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LONGITUDINAL RELATIONSHIP BETWEEN CHILDREN'S EMOTION DYSREGULATION AND PARENT'S NEGATIVE EXPERIENCE OF THE COVID-19 LOCKDOWN IN FRANCE

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Abstract

Introduction: At the beginning of the COVID-19 pandemic, a lockdown was implemented in France, leading to profound changes in families' life. Studies showed emotional and behavioral difficulties in children and adults during this period. However, few research has focused on the longitudinal interactions between children's emotion regulation and parental emotional experience of the lockdown.

Aim: This study aimed to examine the longitudinal bidirectional relationships between children's emotion regulation and parental emotional experience of the lockdown.

Method: One hundred and twenty parents of children aged 5 to 12 answered two online questionnaires, at the start of the first lockdown (Time 1), and one month later (Time 2). Emotional dysregulation in children and parental emotional experience of the lockdown were assessed.

Results: The results of the autoregressive cross-lagged analyses revealed that children's emotion regulation at Time 1 predicted lockdown-related parental emotional experience at Time 2, whereas lockdown-related parental emotional experience at Time 1 didn't predict children's emotion regulation at Time 2.

Conclusion: This study suggested that parents of children with greater emotion regulation difficulties have had a worse emotional experience of the lockdown, without affecting the emotional regulation of children. Clinical implications and protective factors are discussed.

Keywords: lockdown; parental quality of life; school-aged children; social-emotional difficulties.

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Since the beginning of 2020, France has lived with the COVID-19 pandemic. To limit the spread of the virus by social distancing, lockdown and schools' closure were decided by French authorities in March 2020. These decisions involved remote school and work, which led to profound changes in family relationships and functioning (Coum, 2020). Mandatory for sanitary purposes, these precautions raised the question of mental health's population (Brooks et al., 2020). The literature review conducted by Brooks et al. (2020) showed the impacts of previous lockdowns in parents and children, such as symptoms of psycho-traumatic stress, confusion and anger (Brooks et al., 2020). Lockdown-related stressors have also been highlighted during and after lockdown. During lockdown, a length exceeding 10 days, physical symptoms, frustration and boredom, isolation, restricted access to equipment and care, insufficient information, and the fear of being infected or of infecting other people can be mentioned. After lockdown, the socio-economic consequences, stigmatization by others and back to "normal" life were identified as psychological stressors.

During the COVID-19 pandemic, higher rates of anxiety, depression, alcohol consumption compared to usual rates in adults (Ahmed et al., 2020), emotional and behavioral difficulties in children and adolescents (Jiao et al., 2020) were observed. Jiao et al. (2020) also reported emotional and behavioral changes in children during lockdown. Pearcey et al. (2020) found a significant difference in emotional, behavioral and attentional difficulties in children aged from 4 to 10 years old over a one-month period of lockdown. In France, lockdown would have increased the difficulties in some children (sleep, behavior, emotions) but half of the children would not have encountered any particular issue (Thierry et al., 2021). The impacts of lockdown in families were wide-ranging. Thierry et al. (2021) found that family climate was improved in 25% of families, whereas in Gherasim & Danet's study (2022), 89% of parents said they had been negatively affected by the pandemic context and 91% that their child (6-12 years old) had been negatively affected by the pandemic too.

Several factors could explain the differences in the way parents and children have experienced and perceived COVID-19 lockdown. As mentioned above, during lockdown, parents and children had to create new functioning and organization due to remote school and work, whenever possible. In "Co-Space" study, parents were stressed and concerned by work (53%) and children well-being (50.4%) (Waite et al., 2020). Many parents (60%) felt unable to address their child's needs (Creswell et al., 2021). According to Creswell et al. (2021), this lack of parental availability would lead to changes in school-aged children's difficulties during lockdown. Other vulnerability factors have been identified during the COVID-19 pandemic: parental stress, parental anxiety related to the pandemic, single-parenthood, a low educational level in parents, former socio-emotional difficulties in children (Dubois-Comtois et

al., 2021; Spinelli et al., 2020; Vandentorren et al., 2021; Zaouche Gaudron et al., 2022). The relationship between parents' stress and feeling and children's behaviors has been previously found, outside pandemic (Vaughan et al., 2013). Greater internalized and externalized symptoms in children (5 to 18 years old) were related to greater parental stress, characterized as caregiver strain (objective strain, subjective external strain and subjective internalized strain). The Caregiver strain concept developed by Brannan and her colleagues (1997) provided a conceptual framework for the understanding of parental experience in lockdown context. This concept refers to "the extent to which aspects of caring are problematic (e.g., financial strain) and engender particular feelings toward the child (e.g., anger, sadness)" (Vaughan et al., 2013, p. 4). During the COVID-19 lockdown, parents had to face additional strains to usual, such as those previously mentioned (remote school and work), but also financial and health difficulties. In this context, parental daily experience and quality of life could be more impacted by emotional and behavioral difficulties in children.

