with parental conflict would experience elevated levels of mental disorders in the COVID-19 pandemic.

1.3 Exposure to COVID-19 as a Moderator

Clearly, all families who participated in this study experienced the COVID-19 pandemic. For the purposes of our study, we measured "exposure to COVID-19" or "exposure to the pandemic" by determining whether subjects experienced infection or close contact among family members, neighbors, or friends during the COVID-19 pandemic. Based on this definition, exposure to COVID-19 may affect the associations between child maltreatment, parental conflict, and mental health in young children. On the one hand, the cumulative risk model (Evans et al., 2013) proposes that the impact of child maltreatment on mental health is larger if individuals are exposed to another trauma. A previous study verified that greater exposure to disaster increased the risk of mental health problems in individuals who previously experienced child maltreatment (Inoue et al., 2019). Thus, exposure to COVID-19 may increase the negative effects of parental conflict on children's mental health. The diathesis-stress model proposes that exposure to the pandemic increased mental health risks via the interactions of predisposing stressors and environmental stress (Fegert et al., 2020). In some studies, veterans exposed to parental conflict were found to have an increased risk of mental health problems if they experienced another trauma (Cabrera et al., 2007; Fritch et al., 2010), whereas this association has not been observed in other studies (Rudenstine et al., 2015; Stein et al., 2005). The inconsistency here could be attributed to the characteristics of trauma and to variances in the cultural setting and methodological design between studies (Braun-Lewensohn et al., 2009; Schalinski et al., 2016). In this study, we examine whether exposure to the COVID-19 pandemic moderates the associations between child maltreatment, parental conflict, and mental health. If so, we try to further examine if the moderation varies between maltreatment types.

1.4 Study Aims

The current study aims to examine the relationships of child maltreatment and parental conflict with mental health symptoms among children in China and to further explore

whether exposure to the pandemic moderates those relationships. Our first hypothesis proposes that child maltreatment and parental conflict are associated with an increase in the number of reported mental health problems. Our second hypothesis proposes that exposure to COVID-19 increases the positive associations between child maltreatment, parental conflict, and later behavioral and emotional problems. Third, we assume that these moderating effects vary between types of maltreatment.

2 Methods

2.1 Procedure and Participants

The survey was conducted online from April 21st to April 28th, 2020, during the COVID-19 lockdown in China, and the questionnaires were distributed and retrieved through a web-based platform. Convenience sampling and cluster sampling methods were used to choose participants from Hubei, Henan, and Shenzhen. A small sampling from other regions was also included. Parents aged 18 years and over with children aged 0 to 10 years were included. In total, 1286 questionnaires were collected. Participants received a small gift (e.g., 1–3 RMB) as a token of appreciation at the end of the session. All participants gave consent after being informed about the aim of the survey and joined the study voluntarily. The study was approved by the Ethics Committee of Peking University Medical Center.

2.2 Measures

2.2.1 Outcome Variables

Children's mental health was assessed with the parent-report Child Behavior Checklist (CBCL) (Achenbach, 1991b). The depression, social problems, and aggressive behavior scales were used in the present study. Then, 24 items were included in the checklist: ten items about depression, five items about social problems, and nine items about aggressive behavior. Respondents answered the 24 items on a 3-point rating scale from 0 (none) to 2 (most of the time). The scores for each item were summed to an overall mental health score ranging from 0 to 48, with higher scores indicating a higher level of psychological distress. Good discriminative validity and reliability have been reported for the CBCL (Achenbach, 1991a). In this study, Cronbach's alpha for the CBCL was 0.92.

2.2.2 Independent Variables

Child maltreatment was assessed with the parent-to-child version of the Conflict Tactics Scale (CTS-PC) with answers from parents (Straus et al., 1998), which has shown good performance in previous studies in terms of respondent comprehension, validity and reliability. The 18-item measure was used to evaluate the prevalence of four behaviors within a two-week interval: four items about nonviolent discipline, five items about psychological aggression, four items about physical assault, and five items about neglect. Items were answered on a five-point scale with responses including "never happened" (0), "once in the past two weeks" (1), "twice in the past two weeks" (2), "3 times" (3), "4 times" (4), and "more than 4 times" (5). Scores were summed up within each item, ranging from 0 to 20, 0 to 25, 0 to 20, and 0 to 25, respectively. Cronbach's alpha of the total CTS-PC score in this study was 0.89. For the four subscales, Cronbach's alpha was 0.74 for nonviolent discipline, 0.82 for psychological aggression, 0.74 for physical assault, and 0.88 for neglect.

