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Emotion regulation skills in children during the COVID-19 pandemic: Influences on specific parenting and child adjustment

Beatriz Domínguez-Álvarez, Laura López-Romero, José Antonio Gómez-Fraguela, & Estrella Romero
Universidad de Santiago de Compostela, Spain

Abstract

Child emotion regulation (ER) skills and specific parenting practices during the COVID-19 pandemic are likely to influence children adjustment in these unprecedented times. On this assumption, we first aimed to examine the predictive value of ER skills in relation to diverse indicators of behavioral and socioemotional adjustment. Then, we tested whether some of these associations could be partially explained through the mediator role of the specific parenting practices displayed within the pandemic context. These hypotheses were tested considering the previous levels of child reactivity as a potential moderator of the examined relations. Using parent-reported data from a sample of 874 Galician children (49.6% girls) aged 5 to 9 (M_{age} = 7.09; *SD* = 1.04), multiple regression and mediation analyses were conducted. Robust associations between ER skills and diverse indicators of child adjusment were found. Moreover, it was found that specific parenting practices mediate the relation between child ER skills and specific behavioral outcomes (i.e., child routine maintenance). Thus, our findings highlight the importance of ER skills for child adjustment during the COVID-19 crisis, not only through direct, but also indirect effects, suggesting that the kind of parenting style that children receive during the pandemic conditions might be partially elicited by their individual characteristics.

Keywords: emotion regulation; parenting; child adjustment; COVID-19 pandemic.

Resumen

Las Habilidades de Regulación Emocional de los Niños durante la Pandemia del COVID-19: Influencias sobre Prácticas Parentales Específicas y el Ajuste de los Niños. Las habilidades de regulación emocional (HRE) de los niños/as y las prácticas parentales específicas surgidas como consecuencia de los importantes cambios originados por la pandemia del COVID-19, podrían contribuir a su adaptación durante esta época sin precedentes. Bajo estas consideraciones, nos propusimos, en primer lugar, examinar el valor predictivo de las HRE en relación a diversos indicadores conductuales y socioemocionales de ajuste, para después estudiar si algunas de estas asociaciones podrían ser parcialmente explicadas a través del rol mediador de las prácticas parentales específicas desplegadas por los padres/madres en estas circunstancias. Contrastamos nuestras hipótesis considerando los niveles previos de reactividad del niño/a como moderadores de las relaciones analizadas. Usando los datos proporcionados por los padres/madres de 874 niños/as gallegos (49.6% niñas) de 5 a 9 años (M_{edad} = 7.09; *SD* = 1.04), se llevaron a cabo múltiples análisis de regresión y mediación. Se encontraron asociaciones robustas entre las HRE y diversos indicadores de ajuste. Además, se encontró que prácticas parentales específicas median la relación entre las HRE y un tipo de consecuencias conductuales positivas (i.e., el mantenimiento de rutinas por parte de los niños/as). Nuestros resultados constatan, por tanto, la importancia de las HRE para la adaptación de los niños/as a las condiciones derivadas de la crisis, no solo por sus efectos directos, sino también por su influencia a través de efectos indirectos, que sugieren que el tipo de prácticas parentales que los niños/as reciben durante la pandemia, podría ser parcialmente elicitado por sus características personales.

Palabras clave: regulación emocional; prácticas parentales; ajuste; pandemia COVID-19.

Despite loud claims urging to better define the short-term effects of the COVID-19 pandemic on children's well-being (Fegert, Vitiello, Plener, & Clemens, 2020; Green, 2020), research is still scarce, and primarly focused on negative (e.g., Orgilés, Morales, Delveccio, Mazzesc, & Espada, 2020; Xie et al., 2020) rather than positive outcomes. However, enough evidence suggests that processes of resilience and growth might occur even in response to highly stressful events experienced by children (Luthar, 2015). To this point, the potential determinants and mechanisms involved in these processes, under the pandemic conditions, are understudied and largely unknown. Thus, by examining how

Corresponding author:
Beatriz Domínguez-Álvarez
E.mail: beatrizdominguez.alvarez@usc.es

child dispositional tendencies and parenting practices may contribute to child positive adjustment during the COVID-19 crisis, this study contributes to address these gaps and adds to the previous literature by testing these associations through the wider anchoring lens of child temperament (Kiff, Lengua, & Zalewski, 2011).