Studies run during prior pandemics also suggested that pandemic and lockdown experience in parents and children were related (Sprang & Silman, 2013). During the COVID-19 pandemic, Gherasim & Danet (2022) found a relationship between the reported psychological effect of the pandemic on parents and the school-aged children's state anxiety. Similar results were found in a longitudinal study with one-month follow-up among parents of younger children (1 to 7 years old) (Robertson et al., 2021). According to Di Giorgio et al. (2021), the daily stress of mothers caused by the COVID-19 pandemic, related to the compliance with sanitary measures and lockdown, has had an impact on the psychological well-being of their children, especially on their emotion regulation abilities. Likewise, as part of a cross-sectional study, Spinelli et al. (2020) have found a negative relationship between parental stress and emotional regulation in children during the first COVID-19 lockdown. In line with Neece et al. (2012) - whose research highlighted the transactional relationship between parent stress and child behavior issues - parental daily experience during lockdown and children's behaviors would be bidirectionally related.

This study aimed to examine the relationships between emotional and behavioral difficulties in school-aged children, especially emotional dysregulation, and parental experience, especially emotional experience, during the first COVID-19 lockdown in France. This study focused on parents of children between 5 and 12 years old, as many emotional and behavioral changes have been reported in those age-range (Creswell et al., 2021; Skripkauskaite et al., 2021; Waite et al., 2021). Research showed relationships between parental stress and emotional and behavioral difficulties in children (Sprang & Silman, 2013; Vaughan et al., 2013). Research also suggested that lockdown has impacted parents and children. As a consequence, we predicted a bidirectional relationship between children's emotional and behavioral

difficulties and parental experience during the COVID-19 lockdown. More specifically, we hypothesized that children's emotional dysregulation and lockdown-related parental emotional experience would be bidirectionally related, such that children's emotional dysregulation would predict worse lockdown-related parental emotional experience, and lockdown-related parental emotional experience would predict more children's emotional dysregulation.

Method

Procedure and ethical considerations

This study was conducted online between March and May 2020. There were two waves of data collection with one-month follow-up. To recruit participants, advertisements with a link to the survey were posted and shared on Facebook and Twitter pages (administered by associations and individuals). Emails were also sent to professional contacts encouraging them to share the link to the questionnaire. In order to avoid bias (e.g., choosing the less concerning child or, on the contrary, the more concerning child), parents who had more than one child of the targeted age had to answer the questionnaires with respect to only one child, namely the one whose birthday was coming up next. After they gave their consent, participants completed the questionnaires online. The questionnaires assessed children's emotional dysregulation and lockdown-related parental emotional experience.

Socio-demographic data, such as child and parent age, estimated standard of living, parent's level of education, marital status, were also collected. The completion duration was about 10-15 minutes. As in the Co-Space (Pearcey et al., 2020) and Robertson et al. (2021) study, parents who gave their agreement were contacted a month after the first completion (Time 1) to complete the questionnaires again (Time 2). The one-month period between Time 1 and Time 2 also corresponded to the period of the first lockdown, as it was initially planned when it was implemented in France. Indeed, the first lockdown was supposed to be temporary and transitional and was not intended to be prolonged over time. The procedure met the recommendations of the French National Code of Ethics for Psychologists - Revised (Commission Nationale Consultative de Déontologie des Psychologues, 2012) and complied with the Declaration of Helsinki of 1964 and its subsequent amendments. The study was carried out with the free and informed consent of the parents and was deposited in the treatment register of the University of Lille under the number 2020-79 and declared to the data protection officer of the University of Lille. All the data were confidential and anonymized.