Parental conflict was measured by several questions concerning three major circumstances during the COVID-19 pandemic, including "arguments with your partner", "physical conflict with your partner", and "less affection with your partner". The respondents were asked to rate their behaviors from 1 (never) to 5 (always). Cronbach's alpha of parental conflict in this study was 0.69.

Exposure to COVID-19 was assessed with a question to describe whether there was any COVID-19 infection or close contact among the family members, neighbors, or friends of the respondents during the pandemic. In this study, "0" refers to "no", while "1" denotes "yes".

2.2.3 Covariates

Following previous studies (Guo et al., 2020; Prime et al., 2020), this study took the following demographic and socioeconomic characteristics into consideration: child gender (male/female), child age (3 years old and below/3 to 6 years old/over 6 years old), province (Hubei/Henan/Guangdong/else), family income level (low/middle/high), and parental education level (high school diploma or lower/associate degree/undergraduate degree/graduate degree).

2.3 Statistical Analyses

Data in this study were analyzed via SPSS software version 22.0. Descriptive analyses were conducted to present the characteristics of the main variables: experiences of child maltreatment and parental conflict, exposure to COVID-19, mental health symptoms, and other covariates. Mean and

standard deviation were computed for continuous variables, while frequency and percentage were used for categorical variables. The main analyses included several multivariable linear regressions on child mental health conducted in three steps, with the same covariates used in each step: gender, age, province, family income level, and parental education level. In the first step, we examined the specific associations between independent and dependent variables. Model 0 includes every predictor separately to estimate its “raw” contribution to the mental health of children. Model 1 includes three main predictors (parental conflict, child maltreatment, exposure to COVID-19) together to determine which factor is the strongest predictor of mental health outcomes. Model 2 refines the main analyses above with specific discussions of four types of maltreatment (nonviolent discipline, psychological aggression, physical assault, and neglect). In the second step, variables representing interactions among child maltreatment, parental conflict, and exposure to the COVID-19 pandemic were added. In addition, the whole sample was divided into 2 groups by the number of children in a family to examine its differences in the moderating effects of COVID-19 exposure on the relationships between child maltreatment, parental conflict and child mental health. In the final step, interactions between exposure to the COVID-19 pandemic and four types of maltreatment were examined in each model.

3 Results

3.1 Description of Samples

Table 1 presents the descriptive analysis of the sample characteristics for Chinese children aged 0–10 during the COVID-19 pandemic. Of the 1286 participants, more than half (54.25%) were girls, and approximately 69.43% were older than 6 years of age. Nearly 22.4% were from Hubei, 14.6% were from Henan, 42.0% were from Guangzhou, and the remaining subjects were from other provinces. In terms of exposure to COVID-19, 18.20% reported COVID-19 infection or close contact among family members, neighbors, and friends. The level of child mental health symptoms averaged 31.73 (range from 0 to 48). More details can be seen in Table 1.

3.2 Child Maltreatment, Parental Conflict and Mental Health

The results of the linear regressions are presented in Table 2. In Model 1, the largest variance in child mental health was explained by child maltreatment, as more maltreatment predicted higher reported psychological problems (effect size

$\beta = 0.49$). Furthermore, three kinds of maltreatment (non-violent discipline, psychological aggression, and neglect) were found to be associated with more mental health symptoms. Reported neglect predicted a substantial increase in mental health risk with a standardized beta of 0.32 (Model 2). Comparatively, parental conflict predicted less variance in mental health problems than maltreatment (standardized $\beta = 0.18$) in Model 1.

3.3 Moderating Effects of Exposure to COVID-19

Table 3 reveals two interactions. The first interaction is between child maltreatment and pandemic exposure, and the second interaction is between parental conflict and pandemic exposure. Children who experienced more maltreatment experience and exposure to COVID-19 showed elevated levels of mental health symptoms (standardized $\beta = 0.06$, $p < 0.05$), as did those who experienced parental conflict and pandemic exposure (standardized $\beta = 0.06$, $p < 0.05$) (Fig. 1).

Table 4 presents the interaction results of COVID-19 exposure with child maltreatment and parental conflict across families with a different number of children. Only child maltreatment presented significant interactions with pandemic exposure in one-child families (standardized $\beta = 0.08$, $p < 0.05$).

