Child–parent relationship during the Wuhan COVID-19 lockdown: Role of changes in preschool children’s daily routines

Tony Xing Tan¹ | Joy Huanhuan Wang² | Peng Wang¹ | Yu Huang³

¹College of Education, University of South Florida, Tampa, FL
²College of Education, Texas Tech University, Lubbock, TX
³Private practice, Wuhan, Hubei, China

Abstract

Objective: We examined the impact of the strict lockdown on 130 preschool-age children’s daily routines and how their routine changes from pre-lockdown were related to child–parent relationship quality during the lockdown.

Background: To contain the spread of the COVID-19, the city of Wuhan underwent a strict 76-day lockdown, during which children’s routines were drastically altered, yet families did not have a frame of reference to use to determine how changes in children’s routines would be related to their family dynamics.

Method: Parents provided survey data on the amount of time their children spent daily on learning, screen devices, play and exercise, and nighttime sleep before, during, and after the lockdown. They also described general family functioning, child–parent closeness, and child–parent conflict during the lockdown.

Results: The lockdown led to changes in all four routines, but all returned to pre-lockdown level after the lockdown was lifted. Regression analyses showed that decrease in play and exercise time was related to less child–parent closeness, and decrease in learning time and increase in nighttime sleep time were related to more child–parent conflict.

Conclusion: Findings suggested changes in the children’s play and exercise time, learning time, and nighttime sleep time were related to negative child–parent relationship (i.e., less closeness or more conflict), but favorable general functioning was a protective factor.

Implications: Our study highlighted family resilience in restoring the children’s routines after the lockdown, as well as family vulnerability during the lockdown, as changes in...
three of the four routines examined were linked to negative child–parent relationship.

KEYWORDS
child–parent closeness, child–parent conflict, children’s routine, COVID-19 lockdown, cross-sectional study

The Chinese city of Wuhan was the first in the world to enforce a strict citywide lockdown to curtail the spreading of the coronavirus. For 76 days (January 23, 2020–April 8, 2020), residents were not allowed to leave the city without permission from the authorities. Stay-at-home order was issued and strictly enforced, schools were closed, and learning was shifted to virtual platforms. The strict lockdown affected about 13 million residents, many of whom were families with young children.

Globally, because COVID-19 lockdowns caused unprecedented disruptions to family life (Biroli et al., 2020; Daks et al., 2020), were highly stressful for both children and parents (Evandrou et al., 2021; Fontanesi et al., 2020; Jiao et al., 2020; Spinelli et al., 2021), and created a heavy toll on individual psychological well-being (Every-Palmer et al., 2020; García Ron & Cuéllar-Flores, 2020). It has been reported, with some inconsistency, that lockdowns affected young children’s daily routines such as sleep, physical activity, screen time, and learning (e.g., Lecuelle et al., 2020; Moore et al., 2020; Schmidt et al., 2020). However, little was known in terms of how children’s routine changes resulting from the lockdowns were related to child–parent relationship quality. In the current study, our aim was to use data on preschool-age children and their families in Wuhan to investigate how changes in children’s daily routines were related to child–parent relationship quality.

LITERATURE REVIEW

Routines characterized by consistency and predictability are critical in establishing a sense of security and trust in young children toward their parents (Sytsma et al., 2001; Vansteenkiste et al., 2020). Consistent and predictable routines matter not only for the adjustment and well-being of both parents and children (Bridley & Jordan, 2012) but also for child–parent relationship quality (Ren & Fan, 2019; Russell et al., 2020). From the perspective of child–parent attachment, consistency and predictability of children’s routines must be embedded within a socially and developmentally appropriate milieu so that they serve to promote children’s development through experiences such as adequate socialization, physical activities, sleep, and meal schedules (Gelir & Duzen, 2021; Wildenger et al., 2008).

Probably because consistent and predictable routines are positively associated with children’s self-regulation and child–parent relationship (Ferretti & Bub, 2014; Ren & Fan, 2019), reliance on established routines is commonly used to mitigate child and family stress from disruptions to life patterns. For instance, in a recent systematic review, Mindell and Williamson (2018) reported that maintaining a healthy sleep routine was associated with a broad range of positive social, emotional, and behavioral regulation in children. Evidence supporting the benefit of a consistent and predictable daily routine was also reported among Chinese children (Ren et al., 2019). As such, disruptions to children’s routines undermine the very foundation that anchors children’s daily experiences (Boyce et al., 1983; Weisner, 2010).

Although the lockdown in Wuhan was effective in containing the spread of the virus, many of the measures (e.g., school closure) inevitably resulted in major disruptions to the established consistency and predictability of young children’s routines. It also led to families being confined
to their apartments, which was not ideal for optimal child development because the children were no longer able to interact with their peers or teachers or play outdoors. Worldwide, the COVID-19 pandemic lockdowns caused overwhelming stress for families, particularly those with young children (Jiao et al., 2020; Marchetti et al., 2020; Prime et al., 2020), and disruptions to children’s routines, including the amounts of nighttime sleep, physical activity, and screen exposure (Lecuelle et al., 2020; López-Bueno et al., 2021; Pombo et al., 2020; Schmidt et al., 2020). However, findings on how the lockdowns affected children’s routines were inconsistent. For instance, Schmidt et al. (2020) reported an increase in physical activity and play among children during the lockdown in Germany, whereas Moore et al. (2020) reported a decrease in physical activity among children in Canada. Further, Pombo et al. (2020) reported that among children in Portugal, the routine changes in physical activity depended on various factors, such as access to outdoor space. These findings highlighted the need to pay attention to the local context where children’s routine changes took place during the lockdown (e.g., whether families lived in houses with yards or high-rises with no more than a small balcony).

