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Associations of parenting daily hassles with parents' mental health during the COVID-19 school closure

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ABSTRACT

Rationale: Parenting is a demanding task associated with parents' mental health, which is likely exacerbated by the COVID-19 pandemic lockdown. The present study investigated daily parenting hassles and their effects on parents' mental health during this period.

Methods: A total of 7314 parents with children aged 3–14 years old completed a sociodemographic questionnaire and reported on their perceived daily parenting hassles, mental health, family support, and co-parenting during the COVID-19 school closure.

Results: Most parents (73.4%) showed different degrees of daily hassles, and a relatively higher prevalence of depression (18.7%), anxiety (22.4%), and stress (12.1%) were found. Motherhood, parents' younger ages, lower education parents, job loss, and having younger children, boys, and multiple children were associated with elevated daily parenting hassles and mental health issues. Importantly, daily parenting hassles were uniquely associated with mental health problems after controlling for various sociodemographic characteristics, family support, and co-parenting. Furthermore, family support and co-parenting can attenuate daily parenting hassles, which, in turn, protect parents' mental health.

Conclusions: The findings of the present study underscore the critical need to consider daily parenting hassles and their effects on the mental health of parents during the COVID-19 lockdown. The present study also outlines potential factors (family support and co-parenting) that attenuate parents' daily parenting hassles and protect their mental health during the COVID-19 lockdown.

1. Introduction

To date, the coronavirus disease (COVID-19) has affected almost all countries and regions worldwide since it was first detected in Wuhan in December 2019 (Dong et al., 2020). Since early February 2020, the Chinese government implemented strict social distancing measures (such as stay-at-home orders, limited gatherings, and school closures) to prevent the rapid spread of COVID-19. With the school closures and kindergarten shut down, about 180 million primary students and 47 million kindergarten children (ages 3–6 years old) in China were confined at home during the pandemic (Wang et al., 2020b). At the end of March 2020, with the effective control of the epidemic, schools began

to reopen across Chinese provinces. However, in areas with new cases or severe outbreaks, the lockdown would restart (Liu et al., 2022). For example, on October 19, 2021, Lanzhou, the capital city of northwest China's Gansu Province, had domestically transmitted COVID-19 cases and sustained spread in subsequent days (Gansu Health Commission, 2021). To combat a growing outbreak, home confinement and school closure (including primary and secondary schools and kindergartens) were restarted for the whole city (Lanzhou Bureau of Education, 2021; Lanzhou Municipal Government, 2021). The COVID-19 pandemic upended daily life, particularly, home confinement and school closure brought a large shock to all families with children in school and kindergarten; most parents faced the additional challenges of childcare

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and education in addition to dealing with work (from home). Such overload became routine, putting parents under extra stressful conditions during the quarantine period (Freisthler et al., 2021; Hiraoka and Tomoda, 2020).

It is well-documented that stress harms family functioning, child development, and parent's mental health (Crnic and Coburn, 2019; Lee et al., 2013; Pollmann-Schult, 2014). According to the model proposed by Crnic and colleagues (Crnic and Greenberg, 1990; Crnic and Low, 2002; 2005), parental stressors can be classified as major life events and routine/daily parenting hassles. However, as compared to low-frequency major life stressors (e.g., natural disaster, unemployment, divorce), minor daily parenting stresses may be more specific to parenting and more powerfully influence children, parents, and family status (Crnic and Greeberg, 1990; Kliewer and Kung, 1998). Daily parenting hassles are the difficulties and irritations related to childcare and education demands in everyday life (Crnic and Low, 2002; Taylor, 2019), such as cleaning up children's messes, refereeing sibling arguments, and deescalating temper tantrums, etc. Since parenting hassles are repetitive and constant in everyday life, the cumulative impact of relatively minor daily stresses would result in major adaptational significance (Crnic and Greeberg, 1990).

As a significant public health crisis, the COVID-19 pandemic and related containment strategies would have an adverse psychological impact on the general population (Brooks et al., 2020; Vindegaard and Benros, 2020). Both the cross-sectional and longitudinal studies showed elevated mental health problems in the general population worldwide after the COVID-19 outbreak when compared to before (Czeisler et al., 2020; Talevi et al., 2020; Wang et al., 2020a). The COVID-19 pandemic and related containment strategies exposed people to new stressors, such as health concerns, social isolation, job loss, and financial insecurity (Moreno et al., 2020; Pfefferbaum and North, 2020), all these factors negatively impacted people's mental health (Fontanesi et al., 2020; Loades et al., 2020; Wilson et al., 2020). Some studies found that parents suffered more severe mental health problems (Feinberg et al., 2022; Fontanesi et al., 2020; McRae et al., 2021) because they may have additional burdens and stress on childcare and home education due to lockdown (Chung et al., 2020; Freisthler et al., 2021; Giannotti et al., 2022; Lucassen et al., 2021; Patrick et al., 2020).