Children Emotion Regulation Skills within a Pandemic Scenario

Emotion regulation (ER) skills are involved in the monitoring, evaluation and modification of emotional reactions (Compas et al., 2017) and likely to be crucial for children's adjustment during the pandemic, considering that some characteristics of this scenario (e.g., mandatory home confinement, movement restrictions, absence of group activities; Cluver et al., 2020) might be particularly challenging and aversive for young children (Barlett, Griffin, & Thomson, 2020; The Lancet Child Adolescent Health, 2020). Based on previous literature (Campos, Frankel, & Camras, 2004; Compas et al., 2017) we can anticipate that ER skills may be a risk or protective factor for child adjustment during the pandemic but, through which mechanisms? First, ER skills represent relatively stable dispositional tendencies (Eisenberg, Spinrad, & Eggum, 2010), and are part of the palette of personal resources available for children at the moment of the health crisis emergence. However, it would be an oversimplification to state that "better regulated" children could have experienced less difficulties in response to these abrupt changes, without taken into the equation other relevant temperament dimensions intrinsically related to ER skills. There is evidence suggesting that early negative emotionality compromises the later development of regulatory capacities (Bridgett et al., 2009). Thus, to better contextualize the effects of ER skills within the current pandemic conditions, it might be useful not only to assess their influences from a cross-sectional perspective, but also consider previous dispositional indicators of children's difficulties to deal with negative emotions or arousal in general, and the ease with which they can be soothed when activated (Putman & Rothbart, 2006) as possible moderators of these effects.

On the other hand, apart from these direct influences, ER skills could elicit the display of certain parenting practices during the COVID-19 pandemic which, in turn, would positively affect child behavioral and socioemotional adjustment. This hypothesis is well-grounded on a prominent line of research in which child's temperament is highlighted as one of the multiple determinants of parenting behaviors (Bornstein, 2016; Bryan & Dix., 2009; Klahr & Burt, 2014; Paulussen-Hoogeboom Stams, Hermanns, & Peetsma, 2007). For instance, toddlers's emotion regulatory behaviors at 24 months of age have been found to longitudinally predict mother's response to their child negative emotions (e.g., supportive vs. non-supportive) at 36 months (Premo & Kiel, 2014).

Parenting and Child Adjustment during the Pandemic

Parenting practices are assumed to have an essential role in the children's adjustment to the pandemic circumstances. On a general level, their effects on healthy child development are widely documented (Ansari & Crosnoe, 2015; Rothenberg et al., 2019). Yet, in this context, beyond only focusing on general or broad parenting dimensions (e.g., warmth, harsh practices), identifying and examining the particular changes and adaptations that parents were forced to made as a consequence of the pandemic is imperative (Waller, Wagner, & Chester, 2020). This entails delving into the *specific* parenting practices potentially relevant within the "new-normal" social and family environments. Parenting behaviors oriented to prevent infection (e.g., have the child to wear a face mask outside the home), facilitate emotional expression (e.g., encourage him/her to talk about his/her emotions) or structure daily activity (e.g. ensure that him/her has good quality sleep) are some examples (Waller et al., 2020).

Diverse reviews agree to emphasize the benefits of a fluid and warmth communication to promote and strengthen healthy relationships with children during these times and, also, the convenience of organizing family life and proximal environment to increase some sense predictability and global family well-being (Cluver et al., 2020; Prime, Wade, & Browne, 2020). Parenting behaviors focused on maintaining children's familiar daily routines, or creating new ones under home confinement, combining both learning and leisure activities, appear to be particularly relevant (WHO, 2020). In fact, structured parenting has been associated to higher levels of routine maintenance and prosocial involvement during the home confinement in a sample of Spanish children (Romero, López-Romero, Domínguez-Álvarez, Villar, & Gómez-Fraguela, 2020). However, to this point, the evidence on the impact of specific parenting practices during COVID-19 pandemic is still quite scarce, despite findings clearly pointing out to the complex nature of the relation between parenting behaviors and child's negative and positive outcomes (Romero et al., 2020). In the same way, the determinants of parenting within this context, have been rarely examined.

This study

The present study was conducted in Spain, during part of the mandatory national quarantine period imposed by the Government in the Spring of 2020, following the COVID-19 outbreak on March of 2020. Our overall objective was to examine the role of ER skills on child adjustment during the pandemic, across groups of children with different levels of general and emotional reactivity, previously reported by their parents, years before the health crisis. Specifically, we first aimed to analyze the effect of child ER on diverse behavioral and socioemotional indicators of positive adjustment (e.g., child routine maintenance, social-oriented reflection and prosocial involvement). Then, we aimed to test if the ER skills-outcomes relation was mediated by specific parenting practices, studying the effect of child ER on the parent's display of specific strategies that ultimately would account for the differences in child adjustment, specifically, on child's maintenance of daily routines during home confinement.