Existing studies on the impact of lockdowns on children’s routines have focused on the changes from pre-lockdown to lockdown (e.g., Moore et al., 2020; Schmidt et al., 2020). Few studies have examined how long such changes (if they existed) might have lasted and if they returned to pre-pandemic level once the lockdown was lifted. Wuhan has not had a second lockdown since April 8, 2020, thus the experiences of children in Wuhan may provide a unique opportunity to explore whether the routines rebound after the lockdown was lifted, in addition to documenting changes (i.e., increase or decrease) that occurred during the lockdown.

During the COVID-19 pandemic, children’s routine changes were linked to stress in parenting (Adams et al., 2021). So, it is possible that when lockdown occurred, the link would either remain or become stronger. However, to the best of our knowledge, there is no research on the associations between changes in routines resulting from COVID-19 lockdown and child–parent relationship quality in families with young children. From a theoretical perspective, social relation theory posits that both children and parents are agents in shaping child–parent relationships (Kuczynski & Parkin, 2007). Empirically, routine changes (e.g., transitioning to elementary school) and disruptions to children’s routines have an impact on parenting and child adjustment (DeCaro & Worthman, 2011; Fiese et al., 2002), and more consistent daily routines were positively associated with child–parent closeness and negatively associated with child–parent conflict among Chinese families with preschoolers (Ren & Fan, 2019). As such, we hypothesized that changes in young children’s routines would play a role in child–parent relationship during the Wuhan lockdown.

**METHOD**

**Participants**

Participants were recruited from Wuhan, China, in June and early July 2020. The research reported here was reviewed and approved by the University of South Florida Institutional Review Board (IRB#: Pro00041261) and complies with all ethical guidelines. Two steps were taken to recruit participants. First, the directors of seven randomly selected preschools were contacted, one from each of the city’s seven districts. Four directors agreed to distribute the study information to parents in their respective schools. Second, to recruit participants from the other three districts and from parents whose children had not entered preschool, the most popular social media platform (*Wechat* parent groups) was used to post the study information. Parents who volunteered to participate in the study were instructed to access a secure survey link
hosted by Qualtrics. The survey took about 30 minutes to complete. Overall, 231 parents accessed the survey, and 146 completed or partially completed the survey. Among them, 16 surveys missed responses for the key measures and were excluded. Thus, 130 surveys with complete responses were retained for data analysis (response rate: 56.28%). Each parent represented one child.

Among the 130 children (boys: \( n = 70 \) or 53.9%; girls: \( n = 60 \) or 46.1%), 109 were attending 45 different preschools in Wuhan’s seven districts and 21 were not attending school. The children were 2.16 to 6.57 years of age (\( M = 4.51 \) years, \( SD = 1.11 \)). The parent participants included 96 mothers (73.85%) and 34 fathers (26.15%). All but six participants (96.20%) were married. The mothers’ ages ranged from 23 to 43 years (\( M = 31.38 \) years, \( SD = 3.48 \)), and the fathers’ ages ranged from 24 to 57 years (\( M = 32.55 \) years, \( SD = 4.31 \)). Most \( (n = 112; 86.15\%) \) of the mothers had at least a college-level education, with the rest having a high school education or less \( (n = 18; 13.85\%) \). Most of the fathers \( (n = 104; 83.87\%) \) also had at least a college-level education, with the rest having a high school education or less \( (n = 20; 16.13\%) \).

Measures

Demographic information

Demographic questions included the parent’s age, education, marital status, relation to the child (father or mother), and the child’s date of birth and gender. In addition, we obtained information that was relevant to urban China. Specifically, we asked parents to report whether there was enough space at home to accommodate the child’s play and physical activity needs (yes or no) because Wuhan is a metropolis with 13 million residents living in apartments and most families do not have a private outdoor space (e.g., a yard). This reality, coupled with the fact that the lockdown severely limited the children’s access to outdoor space for play and exercise, meant that physical activity and play took place only inside the apartment. We also asked whether grandparents were present in the household during the lockdown (yes or no), because grandparents commonly move out of their own residence to live with their children’s families to assist in raising grandchildren among urban Chinese families with preschool children (Chen et al., 2011; Dolbin-MacNab & Yancura, 2018; Zhang et al., 2019).