As indicated by the American Psychological Association, 74% of parents reported that their family routines were disrupted during the COVID-19 pandemic (APA, 2020). In a national survey in the United States, Patrick et al. (2020) showed that about 1/4 of parents reported the loss of regular child care, and 3/4 of them reported one parent had to care for children during the pandemic. Stay-at-home parents needed to spend more time on their children's daily activities, such as preparing food, play, and homeschooling (Freisthler et al., 2021; Lee et al., 2021; Schmeer et al., 2021; Spinelli et al., 2020). Disrupted family routines and increased parenting duties may lead parents to experience additional stress and face more daily parenting hassles. For example, evidence showed that both parents and children reported that irritation with family members as one of the most common daily difficulties during the COVID-19 pandemic (Janssen et al., 2020); some studies also reported increased parent-children conflict due to lockdown orders (de Jong et al., 2021; Grigoropoulos, 2021). Given that cumulative daily hassles were significant (Crnic and Greeberg, 1990), the main aim of this study was to discover the daily parenting hassles with school closures and kindergarten shut downs during the COVID-19 pandemic lockdown and examine how these daily hassles contribute to parents' mental health.

We also are interested in whether some parents were more impacted by the pandemic since existing research suggests that parenting stress varies (Lee et al., 2013; Pollmann-Schult, 2014; Nomaguchi and Brown, 2011). Firstly, due to the stereotyped societal expectations of the male breadwinner and female caregiver in most countries and cultures, mothers are often the primary caregiver (Sayer et al., 2004), thus they may be more vulnerable during the pandemic. Emerging evidence showed that women provided more childcare than men during the

COVID-19 pandemic (Collins et al., 2021; Zamarro and Prados, 2021), and mothers also reported higher levels of parental stress and parenting-related exhaustion than fathers (Giannotti et al., 2022; Johnson et al., 2020; Marchetti et al., 2020). Therefore, we hypothesized that motherhood would relate to higher levels of daily parenting hassles with increased daily parenting demands during the COVID-19 pandemic lockdown. Meanwhile, because previous studies showed that parents having younger children, boys, and having a large number of children usually experience more parenting stress (Nelson et al., 2014; Nomaguchi, Fetto, 2018; Vierhaus et al., 2013), we also examine how these factors affect daily parenting hassles and mental health during the COVID-19 pandemic lockdown time.

In addition to the adverse effects on parenting stress and mental health, home confinement during the COVID-19 pandemic may have also offered a good opportunity to enhance the interaction between family members and their children (Tang et al., 2021). Emerging evidence has shown that some family aspects, such as family support and co-parenting, are important protective factors against parenting stress and supporting mental health during lockdown (Giannotti et al., 2022; Khoury et al., 2021; McRae et al., 2021; Pruett et al., 2021). During home confinement, family members become the most available resources for people to cope with the disrupted daily life routine (Li and Xu, 2022). Cooperative parenting and support between family members would also promote resilient family contexts in the face of disruptors of any facet during crises (Walsh, 2016). Thus, we predict that social support from family and co-parenting during school closure and kindergarten shutdown may also attenuate daily parenting hassles during COVID-19 school closures and help protect parents' mental health.

Existing studies demonstrated that the COVID-19 pandemic and related containment strategies disrupted most people's lives worldwide and caused widespread psychosocial stress, this may be particularly true for parents since they faced additional childcare and education demands during the lockdown time (Freisthler et al., 2021; Giannotti et al., 2022; Lucassen et al., 2021; Patrick et al., 2020). Emerging evidence also showed that parents generally reported higher stress levels and more severe mental health problems than non-parents during the pandemic (Brown et al., 2020; McRae et al., 2021; Park et al., 2020; Russell et al., 2020). However, to our knowledge, no study has examined how the pandemic impacted parenting-specific stress (daily parenting hassles) under the condition of daily life routine disruption during lockdown, and how it affected parents' mental health. Answering this question is essential, as the cumulative impact of relatively minor daily stresses would result in major adaptational significance (Crnic and Greeberg, 1990). Therefore, the present study examined the levels of daily parenting hassles and their associations with mental health (including depression, anxiety, and stress symptoms) among parents with children in primary school and kindergarten who experienced school closure in Lanzhou, China, due to the COVID-19 lockdown in October 2021. We also tested the possible protective roles of family support and co-parenting in buffering daily parenting hassles and protecting mental health.

2. Methods

2.1. Participants

A total of 7314 parents (M age = 38.01 \pm 4.56; 72% mothers) with children aged 3–14 participated in the survey. The inclusion criteria of the present study were: (a) parents aged 18 years or older; (b) having at least one child in primary school or kindergarten; (c) living with children during the COVID-19 pandemic lockdown. All participants resided in Lanzhou, the capital city of Gansu province in China, and experienced the same government-initiated lockdown interventions, including isolation, quarantine, and school and kindergarten closures (Lanzhou Bureau of Education, 2021). Descriptive information for the sample is

reported in Table 1.