Table 5 presents the interactive effects of four types of child maltreatment (nonviolent discipline, psychological aggression, physical assault, and neglect) and pandemic exposure on child mental health. In particular, physical assault (standardized $\beta = 0.07$) and neglect (standardized $\beta = 0.09$) presented significant interactions with pandemic exposure (see Fig. 2).

4 Discussion

This study examined the independent associations between child maltreatment, parental conflict, and mental health outcomes in Chinese children aged 0–10 years during the COVID-19 lockdown. We found that child maltreatment was related to substantially higher levels of mental health symptoms, and after controlling for covariates, the experience of parental conflict was also linked to higher reported mental health problems. In addition, we found some evidence for interactions between exposure to COVID-19, child maltreatment, and parental conflict on child mental health. The interaction effects of COVID-19 exposure and child maltreatment on mental health symptoms were significant only among one-child families. Three types of maltreatment (nonviolent discipline, psychological aggression, and neglect) were associated with more mental health

Table 1 Descriptive characteristics of study population and bivariate linear regression analysis of the relationship of socio-demographic characteristics, and related factors, with child mental health (N = 1286)

Variables	N/Mean	Percentage/SD	B	Std. Error	Beta
Child gender					
Male	544	45.75			
Female	645	54.25	0.404	0.431	0.028
Child age					
≤ 3	153	12.31			
3–6	227	18.26	0.182	0.544	0.010
> 6	863	69.43	0.174	0.443	0.011
Number of children					
1	594	46.2			
> 1	692	53.8	-0.082	0.413	-0.006
Province					
Hubei	288	22.4			
Henan	188	14.6	0.515	0.573	0.026
Guangdong	540	42.0	-0.206	0.415	-0.014
Others	270	21.0	0.760	0.497	0.043
Family income level					
Low income (< 100,000 Yuan)	789	61.35			
Middle income (100,000–200,000 Yuan)	267	20.76	0.559	0.507	0.031
High income (> 200,000 Yuan)	230	17.89	-0.054	0.530	-0.003
Parental education level					
High school diploma or lower	371	28.85	-1.124	0.452	-0.071*
Associate degree	237	18.43	0.302	0.529	0.016
Undergraduate degree	460	35.77	0.308	0.429	0.020
Graduate degree	218	16.95			
COVID-19 exposure					
Yes	234	18.20	1.188	0.541	0.062*
No	1052	81.80			
Parental conflict (Mean, SD)	4.99	1.87	1.437	0.108	0.364***
Child maltreatment (Mean, SD)	13.16	11.75	0.345	0.015	0.558***
Nonviolent discipline	9.59	4.17	0.688	0.046	0.393***
Psychological aggression	9.38	4.92	0.715	0.037	0.481***
Physical assault	5.98	2.94	1.057	0.063	0.430***
Neglect	6.22	2.67	1.296	0.067	0.484***
Child mental health (Mean, SD)	31.728	7.230			

Notes: B: coefficient, Std Error: standard error;

* $p < 0.05$, *** $p < 0.001$

symptoms, but only physical assault and neglect showed interactive effects with COVID-19 exposure.

Our findings reveal that child maltreatment is associated with more mental health problems among children aged 0–10 years, consistent with a previous study (Guo et al., 2020). The association between child maltreatment and poorer mental health could be attributed to the following reasons. First, child maltreatment may lower self-compassion, which elicits negative responses to personal adversities and is linked to higher mental health risk (Tanaka et al., 2011). Second, children who experience maltreatment are at higher risk of insecure attachments (Cicchetti & Toth, 2005), which are linked with greater depressive symptoms (Toth & Cicchetti, 1996). Finally, children who are maltreated have more difficulty with emotion regulation, which predicts lower peer acceptance, more internalizing symptomatology, and higher-reported mental disorders (Kim &

Cicchetti, 2010). The findings suggest that children who experience maltreatment are at higher risk for mental health problems, which reminds us of the importance of prevention and intervention programs to reduce child maltreatment potential during the COVID-19 pandemic.