General family functioning

In the current study, we operationalized general family functioning to reflect the general “motif” of the family life; this was measured through the General Functioning Index (GFI) from the McMaster Family Assessment Device (Epstein et al., 1983). Parents were explicitly instructed to report on how members of their family interact with each in general, rather than interactions during the lockdown. We also strategically placed this measure before questions related to the lockdown. The Chinese version of the measure has demonstrated excellent reliability and construct validity (Ji et al., 2014; Shek, 2002). It includes six negatively worded statements (e.g., “We cannot talk to each other about the sadness we feel”) and six positively worded statements (e.g., “In time of crisis we can turn to each other for support”) that describe the interactions and relationships within a given family on a 4-point scale (1 = strongly disagree to 4 = strongly agree). The six negative statements were reverse scored so that higher scores indicated better general family functioning. For our sample, the GFI had good internal consistency reliability (\( \alpha = .82 \)).
Children’s routines before, during, and after lockdown

Participants were asked to recall their children’s daily routine before, during, and after the lockdown. Specifically, before the lockdown was defined as mid-January 2020 and earlier, during the lockdown was defined as during the 76 days of strict lockdown, and after was defined as after the lockdown was lifted (i.e., from mid-April to July 2020 when data collection took place). Parents reported the amount of time (as defined in hours) that the child spent daily in terms of learning, screen time, play and exercise, and nighttime sleep. For example, “My child slept _____ hours each night on average before the lockdown”; “My child slept _____ hours each night on average during the lockdown.” We operationalized learning to include activities related to virtual classes that the child was taking and other learning activities such as reading with the parent. We operationalized screen time to include the amount of time that the child spent watching TV, playing games on the computer, or using a smart device for entertainment but not to include screen time child spent on learning.

Child–parent relationship quality during the lockdown

We used the Chinese translation of the Child–Parent Relationship Scale Short-Form (CPRS-SF; Driscoll & Pianta, 2011) to assess the quality of the interactions between parents and their children during the lockdown. The Chinese translation of CPRS-SF showed acceptable reliability and validity in prior studies (Zhang & Chan, 2019). The 15-item CPRS-SF measures Child–Parent Closeness (seven items; e.g., “My child values his/her relationship with me”) on a 5-point Likert scale (1 = definitely does not apply to 5 = definitely applies) and Child–Parent Conflict (eight items; e.g., “My child and I always seem to be struggling with each other”). In data analysis, the item sum for each subscale was used. A higher score on the Child–Parent Closeness subscale suggests a warmer relationship, whereas a higher score on the Child–Parent Conflict subscale indicates that the relationship is more conflictual. For the current sample, the internal consistency reliabilities were adequate for the Child–Parent Conflict subscale (α = .81) and the Child–Parent Closeness subscale (α = .78).

Data analysis plan

Our main goal was to determine the associations of the children’s routine changes from pre-lockdown with child–parent closeness and child–parent conflict during the lockdown. We first conducted preliminary analyses to compare study variables between the six single-parent families and the rest of the sample. Results indicated no significant differences, so we included the six families in data analysis and only included the mother’s age and education level in further analyses. We then conducted analysis of variance to compare the means of daily routines before, during, and after lockdown. Finally, we ran hierarchical regression analysis to test our hypothesis. We first ran regression analyses of child–parent relationship (i.e., closeness and conflict) on changes in the children’s four routines individually (Models 1–4). Subsequently, we ran the analyses with changes in all four routines in the same model (Model 5), and finally, in Model 6, we added eight covariates (i.e., general family functioning, the child’s age, gender, maternal education, maternal age, whether the household had adequate space for play and exercise, whether the participant was the mother or the father, and whether there were live-in grandparents in the household). To obtain changes in children’s routines, we subtracted the amount of time that the child spent on each routine pre-lockdown from their corresponding amount of time during the lockdown. For instance, if a child spent 2 hours in learning daily before the lockdown and 1 hour in learning during the lockdown, the change was recorded as “−1.0 hour”
(i.e., the child’s learning time decreased by 1 hour). Also in Model 6, we tested interactions between the covariates and routine changes, but none were significant. Thus, interaction terms were not included in the final model. We relied on results from Model 6 to draw conclusions about the associations between routine changes and child–parent relationship.

RESULTS

Descriptive statistics

Most of the families (n = 94; 72.3%) had adequate space in their apartments for their children to play and exercise. Before, during, and after the lockdown, 102 (78.5%) of the 130 families had live-in grandparents who shared with the parents on daily childcare duties, all of whom had been present since the birth of the grandchildren. There were 28 families who did not have live-in grandparents during the lockdown. On average, the parents scored 29.0 (SD = 3.6; range = 20–35) on child–parent closeness, 18.1 (SD = 5.4; range = 8–33) on child–parent conflict, and 37.8 (SD = 5.7; range = 24–48) on general family functioning.

Routine changes and child–parent relationship quality

Table 1 summarizes the children’s routines before, during, and after the lockdown. As shown in Table 1, there was a clear and significant decrease in the amount of learning time and play and exercise but an increase in screen time and nighttime sleep. On average, children’s daily learning time decreased 0.42 hours (SD = 1.10; range = −3.00 to 2.00), screen time increased 0.80 hours (SD = 1.03; range = −2.00 to 4.00), play and exercise time decreased 0.53 hours (SD = 0.83; range = −3.00 to 3.00), and nighttime sleep time increased 0.72 hours (SD = 1.15; range = −2.00 to 4.00) during the lockdown. After the lockdown was lifted, the children’s routine largely returned to the pre-lockdown level or increased slightly, possibly due to the seasonal change from winter to late spring (for play and exercise) and from school reopening (for catching up in learning). There was no gender difference in any of the variables except that the girls experienced a bigger increase than boys in their daily screen exposure during the lockdown t(df = 128) = 2.42, p < .05.