2.2. Procedures

Data were collected via a Chinese online platform (Wenjuanxing) from 8 to November 9, 2021, a period when Lanzhou was in lockdown. The survey was first distributed to 10 primary school teachers and five kindergarten teachers. The teachers sent the designated link to their class's WeChat parent group and asked parents to complete the self-reported questionnaire. In the present study, only one parent per family participated. The survey was anonymous and participants voluntarily responded to the questionnaire. At the beginning of the questionnaire, the directions were clearly explained, all parents were asked to complete the questionnaire (including daily parenting hassles, mental health, family support, and co-parenting) based on their situation and experiences over the previous two weeks, under the school and kindergarten closure measures implemented by the local government. Participants could quit the survey at any time without providing a reason. Informed consent was obtained from all participants, and ethical approval for the present study was obtained from the local Ethics Committee.

2.3. Measures

2.3.1. Demographic characteristics

Parents reported sociodemographic information about themselves and their children, which included parents' sex, age, education, job status during home quarantine, the number of their children, children's age, and sex.

2.3.2. Daily parenting hassles

Daily parenting hassles during school closures were assessed using the Daily Parenting Hassles Intensity Scale, which was developed by Crnic and Greenberg (1990) to assess parents' routine experiences with child-rearing. In this scale, parents are asked to assess 15 different daily hassles that are common to parenting (e.g., chores, supervision). In the present study, two items from the original scale regarding child outdoor care ("getting a child ready for an outing" and "children management in public places") were excluded since outdoor activities were restricted during home isolation. Finally, a 13-item scale was used in the present study, rated on a 5-point Likert scale from 1 (*no hassle*) to 5 (*big hassle*).

Table 1

Characteristics of the sample.

| | Mean or % (n) |
|-----------------------------|---------------------|
| Parent Biological Sex | |
| Female | 72.0% (5265) |
| Male | 28.0% (2049) |
| Parent's educational levels | |
| Completed college | 38.8% (2837) |
| Uncompleted college | 61.2% (4477) |
| Parent's job status | |
| No loss | 63.3% (4631) |
| Lost work | 36.7% (2683) |
| Child's Biological Sex | |
| boy | 48.5% (3548) |
| girl | 51.5% (3766) |
| Number of children | |
| One | 47.6% (3478) |
| More than one | 52.4% (3836) |
| | Mean (SD), Range |
| Parent's age (years) | 38.01 (4.56), 25-51 |
| Child's age (years) | 8.97 (1.86), 3-14 |
| Family support | 22.24 (5.18), 4-28 |
| Coparenting | 20.82 (4.46), 4-28 |
| Daily parenting hassles | 2.11 (.78), 1-5 |
| Depression | 4.70 (6.44), 0-42 |
| Anxiety | 4.32 (6.26), 0-42 |
| Stress | 6.95 (7.32), 0-42 |

Note: N = 7314.

The mean score of the 13 items was the final score of the respondent's perceived daily parenting hassles. Mean scores between 1.0 and 1.5 represented "no hassles," those between 1.6 and 2.5 represented parents having "some hassles," scores between 2.6 and 3.5 denoted "considerable hassles," between 3.6 and 4.5 represented "many hassles," and mean scores between 4.5 and 5 showed that parents have "big hassles." The Cronbach's α of the Daily Parenting Hassles Intensity Scale was 0.93 for the present sample.

2.3.3. Mental health

Parent mental health was assessed using the Chinese version of the Depression, Anxiety, and Stress Scale (DASS-21; Wang et al., 2016). It consists of 21 items and assesses the general negative affective syndromes of depression, anxiety, and stress, each measured through seven items (Lovibond and Lovibond, 1995a). Participants rated each item on a 4-point scale (0 = *did not apply to me at all*, 3 = *applied to me very much or most of the time*) the severity of the symptoms over the past week. To match the scores of the full 42-items DASS and identify high-risk participants for each syndrome (10 for depression, 8 for anxiety, and 15 for stress; Lovibond and Lovibond, 1995b), the final scores for each subscale in the present study represented the sum scores for each syndrome items multiplied by two. The Cronbach's α of the depression, anxiety, and stress subscales were 0.87, 0.87, and 0.86, respectively, for the present sample.

2.3.4. Family support

Family support in this study was measured by the family social support subscale of the Multidimensional Scale of Perceived Social Support (Jiang, 2001; Zimet et al., 1990). It contains four items and assesses participants' perceived social support from family members. Participants were asked to rate each item on a 7-point scale (from 1 = *strongly disagree* to 7 = *strongly agree*), and the sum of the scores represented the final score of this scale. In the present sample, Cronbach's α for the family social support subscale was 0.86.

2.3.5. Coparenting

Coparenting was measured using four questions based on the existing literature that focused on co-parenting relationships in daily life (Feinberg et al., 2012; McDaniel et al., 2017). The items were: (1) "We cooperated in parenting"; (2) "We trusted one another's parenting"; (3) "We had different ideas about parenting" (reverse scoring); and (4) "We were able to ask each other for help with parenting." Participants responded on a 7-point scale (from 1 = *strongly disagree* to 7 = *strongly agree*), and the sum of the scores represented the final score of this scale. Cronbach's α for the Coparenting scale was 0.73 for the present sample.