Participants

The first wave of data collection (Time 1) was conducted among a sample of 347 French parents. One hundred twenty parents completed the Time 2 questionnaires. The final sample of this study thus included 120 parents (5 fathers, 115 mothers), aged from 26 to 61 years old (M= 39.33 years, SD= 5.00 years). Parents were mainly married or in a couple relationship (89%), had at least a bachelor degree (87.4%) and were employed (66.7%). Children were aged from 5 to 12 years old (M= 7.71 years, SD= 2.14 years) and included 66 girls and 54 boys. All demographic characteristics of the sample are displayed in Table 1.

Table 1. Demographic characteristics of the longitudinal sample (N=120)

Longitudinal sample	Number	Percentage
Parents		
Mother	115	95%
Father	5	5%
Level of Education		
High School diploma or less	15	12.5%
Bachelor's degree	16	13.3%
Master's degree	76	63.3%
Ph.D	13	10.8%
Marital Status		
Married or in couple	107	89%
Divorced	8	6.7%
Widower	1	0.8%
Other	4	3.3%
Professional Status		
Self-employed	21	17.5%
Employed	80	66.7%
Unemployed	7	6%
Stay-at-home parent	3	2.5%
Retired	9	7.5%
Children	0	
Girl	66	55%
Boy	54	45%
Birth Order		
Only child	27	22.5%
First born	52	43.3%
Cadet	22	18.3%
Youngest born	19	15.8%

Measures

General information

The demographic questionnaire included questions on the child and parent age and gender, the birth order of the child. We also collected data on parents' level of education and professional status. The standard of living perceived by parents was

assessed using a Cantril scale (Ngantcha et al., 2018), with responses ranging from 0 (representing people who consider themselves the most disadvantaged) to 10 (representing those who consider themselves the most advantaged).

Children's emotional dysregulation

We used the French version of the Emotion Regulation Checklist (ERC-vf: Nader-Grosbois & Mazzone, 2014; Shields & Cicchetti, 1997) to assess children's emotional dysregulation. The original scale has two subscales: emotional regulation and emotional dysregulation. In this study, we only used the emotional dysregulation subscale which evaluated the lability, negativity of the expression of positive and negative emotions or their adequacy, with 15 items. Parents had to rate their perception of intra- and interpersonal emotional dysregulation of their child on a 4-points Likert scale (from 1 = never to 4 = almost always). The items were summed to obtain a score of emotional dysregulation. The higher the score was, the higher the child had difficulties to regulate his/her emotions. ERC-vf had good inter-rater reliability, test-retest stability and good internal consistency reliability (Nader-Grosbois & Mazzone, 2014). In our sample, Cronbach's alpha coefficient for the emotional dysregulation subscale was .82 at Time 1 and .84 at Time 2. This subscale demonstrated a good internal consistency reliability.

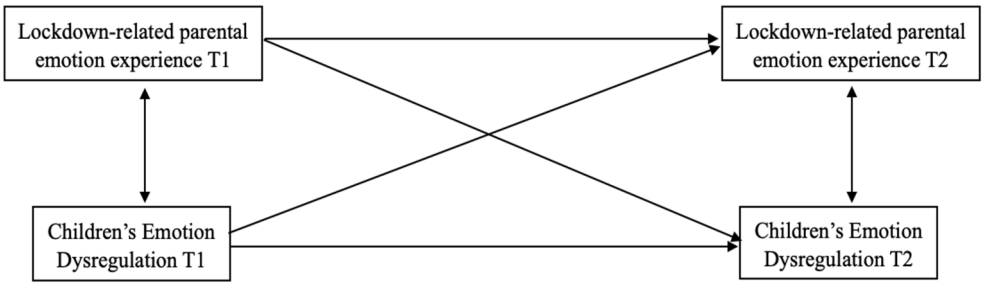
Lockdown-related parental emotional experience