Tables 2 and 3 summarize separate hierarchical regression analyses results to test the relationship of routine changes with child–parent closeness and child–parent conflict. As shown in Tables 2 and 3, separate analyses showed that individually (Models 1–4) and in combination (Model 5), three of the four routine changes were related to child–parent closeness and child–parent conflict. However, when the eight covariates were added into the regression (Model 6),

| Children’s daily routines (hours) | Before lockdown M (SD) | During lockdown M (SD) | After lockdown M (SD) | F |
|----------------------------------|------------------------|------------------------|-----------------------|---|
| Learning                         | 2.28 (1.30)            | 1.86 (0.97)            | 2.48 (1.48)           | 15.044*** |
| Screen timea                     | 1.54 (0.94)            | 2.34 (1.21)            | 1.54 (0.94)           | 49.483*** |
| Play/exercise                    | 1.53 (0.86)            | 0.99 (0.96)            | 1.77 (0.89)           | 49.581*** |
| Nighttime sleep                  | 9.73 (1.15)            | 10.45 (1.28)           | 9.68 (1.21)           | 45.616*** |

*aScreen time included the amount of time the child spent watching TV and playing games on a computer or smart device. It did not include virtual classes the child was taking.

***p < .001.
|                                | Model 1                  | Model 2                  | Model 3                  | Model 4                  | Model 5                  | Model 6                  |
|--------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| **Routine changes from pre-lockdown** |                          |                          |                          |                          |                          |                          |
| Learning time (hours)           | 0.32 (0.27)**            | 0.20 (0.30)*             | 0.03 (0.31)              |                          |                          |                          |
| Screen time (hours)             | -0.07 (0.31)             |                          |                          |                          |                          |                          |
| Play/exercise (hours)           | 0.32 (0.38)**            | 0.22 (0.41)*             | 0.16 (0.34)*             |                          |                          |                          |
| Nighttime sleep (hours)         |                          | -0.34 (0.26)**           | -0.22 (0.32)*            | -0.18 (0.31)             |                          |                          |
| **Covariates**                  |                          |                          |                          |                          |                          |                          |
| General family functioning      | 0.25 (0.06)**            |                          |                          |                          |                          |                          |
| Child’s age                     | 0.01 (0.28)              |                          |                          |                          |                          |                          |
| Boy                             | 0.12 (0.55)              |                          |                          |                          |                          |                          |
| Girl                            | Ref (0)                  |                          |                          |                          |                          |                          |
| Mother’s education level        |                          |                          |                          |                          |                          |                          |
| Mother’s age                    | 0.05 (0.70)              |                          |                          |                          |                          |                          |
| Adequate space for play/exercise|                          |                          |                          |                          |                          |                          |
| Yes                             | 0.03 (0.71)              |                          |                          |                          |                          |                          |
| No                              | Ref (0)                  |                          |                          |                          |                          |                          |
| Relation to child               |                          |                          |                          |                          |                          |                          |
| Mother                          | .20 (0.69)*              |                          |                          |                          |                          |                          |
| Father                          | Ref (0)                  |                          |                          |                          |                          |                          |
| Presence of live-in grandparents|                          |                          |                          |                          |                          |                          |
| Yes                             | -0.12 (0.65)*            |                          |                          |                          |                          |                          |
| No                              | Ref (0)                  |                          |                          |                          |                          |                          |
| **$F$**                         | 15.72                    | 0.41                     | 13.39**                  | 16.44***                 | 7.84***                  | 7.15***                  |
| **$R^2$**                       | 0.10                     | 0.01                     | 0.10                     | 0.12                     | 0.20                     | 0.36                     |

$^1p < .10.$

$^*p < .05.$ $^{**}p < .01.$ $^{***}p < .001.$
| Routine changes from pre-lockdown | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|----------------------------------|---------|---------|---------|---------|---------|---------|
| Learning time (hours)            | -0.52 (0.31)** |         |         |         |         |         |
| Screen time (hours)              | 0.14 (0.48) |         |         |         |         |         |
| Play/exercise (hours)            |         | -0.28 (0.53)** |         |         |         |         |
| Nighttime sleep (hours)          |         |         | 0.39 (0.34)** |         |         |         |

| Covariates                       |         |         |         |         |         |         |
| General family functioning        |         |         |         | -0.37 (0.08)*** |         |         |
| Child’s age                      |         |         |         | 0.07 (0.38) |         |         |
| Boy                              |         |         |         |         | -0.10 (0.76) |         |
| Girl                             |         |         |         |         | Ref (0) |         |
| Mother’s education level         |         |         |         |         |         |         |
| Mother’s age                     |         |         |         |         | -0.03 (0.83) |         |
| Adequate space for play/exercise |         |         |         |         |         |         |
| Yes                              |         |         |         |         | 0.09 (0.74) |         |
| No                               |         |         |         |         | Ref (0) |         |
| Relation to child                |         |         |         |         |         |         |
| Mother                           |         |         |         |         | -0.1 (0.84) |         |
| Father                           |         |         |         |         | Ref (0) |         |
| Presence of live-in grandparents |         |         |         |         |         |         |
| Yes                              |         |         |         |         | 0 (0.93) |         |
| No                               |         |         |         |         | Ref (0) |         |

| $F$                               | 61.95*** | 2.16 | 11.25** | 27.40*** | 22.57*** | 11.06*** |
| $R^2$                             | 0.27     | 0.02 | 0.08    | 0.15     | 0.32     | 0.49     |