2.4. Statistical analysis

We used the statistical analysis software package SPSS 22.0 and Mplus 7.0 to analyze the data of the present study. First, descriptive analyses, including means, SD, and frequency, were computed to describe the characteristics of the sample and the status of daily parenting hassles and mental health (including depression, anxiety, and stress) during the COVID-19 school closure. Secondly, based on sample characteristics and relevant previous studies, we recoded the parents' age (below 40 = 0, 40 and above = 1), parents' sex (female = 0, male = 1), parents' educational level (uncompleted college = 0, completed college = 1), children's age (3-6 years old age group = 0, 7 years old and above = 1), children's sex (boy = 0, girl = 1), and number of children (one child = 0, more than one child = 1) as categorical variables (dummy coded), then, independent sample t-tests were conducted to examine group differences in the intensity of daily parenting hassles and symptom levels of depression, anxiety, and stress. Thirdly, Pearson correlations were calculated to analyze the intercorrelation between mental health and daily parenting hassles, family support, co-parenting, and various sample characteristics. Then, linear regression analyses

were conducted to examine the role of daily parenting hassles in mental health. Furthermore, a path analysis was conducted to assess the possible buffer effects of family support and co-parenting on daily parenting hassles, which in turn protected parents' mental health. The bootstrapping method (with 10,000 resamples) was used to calculate the 95% confidence intervals (CIs); the 95% CIs did not overlap with zero, being significant at $p < .05$. The model fit was tested using a comparative fit index (CFI) and Tucker-Lewis index (TLI) greater than 0.90, root mean squared error of approximation (RMSEA) less than 0.08, and standardized root mean square residual (SRMR) less than 0.05 (Schumacker and Lomax, 2010). In correlations, regression, and path analysis, parents' sex, age, education, job status, and child's age, sex, and number were treated as categorical variables (dummy coded).

3. Results

3.1. Daily parenting hassles

The mean and SD of daily parenting hassles are shown in Table 1. Overall, 73.4% of the parents scored more than 1.5 on the Daily Parenting Hassles Intensity Scale, indicating that they experienced different degrees of daily parenting hassles. Specifically, 50.2% of the parents (mean scores ranging from 1.6 to 2.5) experienced some hassles in daily parenting life; 16.9% of the parents (mean scores ranging from 2.6 to 3.5) experienced considerable hassles; 4.8% of the parents (mean scores ranging from 3.6 to 4.5) experienced a lot of hassles; 1.5% of the parents (mean scores ranging from 4.6 to 5) experienced big hassles in their daily parenting life. As shown in Table 2, daily parenting hassles for female, younger, less educated parents, and those who lost their jobs were significantly higher than for a male, relatively older, more educated, and still employed parents, $t_s(7312) \geq 3.95, p_s < .001$. Parents with younger children, boys, and more than one child reported significantly higher daily parenting hassles than parents with relatively older children, girls, and one child, $t_s(7312) \geq 3.85, p_s < .001$.

3.2. Depression, anxiety, and stress

Regarding depression, 18.7% ($n = 1369$) of the parents scored ≥ 10 on the depression subscale of the DASS-21, indicating clinically significant depression levels. The depression syndrome of parents with less education and job loss was significantly higher than that of parents with higher education and no job loss, $t_s(7312) \geq 5.61, p_s < .001$. Parents with younger and multiple children also reported significantly higher depression levels than parents with one relatively older child, $t_s(7312) \geq 3.28, p_s < .01$ (see Table 2).

Regarding anxiety, 22.4% ($n = 1637$) of the sample scored ≥ 8 on the anxiety subscale of the DASS-21, indicating clinically significant levels of anxiety. The anxiety syndrome among younger, less educated, jobless parents was significantly higher than the relatively older, more educated, and still employed parents, $t_s(7312) \geq 2.90, p_s < .01$. Parents with younger and more than one child also showed significantly higher anxiety levels than parents with one relatively older child, $t_s(7312) \geq 4.97, p_s < .01$.

Regarding stress, 12.1% ($n = 879$) of the sample scored ≥ 15 on the stress subscale of the DASS-21, indicating clinically significant levels of stress. The stress level of younger, less educated, recently jobless parents was significantly higher than that for the relatively older, more educated, still employed parents, $t_s(7312) \geq 2.74, p_s < .01$. Parents with younger children, boys, and more than one child reported significantly higher stress levels than parents with relatively older children, girls, and only one child, $t_s(7312) \geq 2.25, p_s < .05$.

3.3. Daily parenting hassles concerning mental health symptoms

Table 3 presents the intercorrelations of all measures in this study. As shown, parents' sex, age, education, job status, and child's age, sex, and

Table 2
Means, SD, and comparisons of Daily parenting hassles and mental health across various sample characteristics.