In addition, this study reveals a positive relationship between the mental health of children in China and their experience of parental conflict. The present finding is supported by ecological system theory and the spillover hypothesis, which both stress the importance of the household environment in children's psychological well-being (Krishnan, 2010; Sturge-Apple et al., 2006). During the COVID-19 lockdown, parents experienced increased demands related to daily life, income, and child care, whereas caregiver resources were restricted; this combination resulted in a higher level of parental stress and marital conflict (Fegert et al., 2020). Such conflicts between parents can overwhelm

Table 2 Multiple linear regression with COVID-19 exposure, parental conflict, child maltreatment predicting child mental health

	Model 0			Model 1			Model 2		
	B	Std. Error	Beta	B	Std. Error	Beta	B	Std. Error	Beta
COVID-19 exposure	1.107	0.589	0.058	0.650	0.499	0.034	0.509	0.489	0.026
Parental conflict	1.443	0.114	0.362***	0.721	0.107	0.181***	0.642	0.105	0.161***
Child maltreatment	0.344	0.015	0.557***	0.308	0.017	0.491***			
Nonviolent discipline	0.236	0.053	0.133***				0.244	0.053	0.136***
Psychological aggression	0.275	0.058	0.183***				0.218	0.059	0.143***
Physical assault	0.185	0.090	0.075*				0.141	0.094	0.056
Neglect	0.906	0.078	0.342***				0.874	0.084	0.322***

Notes: B: coefficient, Std. Error: standard error; Control variables: Child gender, child age, province, family income level, parental education level. All the models were adjusted for confounding

* p<0.05, *** p<0.001

the household environment and yield negative effects on children’s mental health (Pruett et al., 2017). A recent study found that parents who had conflicts with spouses during the COVID-19 pandemic were more likely to report higher stresses for their children (Russell et al., 2020). Children may be affected by observing, witnessing, and learning about their parents’ disruptive conflicts and aggressive behaviors (Xuan et al., 2018). In summary, this study highlights that the experience of parental conflict spills over into mental health symptoms in children.

In contrast to a prior study (Guo et al., 2020), this study found that exposure to the COVID-19 pandemic had no relationship with mental health symptoms in children. A possible reason could be differences in sample size and

measurements between studies. Although in this study the direct effect of pandemic exposure on children’s mental health is insignificant, it indeed strengthens the relationship between parental conflict, child maltreatment, and mental health problems in children. Prime et al. suggested that parental conflict, financial insecurity, and life disruptions predict children’s vulnerabilities (Prime et al., 2020). One recent study indicated that COVID-19 exposure exacerbated anxiety, depression, and PTSD in rural adolescents who had adverse childhood experiences (Guo et al., 2020). Moreover, the association between child maltreatment and mental health symptoms could only be enhanced by pandemic exposure in one-child families. It is possible that a greater number of children in a family would help to shape

Table 3 Multiple linear regressions for interaction effects of COVID-19 exposure, child maltreatment, and parental conflict predicting child mental health

	Model 1			Model 2		
	B	Std. Error	Beta	B	Std. Error	Beta
COVID-19 exposure	0.220	0.193	0.029	0.237	0.193	0.032
Parental conflict	1.312	0.200	0.176***	1.324	0.199	0.177***
Child maltreatment	3.632	0.197	0.492***	3.598	0.197	0.488***
COVID-19 exposure * Child maltreatment	0.441	0.184	0.060*			
COVID-19 exposure * Parental conflict				0.390	0.173	0.056*

Notes: B: coefficient, Std. Error: standard error; Control variables: Child gender, child age, province, family income level, parental education level. All the models were adjusted for confounding

* p<0.05, *** p<0.001

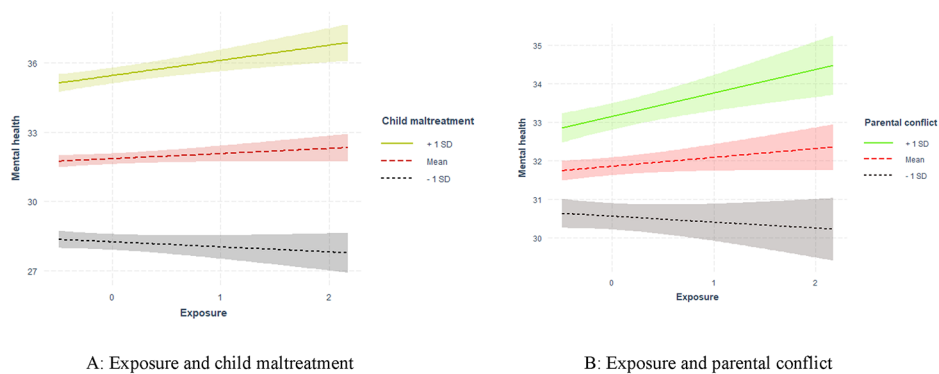


Fig. 1 The interaction effects of COVID-19 exposure, child maltreatment, and parental conflict, predicting child mental health.