$p < .10.$

*p < .05. **p < .01. ***p < .001.
the results only partially supported our hypothesis. Specifically, routine changes in play and exercise remained significantly related to child–parent closeness ($\beta = .16, p < .05$), and changes in learning time ($\beta = -.27, p < .01$) and nighttime sleep ($\beta = .17, p < .05$) remained significantly related to child–parent conflict. These results suggested that, controlling for other variables, change in play and exercise was positively related to child–parent closeness, change in learning time was negatively associated with child–parent conflict, and change in nightly sleep time was positively associated with child–parent conflict. Considering that the average play and exercise and learning time decreased and the average nighttime sleep increased during the lockdown, the results suggested that during the lockdown, the families experienced lower child–parent closeness and higher child–parent conflict. General family functioning was positively related to child–parent closeness ($\beta = .25, p < .01$) and negatively associated with child–parent conflict ($\beta = -.37, p < .001$). Additionally, mothers reported more child–parent closeness than fathers ($\beta = .20, p < .05$) but did not report significantly different child–parent conflict from fathers ($\beta = -.01, p = .90$). Mother’s age was negatively associated with child–parent conflict ($\beta = -.17, p < .05$).

Overall, based on Model 5, changes in the four routines accounted for 20% variance of child–parent closeness and 32% of child–parent conflict. Based on Model 6, routine changes and covariates accounted for 36% of the variance in child–parent closeness and 49% of the variance in child–parent conflict. Adding the covariates into the regression model (i.e., Model 6) led to a 16% increase in the accounted variance in child–parent closeness and a 17% increase in the accounted variance in child–parent conflict.

**DISCUSSION**

It has been suggested that the COVID-19 lockdown could profoundly affect children and families (Wang et al., 2020). In this study, we focused on families in Wuhan, China, to examine the impact of Wuhan’s 76-day lockdown on preschool children’s routines, and how routine changes from pre-lockdown were related to child–parent relationship quality during the lockdown. Because Wuhan was the first city in the world to enforce the lockdown, parents did not have a frame of reference in terms of how the lockdown would affect their family dynamics. Studying families in Wuhan offered a unique opportunity to understand the relationship among these variables in times of unprecedented changes caused by the lockdown. Our findings offer the first glimpse on the experiences of preschool children and their families during Wuhan’s lockdown.

Compared with their routines before the lockdown, the preschool-age children in our study experienced significant increases in screen exposure and nighttime sleep, similar to recent findings on children in other countries (Lecuelle et al., 2020; Schmidt et al., 2020). They also experienced decreases in both learning time and play and exercise time. The impact of lockdown on play and exercise time may be highly susceptible to the context (Pombo et al., 2020; Schmidt et al., 2020). Although not all changes in the preschool-age children’s routines were related to child–parent closeness and conflict, some of these changes could have negative implications for other areas of the children’s adjustment. For instance, increase in screen time may be related to behaviors of attention-deficit/hyperactivity disorder (Raman et al., 2017). Nevertheless, it is encouraging that the routines returned to pre-lockdown levels by the time we collected data, which was about 3 months after the lockdown was lifted. This is consistent with the existing studies and highlights the resilience of families in bouncing back from the lockdown. For instance, Markovic et al. (2021) reported that among European children, sleep returned to pre-pandemic level after the lockdown was lifted. However, it is unclear whether experiencing a few months of lockdown-related routine changes has any long-term impact on the development of children (Prime et al., 2020). It is thus important to pay continuous attention to children post-lockdown to identify those who may be at risk.
Consistent with the literature regarding the impact of children’s routine changes on parent–child relationship during normal times (DeCaro & Worthman, 2011; Ren & Fan, 2019), we found that changes in the children’s routine was associated with negative child–parent relationship (i.e., less closeness or more conflict) during COVID-19 lockdown. The findings from our study partially support our hypothesis and are generally consistent with the notion that negative interpersonal relationship is more susceptible to external stress than positive interpersonal relationship (Belsky & Pluess, 2009). Specifically, as a group the children experienced a decrease in play and exercise, which was associated with less child–parent closeness. Interactive play and exercise are essential for children and parents to bond and enhance child–parent relationships (Bowlby, 1982). When such activities are reduced, it might present a barrier for child–parent closeness. Also, the majority of the children experienced a decrease in learning time, which was associated with more child–parent conflict. This is understandable considering the heavy emphasis on academic learning among Chinese families. Although adequate sleep is essential for children’s development (Bates et al., 2002) and the amount of nighttime sleep during the lockdown (i.e., about 10.45 hours) was consistent with what the American Academy of Sleep Medicine recommends for children in preschool ages (Paruthi et al., 2016), we found that increase in nighttime sleep from pre-lockdown was associated with more child–parent conflict. We speculate that even favorable change in children’s routine can be stressful. The choice for activities was limited during the lockdown, which was likely one of the reasons why the children slept more during the lockdown. Additionally, longer hours of nighttime sleep might be an indicator of parents’ desire to have some time for themselves after being with the child all day.