| | Daily parenting hassles | | Depression | | Anxiety | | Stress | |
|----------------------|-----------------------------------|------------|------------|-------------|------------|-----------|-------------|------------|
| | M (SD) | t (1,7312) | Cohen's d | M (SD) | t (1,7312) | Cohen's d | M (SD) | t (1,7312) |
| Parent's gender | Female 2.14 (.78) | 5.52*** | .14 | 4.65 (6.32) | 1.19 | .03 | 4.40 (6.16) | 1.19 |
| | Male 2.03 (.77) | | | 4.85 (6.72) | | | 4.14 (6.50) | |
| Parent's age (years) | Below 40 2.14 (.78) | 3.95*** | .10 | 4.81 (6.51) | 1.92 | .05 | 4.48 (6.34) | 2.74** |
| | 40 and above 2.06 (.77) | | | 4.50 (6.29) | | | 4.03 (6.09) | |
| Parent's education | Completed college 2.17 (.84) | 5.09*** | .14 | 5.23 (6.94) | 5.61*** | .13 | 5.09 (6.93) | 8.37*** |
| | Uncompleted college 2.07 (.74) | | | 4.36 (6.07) | | | 3.38 (5.74) | |
| Parent's job status | No loss 2.07 (.75) | 5.74*** | .13 | 4.33 (6.06) | 6.63*** | .16 | 3.93 (5.89) | 7.02*** |
| | Lost work 2.17 (.82) | | | 5.36 (6.99) | | | 4.99 (6.78) | |
| Child's age (years) | 3-6 years old 2.85 (.97) | 44.50*** | 1.12 | 7.64 (8.05) | 19.39*** | .52 | 7.51 (8.02) | 21.73*** |
| | 7 and above 1.94 (.61) | | | 4.01 (5.78) | | | 3.57 (5.51) | |
| Child's gender | boy 2.07 (.77) | 3.85*** | .09 | 4.67 (6.45) | .39 | 0.1 | 4.38 (6.29) | .90 |
| | girl 2.14 (.78) | | | 4.73 (6.42) | | | 4.25 (6.22) | |
| Number of children | One 1.99 (.70) | 12.21*** | .30 | 4.44 (6.21) | 3.28** | .08 | 3.94 (5.91) | 4.97*** |
| | More than one 2.22 (.83) | | | 4.94 (6.23) | | | 4.66 (6.54) | |

Note: $N = 7314$; * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3
Intercorrelations among all measures.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|-----------------------------|---------|---------|---------|---------|---------|---------|--------|---------|---------|--------|--------|--------|----|
| 1. Parent's gender | 1 | | | | | | | | | | | | |
| 2. Parent's age | -.18*** | 1 | | | | | | | | | | | |
| 3. Parent's education | -.03* | .05*** | 1 | | | | | | | | | | |
| 4. Job status | .11*** | -.06*** | -.49*** | 1 | | | | | | | | | |
| 5. Child's age | -.03** | .07*** | .03** | -.05*** | 1 | | | | | | | | |
| 6. Child's gender | .05*** | .02 | .00 | -.01 | .02* | 1 | | | | | | | |
| 7. Number of children | .02* | -.05** | -.25*** | .20*** | -.08*** | .06*** | 1 | | | | | | |
| 8. Family support | -.06*** | .04** | .08*** | -.10*** | .19*** | .01 | -.04** | 1 | | | | | |
| 9. Coparenting | -.09** | .04** | .06*** | -.07*** | .18*** | .02 | -.01 | .60*** | 1 | | | | |
| 10. Daily parenting hassles | .06*** | -.05*** | -.06*** | .07*** | -.46*** | -.05*** | .14*** | -.38*** | -.39*** | 1 | | | |
| 11. Depression | -.01 | -.02 | -.07*** | .08*** | -.22*** | -.01 | .04** | -.36*** | -.38*** | .48*** | 1 | | |
| 12. Anxiety | .02 | -.03** | -.09*** | .08*** | -.25*** | -.01 | .06*** | -.31** | -.35** | .48** | .86*** | 1 | |
| 13. Stress | .01 | -.03** | -.07*** | .07*** | -.25*** | -.03* | .06*** | -.35*** | -.39*** | .53*** | .85*** | .85*** | 1 |

Note: N = 7314; *p < .05, **p < .01, ***p < .001.

number were correlated with daily parenting hassles, $r/s \geq 0.05$, $ps < .001$. Parents' education, job status, as well as child's age, and number were significantly correlated with depression, anxiety, and stress, $r/s \geq 0.04$, $ps < .01$. Thus, in the subsequent analysis, parents' sex, age, education, job status, and child's age, sex, and number were entered as covariates. Importantly, daily parenting hassles were significantly correlated with depression, anxiety, and stress, $rs \geq 0.48$, $ps < .001$. Additionally, both family support and co-parenting were significantly correlated with daily parenting hassles, depression, anxiety, and stress, $rs \leq -0.31$, $ps < .001$.

Linear regression analyses were conducted to examine the effect of daily parenting hassles on the severity of depression, anxiety, and stress symptoms with relevant covariates (Table 4). The overall model explained 28.6% of the variance in depression symptoms ($R^2 = 0.286$, [Adjusted $R^2 = 0.285$], $F(10, 7303) = 291.82$, $p < .001$), 26.8% of the variance in positive anxiety symptoms ($R^2 = 0.268$, [Adjusted $R^2 = 0.267$], $F(10, 7303) = 267.95$, $p < .001$), and 32.6% of the variance in stress symptoms ($R^2 = 0.326$, [Adjusted $R^2 = 0.326$], $F(10, 7303) = 353.95$, $p < .001$). As shown in Table 4, family support, co-parenting, and daily parenting hassles were significant predictors of all three mental health symptoms after controlling for relevant covariates.