Parental emotional experience during lockdown was assessed using a self-administered questionnaire adapted from the PAR-DD-QoL (Parental-Developmental Disorder – Quality Of Life; Baghdadli et al., 2014). The original questionnaire is a 17 items questionnaire assessing quality of life of parents who have a child with a neurodevelopmental disorder, on two dimensions: emotional and daily disturbances. In the present study, the items of the emotional disturbances dimension of Par–DD-QoL that were relevant to the lockdown situation were retained (7 items; e.g.: "Do you feel more stressed than usual?") and one item was edited ("Are your child's troubles a source of tension or conflicts within your family?" has been replaced by "Is the situation of lockdown a source of tension or conflicts within your family?"). The instruction of the scale of the lockdown-related parental emotional experience was " Currently, due to lockdown :…" and the scale included 8 items assessing parents' quality of life during lockdown based on parents' emotional disturbances (feeling worried, annoyance, impact of lockdown on personal and family life; e.g.: "Do you feel upset?", "Is your moral affected?"). We performed factor analyses with Varimax rotation using the 8 selected and modified items of the emotional subdimension of Par–DD-QoL to confirm the items were in the same factor, for Time 1 and Time 2. Both times, the results of the analyses suggested a one-factor model that accounted for 62.70 % of the total variance at Time 1, and 63.11% at Time 2. Good internal consistency reliability was observed for both. Cronbach's alpha coefficient was .91 at Time 1 and at Time 2. Each item was rated on a Likert scale from 1 (not at all) to 5 (extremely). A score was computed

by the mean of the 8 items. Higher scores indicated that the parent had a worse lockdown-related emotional experience.

Analytic plan

Means comparisons were carried out to check the representativeness of the longitudinal group (N=120) with the total sample (N=347). Secondly - before proceeding to the main analyses - we performed bivariate correlations and series of one-way ANOVA in order to control the effect of some variables (standard of living estimated by the parents, parents' level of education, children's birth order, children and parents' age) on our main variables (children's emotional dysregulation and lockdown-related parental emotional experience). Then, we carried out bivariate correlations between children's emotional dysregulation and lockdown-related parental emotional experience, at Time 1 and Time 2. These analyses were performed with SPSS version 27 (*IBM SPSS Statistics for Macintosh, Version 27.0*, 2020). Finally, in order to test the hypothesis of the bidirectional relationship between children's emotional dysregulation and lockdown-related parental emotional experience, a cross-lagged path model (Selig & Little, 2012) was constructed within Mplus version 8.6 (Muthen & Muthen, 2017) to examine the longitudinal associations between children's emotional dysregulation and lockdown-related parental emotional experience at Time 1 and Time 2 (see figure 1) [insert Figure 1 here]. Autoregressive cross-lagged path models assess the relationship between variables at Time 1 and Time 2. "The autoregressive effects describe the stability of the constructs from one occasion to the next" (Selig & Little, 2012, p. 265). In this model, the cross-lagged effects are estimated controlling for the prior level of the construct being predicted. Thus, variable X at Time 1 predicts variable Y at Time 2, while controlling for variable Y at Time 1. Model fit was estimated using root mean square error of approximation (RMSEA; less than 0.05 is considered excellent fit), the comparative fit index (CFI), and the Tucker-Lewis index (TLI; values greater than 0.9 suggest excellent fit).



Note. T1 = Time 1; T2 = Time 2.

Figure 1. Theorical cross-lagged model. Relationship between relationship between Children's Emotion Dysregulation and Lockdown-related parental Emotional Experience.

Results

Preliminary analysis

In order to test the representativeness of the longitudinal sample (N=120) with the whole sample (N=347), we conducted mean comparisons on children and parents' age, as well as on the score of each measure using Student's tests for independent samples. Only one significant difference was found between the two groups, with the longitudinal sample scoring higher in the estimated standard of living than the total sample. All results are displayed in Table 2.

Table 2. Mean comparisons between the total sample (N=347) and the longitudinal sample (N=120) at Time 1

	Total sample **Mean (SD)**	Longitudinal sample **Mean (SD)**	***t***	***p***
Parents				
Age	39.43 (5.23)	39.33 (5.00)	-.22	.83
LR parental Emotional Experience	2.17 (.88)	2.12 (.86)	-0.64	.52
Estimated standard of living	6.09 (1.29)	6.72 (1.10)	**6.35**	**.001**
Children				
Age	7.90 (2.18)	7.71 (2.14)	-0.93	.35
Children's Emotion Dysregulation	27.42 (6.73)	26.46 (6.10)	-1.72	.09

Note. LR = Lockdown-related.

Nevertheless, as there was no difference in the main measures, the longitudinal sample was considered as broadly representative of the whole sample.

The results of the bivariate correlations conducted to assess the effect of the standard of living estimated by the parents, children and parents' age on our main variables (children's emotional dysregulation and lockdown-related parental emotional experience) showed no significant correlation (see Table 3).