First, significant associations between child ER and diverse indicators of adjustment, cross-sectionally measured, are expected in all groups of children (i.e., high, mild and low reactive). However, our hypothesis is that the strength of these associations, within the pandemic context, might be higher in low reactive children, that is, those characterized for the lowest reactivity levels years before the pandemic outbreak and, therefore, with likely lesser difficulties to regulate general and emotional arousal. Second, a mediation model is proposed, where specific parenting practices intrinsically related to the pandemic are assumed to partially account for the effects of child ER on positive outcomes, specifically the maintenance of daily routines during home confinement. We hypothesize that children ER might contribute to elicit specific interactive and communicative styles in parents, as well as specific ways in which they structure their children environments during the pandemic, eventually affecting the kid's behavioral adjustment to these conditions. Hence, a mediator role of specific parenting strategies on ER-outcomes relation is expected.

Method

Participants

Data for the current research is from the ELISA Project (*Estudio Lonxitudinal para unha infancia saudable)*, an ongoing longitudinal study, aiming to examine the behavioral, emotional and social development of a large sample of Galician children from the preschool years. An online data collection was conducted from April to June of 2020, during one of the project's scheduled data collection, partially coinciding with the acute phase of the health crisis in Spain, and the mandatory quarantine imposed to the population by the Government, from March to April of 2020. Parent-reported data (87.2% mothers) of 874 children (49.6% girls) aged 5 to 9 (Mage = 7.09; SD = 1.04) was obtained. All participating families lived in Galicia, Spain. Approximately half of the participating parents reported keeping their jobs during the crisis; 26.0% of them attending regularly to work in person and, 31.2% working from home. However, 20.9% were forced to stop their working activity (e.g., those self-employed or in forced halting). Only 1.3% of them lost their employment due to the COVID-19 crisis. At the time of data collection, 53.5 % declared no difficulties making ends meet, but 1.4% informed of serious difficulties. Most of the participating families did not report any experience of a near COVID-19 contagion. However, almost six percent of them (5.8%) indicated the existence of at least one contagion in their close social circle (i.e., family and friends) and 5.2% reported more than two.

Procedure

This study was conducted within the context of a large longitudinal ongoing research and was approved by the Bioethics Committee of the University of Santiago de Compostela. At the moment of data collection, all the participating families had been part of the ELISA Project for years, since its beginning in the academic year of 2016 and formal written consent was previously provided by parents. Participant parents are yearly required to fill in a questionnaire measuring individual, family and contextual factors related to their children's development. Until 2019, three data collection had been conducted. The fourth wave of data collection, scheduled for the Spring of 2020, was just about to start as COVID-19 pandemic outbreak was emerging worldwide. Thus, a new set of measures aiming to capture the behavioral and psychological effects of home confinement on children and their families was also included in the questionnaire. Access to the questionnaire link along with their personal and anonymous access key, was provided to families via email. Data collection began at April 19th and ended at the beginning of June of 2020. The duration of the survey was around 20 minutes and participating families received a brief informative profile describing their children socioemotional development as reward for their participation.

Measures

Child temperament

Emotion Regulation (cross-sectionally assessed in the fourth wave of the longitudinal study data collection, in the Spring of 2020). We assessed child emotion regulation skills through the parent version of the Emotion Regulation Skills subscale of the Social Competence Scale (Conduct Problems Prevention Research Group, 1995). On a 6-item subscale, parents indicated how well each item characterized their children on a 4 point-Likert scale ranging from 0 ("not at all") to 4 ("very well"). Unlike other measures used in this study, informants were asked to refer their answers to the last six months and not specifically the pandemic circumstances. Examples of items are "my child is able to accept that things do not go as expected", "thinks before acting" or "does what s/he is told". The internal consistency of the scale was good (α = .86)

Reactivity (previously assessed in the second wave of the longitudinal study data collection, in the Spring of 2018). We used the scores on the Falling Reactivity/Soothability scale of the Rothbart's Children's Behavior Questionnaire- Short Form (CBQ-SF, Putnam & Rothbart, 2006) to make an empirical grouping of children by different levels of parent-reported general and emotional reactivity. This 6-item subscale assesses the rate of child recovery from peak distress, excitement, or general arousal. Items were rated by parents two years before the pandemic on a 1-7 scale ranging from 1 "extremely untrue" to 7 "extremely true". Sample items are "s/he is easy to soothe when s/he is upset", "changes from being upset to feeling much better within a few minutes" or "has a hard time settling down after an exciting activity". The internal consistency of the scale was acceptable (α = .72)