A path mode was run to test the possible buffer effects of family support and co-parenting on daily parenting hassles, which in turn would protect parents' mental health (Fig. 1). The model demonstrated a good fit (CFI = 0.91, TLI = 0.91, RMSEA = 0.08, SRMR = 0.07). Family support and co-parenting were negatively associated with daily parenting hassles, and the latter was positively associated with parents' mental health issues. A bootstrapping with 10,000 samples showed that in addition to the direct effects, family support and co-parenting also had significant indirect effects on parents' mental health by buffering daily parenting hassles (see Table 5).

Table 4
Linear regression of daily parenting hassles predicting mental health symptoms.

| | Depression ($R^2 = .286$) | | | Anxiety ($R^2 = .268$) | | | Stress ($R^2 = .326$) | | |
|-------------------------|-----------------------------|-----|------------------|--------------------------|-----|------------------|-------------------------|-----|------------------|
| | β | SE | Bootstrap 95% CI | β | SE | Bootstrap 95% CI | B | SE | Bootstrap 95% CI |
| Parent's gender | -.07*** | .01 | -.09, -.04 | -.03** | .01 | -.05, -.01 | -.04*** | .01 | -.06, -.02 |
| Parent's age | -.01 | .01 | -.02, .02 | -.01 | .01 | -.03, .01 | -.01 | .01 | -.03, .01 |
| Parent's education | -.02 | .01 | -.04, .01 | -.06*** | .01 | -.08, -.03 | -.02 | .01 | -.04, .01 |
| Job status | .03** | .01 | .01, .05 | .02 | .01 | -.01, .04 | .02 | .01 | -.01, .04 |
| Child's age | .01 | .01 | -.02, .02 | -.03* | .01 | -.05, -.01 | -.01 | .01 | -.03, .02 |
| Child's gender | .02* | .01 | .00, .04 | .02 | .01 | -.01, .03 | .00 | .01 | -.02, .02 |
| Number of children | .03** | .01 | -.05, -.01 | -.02 | .01 | -.04, .01 | -.02 | .01 | -.04, .01 |
| Family support | -.12*** | .02 | -.15, -.09 | -.07*** | .02 | -.10, -.04 | -.09*** | .02 | -.12, -.06 |
| Coparenting | -.16*** | .01 | -.19, -.14 | -.14*** | .01 | -.17, -.12 | -.17*** | .01 | -.20, -.14 |
| Daily parenting hassles | .37*** | .02 | .34, .40 | .38*** | .02 | .35, .41 | .43*** | .01 | .40, .46 |

Note: N = 7314; *p < .05, **p < .01, ***p < .001.

4. Discussion

The COVID-19 pandemic and related shutdowns not only changed social and economic conditions but also the normal family routines (Lee et al., 2021; Liu et al., 2022; Schmeer et al., 2021). To our knowledge, this is the first study to examine the daily parenting hassles and their relationship to the mental health of parents during COVID-19 school and kindergarten closures. This large-scale cross-sectional online study showed that most parents (73.4%) had different degrees of daily hassles during lockdown. Meanwhile, 18.7%, 22.4%, and 12.1% of the sample showed clinically significant levels of depression, anxiety, and stress syndromes, respectively. Female, younger, less educated parents, as well as those who lost their jobs, had a younger, male, and multiple children were related to elevated daily parenting hassles and mental health problems. Importantly, higher daily parenting hassles were associated with higher levels of depression, anxiety, and stress syndromes with controlled various sociodemographic variables. Family support and co-parenting can attenuate daily parenting hassles, which, in turn, protect parents' mental health.

Some studies have shown that pandemic-related stressors, such as job loss, financial insecurity, social isolation, and work-family conflict are associated with elevated parental stress and mental health (Freisthler et al., 2021; Giannotti et al., 2022; Hiraoka and Tomoda, 2020; Johnson et al., 2020; Spinelli et al., 2020). Studies also have demonstrated that daily-life parenting became engaging at higher levels, including nearly all direct child caregiving activities, such as home educating, playing with, preparing food for, and disciplining their children during school closure (Cluver et al., 2020; Lee et al., 2021; Schmeer et al., 2021). The increased burden on daily childcare during the COVID-19 school closure may amplify daily parenting hassles. The present study showed that the levels of daily parenting hassles were in the mild range on average ($M = 2.11$), which was comparable to a recent study conducted during the pre-pandemic period in China using the

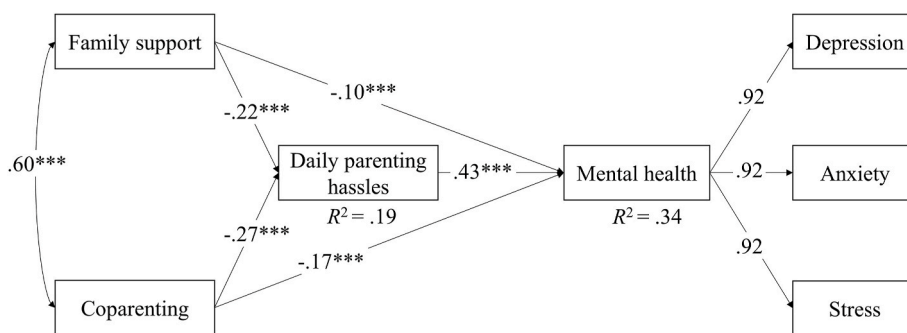


Fig. 1. Path mode for the effects of family support and coparenting on mental health via buffer daily parenting hassles. Note: $N = 7314$; $***p < .001$.