Table 3. Descriptive and bivariate correlations between child age, parent age, perceived standard of living, children's emotion dysregulation and lockdown-related parental emotional experience at Time 1 and Time 2

Variables	**Mean (SD)**	**Min.**	**Max.**	**1**	**2**	**3**	**4**	**5**	**6**
1. Child age	7.71 (2.14)	5	12	-					
2. Parent age	39.33 (5.00)	26	61	**.359*****	-				
3. Estimated standard of living	6.72 (1.10)	3	9	-.022	.138	-			
4. Children's Emotion Dysregulation T1	26.46 (6.10)	15	46	-.129	-.047	.020	-		
5. LR parental emotional experience T1	2.12 (.86)	1	4.63	-.082	-.120	-.052	**.358*****	-	
6. Children's Emotion Dysregulation T2	26.31 (6.34)	15	43	-.092	.040	.043	**.765*****	**.268****	-

7. LR parental emotional experience T2	2.11 (.87)	1	4.50	-.148	.029	-.060	**.400*****	**.702*****	**.413*****

Note. $^{**}p$ <.01; $^{***}p$ <.001. T1 = Time 1; T2 = Time 2; LR = Lockdown-related.

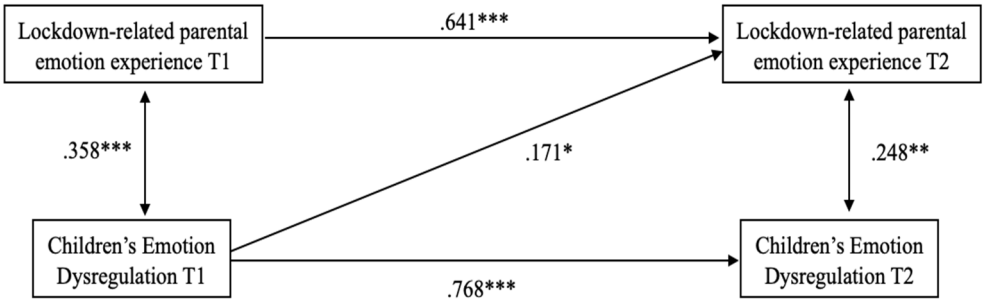
The results of the series of one-way ANOVA showed no significant difference on the score of children's emotional dysregulation at Time 1 ($F_{3,119}$=1.175, p =.322) and Time 2 ($F_{3,119}$=.180, p =.910), and on the score of lockdown-related parental emotional experience at Time 1 ($F_{3,119}$=.864, p =.462) and Time 2 ($F_{3,119}$=.488, p =.691) by the level of parent's education. There was also no significant difference on the score of children's emotional dysregulation at Time 1 ($F_{3,119}$=.409, p =.747) and Time 2 ($F_{3,119}$=.297, p =.827), not either on the score of lockdown-related parental emotional experience at Time 1 ($F_{3,119}$=.238, p =.870) and Time 2 ($F_{3,119}$=.245, p =.865) by children's birth order.

Hence, the standard of living estimated by the parents, the parent's level of education, the children's birth order, children and parents' age were not controlled for in the main analyses.

Main analyses

Bivariate correlation analyses showed a significant relationship between children's emotional dysregulation and lockdown-related parental emotional experience at Time 1, at Time 2, as well as at Time 1 with Time 2 (see Table 3).

The results of the cross-lagged model testing the associations among children's emotional dysregulation and lockdown-related parental emotional experience are presented in Table 4 and figure 2.



Note. $^{*}p$ <.05; p <.01; $^{***}p$ <.001. T1 = Time 1; T2 = Time 2.

Figure 2. Relationship between relationship between Children's Emotion Dysregulation and Lockdown-related parental Emotional Experience. Standardized coefficients are reported.

Table 4. Standardized estimates for cross-lagged path model assessing the bidirectional relationship between Children's Emotion Dysregulation and Lockdown-related parental Emotional Experience

Measure	Estimate	S.E.	p-value
Autoregressive coefficient			
Children's ED T1 → Children's ED T2	**.768**	**.047**	**.001**
LR parental EE T1→ LR parental EE T2	**.641**	**.065**	**.001**
Predicting Children's Emotion Dysregulation			
LR parental EE T1 → Children's ED T2	-.007	.069	.925
Predicting Lockdown-related parental EE			
Children's ED T1 → LR parental EE T2	**.171**	**.071**	**.016**

Note. LR = Lockdown-related; ED = Emotion Dysregulation; EE = emotional experience; T1 = Time 1; T2 = Time 2.