Furthermore, it should be recognized that the relationship between children’s routines and child–parent relationship might be bidirectional (Kuczynski & Parkin, 2007). Future research should consider parsing out the directionality between parent–child relationship and children’s daily routines during the lockdown. Our finding that the routines of the children in our study returned to pre-lockdown level after the lockdown was lifted gave a stronger likelihood that these children’s routine changes were in response to the lockdown than child–parent relationship quality. However, during the lockdown, it was possible that the adjustment of the children and their parents mutually influenced each other and their relationship quality. Future study should focus on the process of child–parent interactions during the lockdown that contributes to child–parent relationship quality. Additionally, it is important to study child–parent relationship post-lockdown improve documentation of family resilience and vulnerability in response to recent experiences of major disruptions to family life. Finally, although not the focus of the current study, we found that favorable general family functioning was a source of resilience in response to stressors related to the lockdown. This calls for preventions that focus on strengthening this area of family dynamic to enhance the family’s coping capacity in times of stress.

Limitations

Our study has several limitations that must be kept in mind when interpreting the implications of the results. First, this was a relatively small cross-sectional study that relied on volunteers. Thus, findings may not reflect the experiences of those who decline to participate. Second, although our study had the strength of collecting data on children’s routines before, during, and after the lockdown, limitations related to the accuracy and reliability of retrospective data should be kept in mind. For instance, it was possible that parents’ experiences with their children could affect the accuracy of their recall of their children’s routines during these periods. Future studies using real-time data collection would provide a more authentic understanding of the relations among study variables. Lastly, this study only measured one parent’s perspectives. It would be informative to obtain data from both parents to test within-family variations in the perceptions of the study variables.
Implications

Findings from our study expand the literature on understanding the impact of COVID-19 lockdown on children’s routine, considering the inconsistent findings in the current literature (Moore et al., 2020; Schmidt et al., 2020). Our study showed the resilience of families in the aftermath of the lockdown because the children’s routines were restored to the pre-lockdown level. Findings also fill in the gap in understanding parent–child relationship in relation to child routine changes during acute and unprecedented stress. Findings highlight the importance of consistent learning and nighttime sleep routines for children as changes in these two routines were related to more child–parent conflict, as well as the importance of a consistent play and exercise routine, as changes in this area were related to less child–parent closeness. Findings also point to the possibility of fostering general family functioning as a preventative strategy to enhance families’ capacity to deal with acute and unprecedented stress.

ORCID

Tony Xing Tan https://orcid.org/0000-0001-9496-3470
Joy Huanhuan Wang https://orcid.org/0000-0003-1088-3348

REFERENCES

Adams, E. L., Smith, D., Caccavale, L. J., & Bean, M. K. (2021). Parents are stressed! Patterns of parent stress across COVID-19. Frontiers in Psychiatry, 12, Article 626456. https://doi.org/10.3389/fpsyg.2021.626456

Bates, J. E., Viken, R. J., Alexander, D. B., Beyers, J., & Stockton, L. (2002). Sleep and adjustment in preschool children: Sleep diary reports by mothers relate to behavior reports by teachers. Child Development, 73(1), 62–75. https://doi.org/10.1111/1467-8624.00392

Belsky, J., & Pluess, M. (2009). Beyond diathesis stress: Differential susceptibility to environmental influences. Psychological Bulletin, 135(6), 885–908. https://doi.org/10.1037/a0017376

Biroli, P., Bosworth, S., Giusta, M. D., Di Girolamo, A., Jaworska, S., & Vollen, J. (2020). Family life in lockdown (IZA Discussion Paper No. 13398). https://ssrn.com/abstract=3636627

Bowlby, J. (1982). Attachment and loss: Attachment (Vol. 1, 2nd ed.). Basic Books.

Boyce, W. T., Jensen, E. W., James, S. A., & Peacock, J. L. (1983). The family routines inventory: Theoretical origins. Social Science & Medicine, 17(4), 193–200. https://doi.org/10.1016/0277-9536(83)90116-8

Bridley, A., & Jordan, S. S. (2012). Child routines moderate daily hassles and children’s psychological adjustment. Children’s Health Care, 41(2), 129–144. https://doi.org/10.1080/02739615.2012.657040

Chen, F., Liu, G., & Mair, C. A. (2011). Intergenerational ties in context: Grandparents caring for grandchildren in China. Social Forces, 90(2), 571–594. https://doi.org/10.1093/sf/sor012

Daks, J. S., Pelz, J. S., & Rogge, R. D. (2020). Psychological flexibility and inflexibility as sources of resiliency and risk during a pandemic: Modeling the cascade of COVID-19 stress on family systems with a contextual behavioral science lens. Journal of Contextual Behavioral Science, 18, 16–27. https://doi.org/10.1016/j.jcbs.2020.08.003

DeCaro, J. A., & Worthman, C. M. (2011). Changing family routines at kindergarten entry predict biomarkers of parental stress. International Journal of Behavioral Development, 35(5), 441–448. https://doi.org/10.1177/0165025411406853

Dolbin-MacNab, M. L., & Yancura, L. A. (2018). International perspectives on grandparents raising grandchildren: Contextual considerations for advancing global discourse. The International Journal of Aging and Human Development, 86(1), 3–33. https://doi.org/10.1080/0091415016689565

Driscoll, K., & Pianta, R. C. (2011). Mothers’ and fathers’ perceptions of conflict and closeness in parent–child relationships during early childhood. Journal of Early Childhood and Infant Psychology, 7, 1–24.