Table 4 Multiple linear regressions for interaction effects of COVID-19 exposure, child maltreatment, and parental conflict predicting child mental health in the number of children subgroup

	Model 1: One-child family			Model 2: multi-children family			Model 3: One-child family			Model 4: multi-children family		
	B	Std. Error	Beta	B	Std. Error	Beta	B	Std. Error	Beta	B	Std. Error	Beta
COVID-19 exposure	0.293	0.203	0.048	0.164	0.427	0.014	0.281	0.203	0.046	0.064	0.418	0.006
Parental conflict	1.465	0.248	0.213***	1.072	0.310	0.133**	1.413	0.256	0.205***	1.049	0.334	0.130**
Child maltreatment	4.179	0.271	0.569***	2.891	0.317	0.390***	4.268	0.266	0.581***	3.032	0.289	0.409***
COVID-19 exposure * Child maltreatment	0.446	0.199	0.077*				0.314	0.180	0.060			
COVID-19 exposure * Parental conflict				-0.468	0.427	-0.045				-0.113	0.452	-0.010

Notes: B: coefficient, Std. Error: standard error; Control variables: Child gender, child age, province, family income level, parental education level. All the models were adjusted for confounding

* p < 0.05, ** p < 0.01, *** p < 0.001

a sense of happiness and resilience. Children could obtain more emotional support from other sibling(s) in multi-children families, and vulnerability would be mitigated once maltreatment existed (Wu & Sun, 2020; Hu & Qian, 2021). These findings underscore the importance of family structure in shaping child mental resilience and vulnerability during the pandemic. Here, we argue that we should look at the type of child maltreatment; in our study, physical abuse and neglect are the two most important predictors of mental health symptoms moderated by pandemic exposure. Perhaps child neglect stimulates stress sensitization, and individuals experiencing family neglect may become more vulnerable to subsequent stressful events and suffer more intense traumatic feelings (McLaughlin et al., 2010).

5 Limitations and Implication

To our knowledge, this study is the first comprehensive investigation of the independent and interactive influences of COVID-19 exposure, parental conflict, and parental harshness on the mental health of children aged 0–10 years. Several limitations should be noted. First, there might be potential bias in parent reports related to their children’s experiences of maltreatment, which could inflate or confound the association of child maltreatment and mental health. Although we have tried to reduce bias by employing a well-validated measurement (CTSPC), multiple methods (e.g., clinical and judicial records) and multiple informants (e.g., children, therapists and judicial agencies) should be designed in future research. Second, the fact that maltreatment, parental conflict, and mental health were all reported by parents should be acknowledged. Such parental reports

Table 5 Multiple linear regression for interaction effects of COVID-19 exposure and four scales of child maltreatment predicting child mental health

	Model 1			Model 2			Model 3			Model 4		
	B	Std. Error	Beta	B	Std. Error	Beta	B	Std. Error	Beta	B	Std. Error	Beta
COVID-19 exposure	0.190	0.191	0.025	0.192	0.190	0.026	0.185	0.189	0.025	0.149	0.189	0.020
Parental conflict	1.201	0.198	0.161***	1.200	0.198	0.161***	1.185	0.197	0.159***	1.159	0.196	0.155***
Nonviolent discipline	1.016	0.222	0.136***	1.017	0.222	0.136***	1.026	0.221	0.138***	1.046	0.221	0.140***
Psychological aggression	2.328	0.223	0.322***	2.327	0.224	0.321***	2.258	0.224	0.312***	2.203	0.225	0.304***
Physical assault	0.416	0.276	0.056	0.418	0.276	0.056	0.414	0.275	0.056	0.393	0.274	0.053
Neglect	1.074	0.291	0.143***	1.073	0.291	0.143***	1.122	0.290	0.150***	1.128	0.290	0.151***
COVID-19 exposure * nonviolent discipline	0.018	0.186	0.002									
COVID-19 exposure * psychological aggression				0.038	0.187	0.005						
COVID-19 exposure * physical assault							0.515	0.180	0.070**			
COVID-19 exposure * neglect										0.567	0.157	0.091***

Notes: B: coefficient, Std. Error: standard error; Control variables: Child gender, child age, province, family income level, parental education level. All the models were adjusted for confounding