The results showed that the model fit to the data well (RMSEA = 0.00; CFI/TLI = 1.0/1.0; SRMR = 0.00). The stability paths were significant for children's emotional dysregulation (β=.768, p=.001) and for lockdown-related parental emotional experience (β=.641, p=.001), suggesting high levels of stability of these two variables over time (Selig & Little, 2012). Children's emotional dysregulation at Time 1 predicted lockdown-related parental emotional experience at Time 2, such that higher children's emotional dysregulation predicted worse lockdown-related parental emotional experience (β=.171, p=.0116). In contrast, lockdown-related parental emotional experience at Time 1 didn't predict children's emotional dysregulation at Time 2. At Time 1 and Time 2, children's emotional dysregulation and lockdown-related parental emotional experience were related (respectively: β=.348, p=.001 and β=.248, p=.01).

Discussion

The aim of this study was to examine the bidirectional relationship between school-aged children's emotional behaviors and parental emotional experience during the COVID-19 pandemic among French families. In line with previous studies underlying the transactional interactions between children's behaviors and caregivers' emotional state (Creswell et al., 2021; Robertson et al., 2021; Vaughan et al., 2013), we hypothesized that children's emotional dysregulation would predict worse lockdown-related parental emotional experience and that lockdown-related parental emotional experience would predict more children's emotional dysregulation.

The bivariate correlations analyses showed a significant relationship between children's emotional dysregulation and lockdown-related parental emotional experience each Time (1 and 2), as well as at Time 1 with Time 2. The cross-lagged panel model showed that lockdown-related parental emotional

experience at Time 2 was predicted by children's emotional dysregulation at Time 1, partially supporting our hypothesis. Specifically, worse children's emotional dysregulation at the beginning of the Covid-19 pandemic and lockdown in France predicted a worse lockdown-related parental emotional experience (restlessness, sleep difficulties, worries, feeling helpless, feeling stressed and upset) a month later. This finding is consistent with previous works run during the Covid-19 pandemic and earlier (Baghdadli et al., 2014; Neece et al., 2012; Vaughan et al., 2013; Waite et al., 2020; Zaouche Gaudron et al., 2022) and in line of the Strain Caregiver concept (Brannan et al., 1997) indicating that children's difficult behavior increased parental stress and impacted parents' quality of life. Indeed, in a sample of French parents of young children (less than 6 years old), parents of children with developmental difficulties have experienced more stress and strain than others (Zaouche Gaudron et al., 2022). This result suggested that the child's difficulties in emotional regulation may have been added to the life changes imposed by lockdown, bringing an additional challenge to the parents.

However, contrary to our hypothesis and previous works (Di Giorgio et al., 2021; Robertson et al., 2021), worse lockdown-related parental emotional experience at Time 1 did not predict worse children's emotional dysregulation at Time 2. This result was nevertheless similar to the cross-sectional study of Gherasim & Danet (2022), which showed no relationship between children's emotional regulation and the negative perceived impact of the pandemic in the parents. In that study, children's emotional regulation was related to the negative perceived impact of the pandemic in the children. Parents' and children's experience of lockdown and pandemic were associated in other studies (Gherasim & Danet, 2022; Shorer & Leibovich, 2020). It could thus have been interesting to investigate an indirect moderation of the relationship between lockdown-related parental emotional experience and children's emotional dysregulation by children's lockdown-related emotional experience. Several researchers demonstrated the importance of communication within families during lockdown (Dalton et al., 2020; Ghosh et al., 2020; Lee, 2020; Tang et al., 2021; Wang et al., 2020). Tang et al. (2021) have thus highlighted the importance of an open and adapted communication between children and their parents during lockdown, which is a potentially stressful and anxiety-provoking situation. Communication could be a protective factor to child difficulties during this period (Melchior et al., 2021). It could be possible that, despite many challenges and difficulties in their emotions and feelings during lockdown, parents were able to maintain a secure communication with their child, limiting the impact of parental stress on the child's emotional dysregulation. It is also important to note that our sample's baseline negative lockdown-related parental emotional experience was moderate, suggesting that parents in our sample may have been relatively few emotionally impacted by lockdown or may have found efficient coping strategies to reduce their stress in this period (e.g. emotion regulation; Vertsberger et al., 2022). The baseline lockdown-related parental emotional experience was moderately negative, which might also suggest that parents in our sample have faced few

difficulties during the pandemic. Indeed, researchers have highlighted the heterogeneity of lockdown experience within families (Bruining et al., 2021), which proved positive for many of them (Gindt et al., 2021; Thierry et al., 2021). This might partially be due to the presence of protective factors in our sample, such as being in a biparental family (Spinelli et al., 2020; Zaouche Gaudron et al., 2022) and having a high education level (Vandentorren et al., 2021). Future work may explore the impact of pandemic-related parental emotional experience on children's emotional regulation among vulnerable families.