Epstein, N. B., Baldwin, L. M., & Bishop, D. S. (1983). The McMaster Family Assessment Device. Journal of Marital and Family Therapy, 9(2), 171–180. https://doi.org/10.1111/j.1752-0606.1983.tb01497.x

Evandrou, M., Falkingham, J., Qin, M., & Vlachantoni, A. (2021). Changing living arrangements and stress during Covid-19 lockdown: Evidence from four birth cohorts in the UK. SSM-Population Health, 13, Article 100761. https://doi.org/10.1016/j.ssmph.2021.100761

Every-Palmer, S., Jenkins, M., Gendall, P., Hoek, J., Beaglehole, B., Bell, C., Williman, J., Papsey, C., & Stanley, J. (2020). Psychological distress, anxiety, family violence, suicidality, and wellbeing in New Zealand during the COVID-19 lockdown: A cross-sectional study. PLoS ONE, 15(11), Article e0241658. https://doi.org/10.1371/journal.pone.0241658

Ferretti, L. K., & Bub, K. L. (2014). The influence of family routines on the resilience of low-income preschoolers. Journal of Applied Developmental Psychology, 35(3), 168–180. https://doi.org/10.1016/j.appdev.2014.03.003
Schmidt, S. C. E., Anedda, B., Burchartz, A., Eichsteller, A., Kolb, S., Nigg, C., Niessner, C., Oriwol, D., Worth, A., & Ren, L., Hu, B. Y., & Song, Z. (2019). Child routines mediate the relationship between parenting and social-emotional development. *Anales de Pediatría, 93*(1), 57–58. https://doi.org/10.1016/j.anapede.2020.04.008

Gelir, I., & Duzen, N. (2021). Children’s changing behaviours and routines, challenges and opportunities for parents during the COVID-19 pandemic. *Education 3–13: International Journal of Primary, Elementary and Early Years Education*. Advance online publication. https://doi.org/10.1080/03004279.2021.1921822

Ji, B., Zhao, I., Turner, C., Sun, M., Yi, R., & Tang, S. (2014). Predictors of health-related quality of life in Chinese caregivers of children with autism spectrum disorders: A cross-sectional study. *Archives of Psychiatric Nursing, 28*(5), S79–S81. https://doi.org/10.1016/j.apnu.2014.06.001

Jiao, W. Y., Wang, L. N., Liu, J., Fang, S. F., Jiao, F. Y., Petoell-o-Mantovani, M., & Somekh, E. (2020). Behavioral and emotional disorders in children during the COVID-19 epidemic. *Journal of Pediatrics, 221*, 264–266.e1. https://doi.org/10.1016/j.jpeds.2020.03.013

Kuczynski, L., & Parkin, C. M. (2007). Agency and bidirectionality in socialization: Interactions, transactions, and relational dialectics. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of socialization: Theory and research* (pp. 259–283). Guildford Press.

Lecuelle, F., Leslie, W., Huguelet, S., Franco, P., & Putois, B. (2020). Did the COVID-19 lockdown really have no impact on young children’s sleep? *Journal of Clinical Sleep Medicine, 16*(12), 2121. https://doi.org/10.5664/jcsm.8806

López-Bueno, R., López-Sánchez, G. F., Casajús, J. A., Calatayud, J., Tully, M. A., & Smith, L. (2021). Potential health-related behaviors for pre-school and school-aged children during COVID-19 lockdown: A narrative review. *Preventive Medicine, 143*, Article 106349. https://doi.org/10.1016/j.ypmed.2020.106349

Marchetti, D., Fontanesi, L., Mazza, C., Di Giandomenico, S., Roma, P., & Verrocchio, M. C. (2020). Parenting-related exhaustion during the Italian COVID-19 lockdown. *Journal of Pediatric Psychology, 45*(10), 1114–1123. https://doi.org/10.1093/jpepsy/jsaa093

Markovic, A., Mühlematter, C., Beaurgrand, M., Camos, V., & Kurth, S. (2021). Severe effects of the COVID-19 confinement on young children’s sleep: A longitudinal study identifying risk and protective factors. *Journal of Sleep Research, 30*(5), Article e13314. https://doi.org/10.1111/jsr.13314

Mindell, J. A., & Williamson, A. A. (2018). Benefits of a bedtime routine in young children: Sleep, development, and beyond. *Sleep Medicine Reviews, 40*, 93–108. https://doi.org/10.1016/j.smrv.2017.10.007

Moore, S. A., Faulkner, G., Rhodes, R. E., Brussoni, M., Chulak-Bozzer, T., Ferguson, L. J., Mitra, R., O’Reilly, N., Spence, J. C., Vanderloo, L. M., & Tremblay, M. S. (2020). Impact of the COVID-19 virus outbreak on movement and play behaviours of Canadian children and youth: A national survey. *International Journal of Behavioral Nutrition and Physical Activity, 17*, Article 85. https://doi.org/10.1186/s12966-020-00987-8