Table 5
Standardized direct and indirect effects.

| | B | SE | 95% CIs |
|--|---------|-----|------------|
| Direct effect | | | |
| Family support → Mental health | -.10*** | .02 | -.13, -.07 |
| Coparenting → Mental health | -.17*** | .01 | -.20, -.15 |
| Daily parenting hassles → Mental health | .43*** | .02 | .40, .46 |
| Family support → Daily parenting hassles | -.22*** | .02 | -.25, -.19 |
| Coparenting → Daily parenting hassles | -.27*** | .01 | -.30, -.24 |
| Indirect effect | | | |
| Family support → Daily parenting hassles → Mental health | -.09*** | .01 | -.11, -.08 |
| Coparenting → Daily parenting hassles → Mental health | -.11*** | .01 | -.13, -.10 |

Note: $N = 7314$; $***p < .001$.

same tool (Chen, 2020; $M = 2.10$). Yet, it should be noted that Chen’s (2020) sample consisted of parents with two children and relatively young children (aged 3–7 years old on average). Previous studies documented that both having a large number of children and having younger children related to increased parenting-related stress (Barroso et al., 2018; Mikolajczak et al., 2018). Accordingly, our results showed that the daily parenting hassles of parents with a younger child and having multiple children were significantly higher than those for parents with relatively older children and only one child. One-sample t -tests revealed that the parents with a child aged 3–6 years old ($M = 2.85$) and have two children ($M = 2.22$) in the present study had significantly higher daily parenting hassles than in Chen’s (2020), ($t [3835] \geq 30.54$, $p < .001$). This suggested that disrupted daily routines and increased parenting demands would put parents under a stressful condition and experience more parenting-related daily hassles, this may be particularly for parents with relatively younger children and those with multiple children.

Similarly, in line with previous studies on parental stress during the COVID-19 pandemic lockdown (Giannotti et al., 2022; Johnson et al., 2020), motherhood was related to more daily parenting hassles. While some pandemic-related stressors affect nearly everyone, parenting-related stressors may especially affect women, as they are disproportionately responsible for childcare and homeschooling globally (Almeida et al., 2020; Marchetti et al., 2020). Although parents who lost their jobs did not face the challenges of negotiating overlapping responsibilities between childcare and work, we found that these had reported a significantly higher level of parenting-related daily hassles than the parents who did not lose their jobs during the pandemic. This may be because unemployment will exacerbate family economic insecurity during the epidemic, which leads to greater parenting stress (Puff and Renk, 2014). Likewise, consistent with previous findings on parental stress (Vierhaus et al., 2013; Williford et al., 2007), our results

showed that parents of boys reported a higher level of daily parenting hassles than parents of girls. Sex in temperament traits differences may to some extent explain this effect. For example, studies revealed that girls demonstrated better behavioral control ability than boys (Else-Quest et al., 2006), more behavioral problems for boys may increase daily parenting hassles. Additionally, since low educated parents may have lacked the knowledge of their children’s adaptation, effective interactions, and supporting their children’s adaptation (Bornstein and Bradley, 2003). We also found that the parents with lower education levels had experienced more daily parenting hassles with the sudden changes in daily life during the COVID-19 pandemic lockdown.

Consistent with previous studies (Cameron et al., 2020; Johnson et al., 2020; Kerr et al., 2021; Lee et al., 2021; Patrick et al., 2020; Yue et al., 2020), we found a relatively high prevalence of depression (18.7%), anxiety (22.8%), and stress (12.1%) in the present study. The prevalence rates of depression and stress were also higher than those found in the general population (depression: 16.5%, and stress: 8.1%) during the COVID-19 epidemic in China, using the same mental health measurement (Wang et al., 2020a). This further confirmed that in addition to the common stressors (health concerns, financial insecurity, and social isolation) faced by the general population during the COVID-19 epidemic lockdown, school closure would put parents suffering additional parenting-related stressors (e.g., childcare and homeschooling) that make them more vulnerable to mental health issues (Lee et al., 2021; Mazza et al., 2021; Spinelli et al., 2020; Yue et al., 2020). Similar to the findings for daily parenting hassles, the present study also revealed some sociodemographic risk factors for parents’ mental health. These characteristics were younger age, lower education, job loss, having a younger child, a boy, and having more than one child.