The autoregressive coefficient for children's emotional dysregulation over time was high. According to Selig & Little (2012), "a sizable autoregressive coefficient means that individuals' relative standings on the construct has changed very little over time" (p. 266). This result suggested that there were few changes in the emotional dysregulation behaviors of children in our study during lockdown. One might assume that the one-month follow-up failed to capture the changes in children's behaviors. Nevertheless, other studies (Bourdeau-Lepage, 2020; Orgilés et al., 2020) found an increase of children's difficulties during lockdown, using the same time lapse follow-up. As a consequence, the few changes in children's emotional dysregulation behaviors in our sample might instead be explained by the presence of protective factors. Whereas single parenting and parents' lower education level have been identified as vulnerabilities factors for negative outcomes in children during the Covid-19 pandemic, our sample essentially included parents living as a couple and with a high level of education. The results of our analyses also showed that the autoregressive coefficient for lockdown-related parental emotional experience over time was also high. This result suggested that there were few changes in the lockdown-related parental emotional experience in our study, which is a promising finding that assumes parental emotional experience, on average, did not deteriorate during the first month of the pandemic.

Strengths and Limitation

A strength of this study was the longitudinal design with data collection that started early after the beginning of the first COVID-19 lockdown in France. Indeed, literature available with this method in France, within this period, is sparse. Longitudinal design is important to capture the bidirectional interactions between children and parents' functioning, which was allowed by the use of cross-lagged models panel (taking account for autoregressive and correlational relationships within Time 1 and Time 2).

This study also had several limitations. Parents in our sample have a higher level of education than the general French population: 87.4% had at least a bachelor degree versus 29.9% in the French general population within the 35-44 years old (INSEE, 2021). A high proportion of respondents were in couple (89%), which is

why we were unable to assess single parenthood specificities. This limitation leads to interpreting the results with caution given that parents in our sample may not be the most vulnerable. A high proportion of participants were mothers, so we were unable to assess fathers' unique experience. However, this is a common pitfall in developmental studies. Additionally, although we started the data collection a few weeks after the beginning of lockdown, we have no data regarding family functioning prior to lockdown. Also, we have no data regarding the period following the first lockdown, limiting the possibility to assess long-term impacts of the pandemic on children and parents functioning.

Clinical implications and futures directions

Given the impacts of the pandemic on children's mental health (Gherasim & Danet, 2022; Jiao et al., 2020; Waite et al., 2021) and the way children's mental health may impact parental well-being, it seems important to implement interventions focusing on children functioning, especially regarding emotional regulation. Web-based interventions such as the REThink therapeutic game could be particularly relevant during the pandemic and after. Such interventions allowed an improvement in children's emotional regulation that can be maintained in the long run (David & Fodor, 2022). Our results also suggest that it is important to support the parents of children with difficulties in emotional regulation in order to avoid parental burn out (Vertsberger et al., 2022; Zaouche Gaudron et al., 2022). Parents with lower levels of stress may be more supportive towards their children (Di Giorgio et al., 2021; Tang et al., 2021).

Given research suggesting that parental emotional regulation moderates the relationship between stressors and parental burn out (Vertsberger et al., 2022), research should take into account emotional regulation in parents in longitudinal studies on children's emotional regulation and parental quality of life. As mentioned above, a lower level of education and single-parenthood are vulnerability factors for children's difficulties and parental stress (Vandentorren et al., 2021; Zaouche Gaudron et al., 2022). Research should include more vulnerable families.

Conclusion

This research highlighted the longitudinal impact of children's emotional dysregulation on lockdown-related parental emotional experience over a short period of time. Although moderate, this impact appeared despite many protective factors in parents. It is thus possible that more vulnerable families had encountered more difficulties over this period and that the pandemic experience varied depending on

the protective factors and supports parents may have had. Supporting parents and children in emotional regulation is thus an urge as the pandemic seems ongoing.

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