** p < 0.01, *** p < 0.001

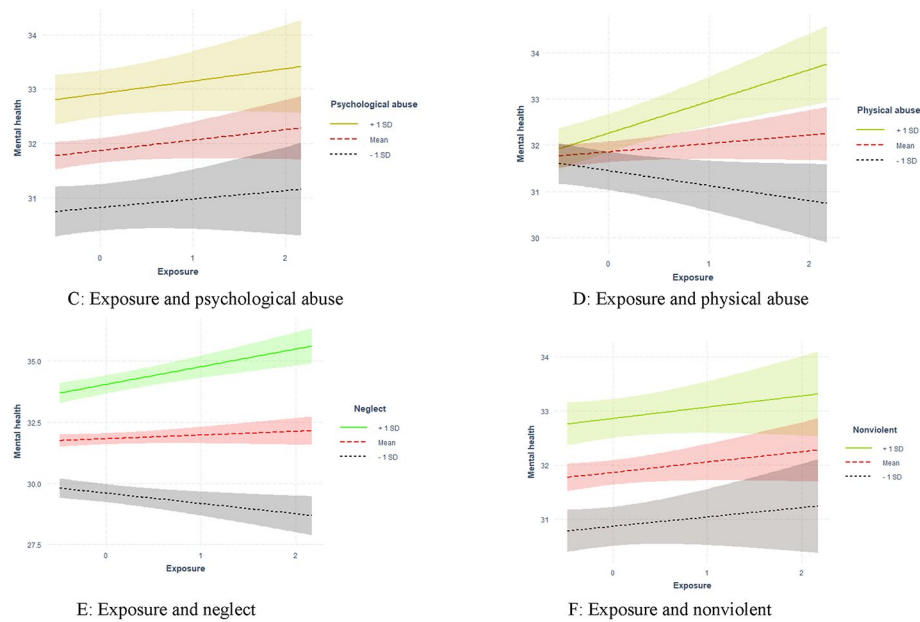


Fig. 2 The interaction effects of COVID-19 exposure and four scales of child maltreatment predicting child mental health.

could possibly underestimate mental health symptoms and maltreating and conflicting behaviors. Third, the recruitment strategy used in the present study was not based on random selection, which might preclude us from determining to what degree the participants were representative of children in the settings from which they were sampled. Thus, we should be cautious in generalizing our findings. Finally, as a cross-sectional study, our report could not establish cause-effect relationships, although correlations of independent variables with dependent variables could be observed.

Despite these limitations, this study has shed light on the relationship between child maltreatment, parental conflict, and mental health symptoms among young children aged 0–10 years in China and suggests applicable ideas for the prevention of mental health problems. It is crucial for social workers to pay more attention to the prevention of domestic violence and conflict among family members. Universal prevention programs that focus on screening at-risk groups, improving the family environment, and refining the definition of domestic violence are beneficial for the protection of children in a pandemic context. Additionally, considering that children who did not live with any other sibling experiencing maltreatment are vulnerable to psychological difficulties, special attention must be paid to these children to help improve their mental health. A selective intervention may include more intensive training in social skills and emotion-regulation approaches for small groups of parents at risk of domestic conflict.

6 Conclusion

This study provides evidence for both direct and interactive influences of COVID-19 exposure, parental conflict, and child maltreatment on younger children's mental health problems. Both child maltreatment and parental conflict act as powerful predictors of mental health symptoms, with these relationships being moderated by COVID-19 exposure. Nevertheless, the effect of child maltreatment was reduced after controlling for parental conflict, suggesting that future research examining the consequence of parental harshness should account for parental conflict. These findings highlight the need for community social workers to identify parental conflict and parental harshness as potential risk factors for mental health problems among young children during and after the pandemic. Tailored programs that focus on a healthy family environment and strategic parental support services may be particularly effective in reducing children's mental health problems in the pandemic context.

Authors' Contributions Yashuang Bai and Jing Guo drafted the manuscript, and analysis the data. MingQi Fu, XiaoHua Wang, Danxia Liu, Bo Zhang, Yanjun Zhang and Chengbin Liu was involved in revising the manuscript. All authors were involved in writing the manuscript and approve of its final version.

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

Declarations

Ethics Approval The study was approved by the local ethics committees of the Peking University Medical Ethics Board. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Competing Interests The authors declare that they have no conflict of interest.

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