Importantly, the present study showed daily parenting hassles were associated with increased depressive, anxiety, and stress symptoms. Among the predictors, including demographic characteristics, child features, work status, family support, and co-parenting, daily parenting hassles were the most powerful correlate for parents’ mental health. This result was compatible with the previous findings that due to its cumulative effect; frequent minor daily stress is an independent and relatively better predictor of psychological status than low-frequency life stress (Crnic and Greenberg, 1990; Lazarus et al., 1985). A recent study also showed that general daily hassles (e.g., “meeting deadlines or goals on the job,” “enough money for necessities”) were positively associated with depressive and anxiety symptoms for 176 US parents during the COVID-19 pandemic (Liu et al., 2022). Our study provided further evidence on the relationship between parenting-specific daily hassles and mental health among parents of primary school and kindergarten children during the COVID-19 pandemic school closure. As mentioned above, during the school closure and kindergarten shut down, as compared to others, parents with children in primary school and kindergarten faced increased demands of daily parenting (Lee et al., 2021; Schmeer et al., 2021), which may be a constant additional stressful condition that undermines their mental health (Lee et al., 2021; Spinelli et al., 2020). This finding implied that in addition to considering

the adverse effects of common hassles that most people suffered during the COVID-19 pandemic, increased daily childcare burdens on parents with young children in school during school closure and their negative impact on parents' mental health during the pandemic cannot be neglected.

Furthermore, the present study revealed that family support and co-parenting are important protective factors in attenuating daily parenting hassles and mental health problems for parents with children in primary school and kindergarten during the COVID-19 pandemic school closure. Previous studies have demonstrated that social support, particularly family support, protects individuals' mental health both directly and as a buffer for pandemic-related stress (Brown et al., 2020; Li and Xu, 2022; Szkody et al., 2021). Some studies also indicated that more supportive co-parenting is associated with less parental stress (Giannotti et al., 2022; Lucassen et al., 2021; Pruett et al., 2021). The present study further demonstrated that family support and co-parenting work on parents' mental health both directly and indirectly, by attenuating daily parenting hassles. From a family systems perspective, co-parenting relationships, parent-child relationships, and whole family relationships are interactional processes, the functioning of one being inherently tied to the other (Cox and Paley, 2003), which may be particularly important during COVID-19 home confinement. Confined at home, family members became the most available social support resources helping each other cope with the various types of stress caused by the pandemic (Li and Xu, 2022). Therefore, more support received from family members and more supportive co-parenting may help parents cope with additional daily parenting stress which, in turn, protects parents' mental health.

4.1. Limitations

Some limitations of the present study should be acknowledged. First, although a relatively large sample ($N = 7313$) was recruited, an online convenience sampling method may hinder the generalizability of the findings. Second, the cross-sectional design resulted in difficulties in detecting the direction of causality. Third, although validated psychological assessment measures were used, self-reported measures may relate to potential social desirability bias, particularly in China due to its dominant collectivist orientation. Finally, since we did not collect information on daily parenting hassles and mental health before the outbreak, the findings on the status of daily parenting hassles and the prevalence of mental health problems should be interpreted cautiously, despite these findings being compared with previous relevant studies.

5. Implications and conclusions

Despite these limitations, the findings have important implications. First, it demonstrated that in addition to the stressors faced by most people during the COVID-19 pandemic lockdown, parenting-related daily demands and hassles may be a non-negligible factor threatening mental health for parents with children in primary school and kindergarten during school closures. Providing parents with specific parenting knowledge and skills would be a useful strategy to help parents manage this new (temporary) normal, such as the parenting tips provided by UNICEF (UNICEF, 2020). Given that some parents would be more vulnerable to the pandemic, governments and healthcare authorities should adopt appropriate measures to help parents cope with extremely stressful situations, such as assessing families' needs and providing psychological interventions to mitigate psychological distress. Second, two specific protective factors, family support, and co-parenting, buffering daily parenting hassles, and protecting parents' mental health. Since previous studies demonstrated that both social support (Cohen and McKay, 2020) and co-parenting (Feinberg, 2003) can be modified by the appropriate intervention. Programs that target how to build effective family support networks and maintain family unity would be a way to support parents during the COVID-19 pandemic.

In summary, the present study demonstrated that parents with children in primary school and kindergarten experienced more daily parenting hassles and relatively higher symptoms of depression, anxiety, and stress during the COVID-19 school closure. Mothers, younger parents, less educated parents, those who lost their job, parents with younger children, boys, and multiple children represented high-risk groups for daily parenting hassles and mental health problems. Additionally, daily parenting hassles were uniquely associated with mental health problems after controlling for various sociodemographic characteristics, family support, and co-parenting. Furthermore, family support and co-parenting can attenuate daily parenting hassles, which, in turn, protect parents' mental health. These findings underscore the critical need to consider daily parenting hassles and their effects on the mental health of parents of school-aged children during school closure.

Author statement

S. Li, and Q. Xu designed the study and wrote the protocol. J. Xie, L. Wang, H. Li, and L. Ma carried out the data collection. S. Li management and undertook the statistical analysis. S. Li, and Q. Xu wrote the first draft of the manuscript. R. Xia revised the manuscript. All authors contributed to editing the manuscript and have approved the final manuscript.

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Declaration of competing interest

None of the authors of this manuscript have affiliations with or involvement in any organization or entity with any financial interest, or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

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