Paruthi, S., Brooks, L. J., D’Ambrosio, C., Hall, W. A., Kotagal, S., Lloyd, R. M., Malow, B. A., Maski, K., Nichols, C., Quan, S. F., Rosen, C., L., Troester, M. M., & Wise, M. S. (2016). Consensus statement of the American Academy of Sleep Medicine on the recommended amount of sleep for healthy children: Methodology and discussion. *Journal of Clinical Sleep Medicine, 12*(11), 1549–1561. https://doi.org/10.5664/jcsm.6288

Pombo, A., Luz, C., Rodrigues, L. P., Ferreira, C., & Cordovil, R. (2020). Correlates of children’s physical activity during the COVID-19 confinement in Portugal. *Public Health, 189*, 14–19. https://doi.org/10.1016/j.puhe.2020.09.009

Prime, H., Wade, M., & Browne, D. T. (2020). Risk and resilience in family well-being during the COVID-19 pandemic. *American Psychologist, 75*(5), 631–643. https://doi.org/10.1037/amp0000660

Raman, S., Guerrero-Duby, S., McCullough, J. L., Brown, M., Ostrowski-Delahanty, S., Langkamp, D., & Duby, J. C. (2017). Screen exposure during daily routines and a young child’s risk for having social-emotional delay. *Clinical Pediatrics, 56*(13), 1244–1253. https://doi.org/10.1177/0009922816684600

Ren, L., & Fan, J. (2019). Chinese preschoolers’ daily routine and its associations with parent–child relationships and child self-regulation. *International Journal of Behavioral Development, 43*(2), 179–184. https://doi.org/10.1177/0165025418811126

Ren, L., Hu, B. Y., & Song, Z. (2019). Child routines mediate the relationship between parenting and social-emotional development in Chinese children. *Children and Youth Services Review, 98*, 1–9. https://doi.org/10.1016/j.childyouth.2018.12.016

Russell, B. S., Hutchison, M., Tambling, R., Tomkunas, A. J., & Horton, A. L. (2020). Initial challenges of caregiving during COVID-19: Caregiver burden, mental health, and the parent–child relationship. *Child Psychiatry and Human Development, 51*, 671–682. https://doi.org/10.1007/s10578-020-01037-x

Schmidt, S. C. E., Anedda, B., Burchartz, A., Eichsteller, A., Kolb, S., Nigg, C., Niessner, C., Oriwol, D., Worth, A., & Woll, A. (2020). Physical activity and screen time of children and adolescents before and during the COVID-19
lockdown in Germany: A natural experiment. *Scientific Reports, 10*, Article 21780. https://doi.org/10.1038/s41598-020-78438-4

Shek, D. T. (2002). Assessment of family functioning in Chinese adolescents: The Chinese version of the Family Assessment Device. *Research on Social Work Practice, 12*(4), 502–524. https://doi.org/10.1177/1049731502012004003

Spinelli, M., Lionetti, F., Setti, A., & Fasolo, M. (2021). Parenting stress during the COVID-19 outbreak: Socioeconomic and environmental risk factors and implications for children emotion regulation. *Family Process, 60*(2), 639–653. https://doi.org/10.1111/famp.12601

Sytsma, S. E., Kelley, M. L., & Wymer, J. H. (2001). Development and initial validation of the child routines inventory. *Journal of Psychopathology and Behavioral Assessment, 23*(4), 241–251. https://doi.org/10.1023/A:1012727419873

Vansteenkiste, M., Ryan, R. M., & Soenens, B. (2020). Basic psychological need theory: Advancements, critical themes, and future directions. *Motivation and Emotion, 44*, 1–31. https://doi.org/10.1007/s11031-019-09818-1

Wang, G., Zhang, Y., Zhao, J., Zhang, J., & Jiang, F. (2020). Mitigate the effects of home confinement on children during the COVID-19 outbreak. *Lancet, 395*(10228), 945–947. https://doi.org/10.1016/S0140-6736(20)30547-X

Weisner, T. S. (2010). Well-being, chaos, and culture: Sustaining a meaningful daily routine. In G. W. Evans & T. D. Wachs (Eds.), *Chaos and its influence on children’s development: An ecological perspective* (pp. 211–244). American Psychological Association.

Wildenger, L. K., McIntyre, L. L., Fiese, B. H., & Eckert, T. L. (2008). Children’s daily routines during kindergarten transition. *Early Childhood Education Journal, 36*, 69–74. https://doi.org/10.1007/s10643-008-0255-2

Zhang, C., Fong, V. L., Yoshikawa, H., Way, N., Chen, X., & Lu, Z. (2019). The rise of maternal grandmother childcare in urban Chinese families. *Journal of Marriage and Family, 81*(5), 1174–1191. https://doi.org/10.1111/jomf.12598

Zhang, X., & Chan, W. L. (2019). Effectiveness of the SIME program for infants and toddlers in center-based settings. *Research on Social Work Practice, 29*(6), 644–662. https://doi.org/10.1177/1049731518775218

How to cite this article: Tan, T. X., Wang, J. H., Wang, P., & Huang, Y. (2022). Child–parent relationship during the Wuhan COVID-19 lockdown: Role of changes in preschool children’s daily routines. *Family Relations*, 1–13. https://doi.org/10.1111/fare.12755