Parenting during the pandemic. Specific behaviors displayed by parents to help children to deal with the COVID-19 crisis were assessed through two subscales used in other studies on the psychological effects of the pandemic on children (see Romero et al., 2020). The two subscales measure, respectively, structured and focused parenting practices. The first, covers the parents' attempts to give structure and regularity to the child's daily life (5 items; e.g., "I set a daily schedule and an activities plan", "I try to get him/her to exercise every day"; "I monitor his/her TV watching time, and the kind of programs he/she watches", α = .73). The latter, encompasses the parents' efforts to have the child well informed on the pandemic, and keep a free-flowing communication with him/her on the specific issues of COVID-19 (4 items; e.g., "I get into the knowledge he/she has about the COVID-19", "I try to clarify all his/her doubts about the pandemic and its consequences", "I encourage him/her to express his/her emotions about the situation", α = .68).

Child Positive Adjustment during the COVID-19 Pandemic. We assessed the potential positive outcomes resulting from the pandemic via three subscales based on the ones used in previous studies (see Romero et al., 2020). The three scales are routine maintenance (4 items; e.g., "he/she has adapted him/herself to a scheduled daily activity routine; α = .62), prosocial involvement (5 items; e.g., "shows interest to spare time with family"; α = .72), and social-oriented reflection (3 items; e.g., "he/she assumes that we all should collaborate to slow down the pandemic"; α = .80). Parents rated each item on a 5-point comparative scale aiming to reflect the possible observed changes on child behavior compared to the pre-COVID-19 pandemic functioning (0: much less, 1: some less, 2: no change, 3: some more, 4: much more).

Covariates. Several covariates were included in the models examining the variables of interest. First, we controlled for the effect of parental stress experienced during the COVID-19 pandemic. We used a scale composed by four ad hoc items, developed specifically for the current conditions and used in other studies (Romero et al., 2020). This brief measure directly addressed the parental perceived level of stress associated to the COVID-19 health and socioeconomic crisis. Overall, available evidence suggests that the pandemic impact on individual psychological well-being (e.g., increased fears, anxiety, frustration or depression) is partially determined by the high levels of stress that the COVID-19 outbreak has triggered (Serafini et al., 2020) that can additionally permeate to the family system through

the channels of interaction between its members (Prime et al., 2020). Thus, this scale covers aspects such as the negative impact of the crisis on the family's economy, family relations or the sense of future threat subjectively experience by the parents. The items were rated on a 4-point scale from 0 ("not at all") to 3 ("very much"). The internal consistency of the scale was acceptable (α =.61). We also included an assessment of family socioeconomic status (SES), which was derived from questions about (1) parent education, (2) family income, and (3) family financial solvency to face daily overheads. Education level was computed as the mean of mother and father ratings on a six-point scale ranging from 1 ("without basic studies") to 6 ("postgraduate"). Family income was based on parents' reports of family income rated on a four-point scale from 1 ("serious problems making ends meet") to 4 ("well off"). A composite SES was computed by first transforming the aforementioned variables into z-scores. Finally, we included child gender (0 = male, 1 = female) and age in years as covariates.

Analytic strategy

Table 1. Range of scores used to create groups of children based on the previous parent reports of their general and emotional reactivity

	Variable: Falling Reactivity/Soothability			
	M	(*SD*)	Mimimum	Máximum
Total sample (*N*=833)	4.56	1.06	1	7
Groups				
High Reactive Children (*n*= 159)	2.99	0.53	1 (Min of total sample)	3.50 (1SD below total sample mean)
Mild Reactive Children (*n*= 523)	4.61	0.55	3.51	5.61
Low Reactive Children (*n*=151)	6.02	0.35	5.62 (1SD above total sample mean)	7 (Max of total sample mean)

Note. M= Mean; SD =Standard Deviation; N= sample size (full sample); n= sample size (subsample). Falling Reactivity/Soothability subscale is from the Rothbart's Children's Behavior Questionnaire- Short Form (CBQ-SF, Putnam & Rothbart, 2006)

First, as we assumed that the hypothesized relations might vary in strength depending on child's previous levels of reactivity, we grouped the children of the study sample in function of their scores on the dispositional reactivity measure from the second wave of data collection of the longitudinal project (Time 2). To create the score ranges defining the extreme groups (i.e., high and low reactive), we used as references the mean, standard deviation and minimum and maximum of the total sample (see Table 1 for further details). Second, we explored the bivariate correlations between the study variables in the total sample (Table 2). We used Pearson correlations despite the non-normality of our data given their robustness to extreme violations of the basic assumptions of normality (Havlicek, & Peterson ,1976). These analyses were all conducted on SPSS Statistics version 26 (IBM, 2019). Then, on Mplus v. 8.0 (Muthén and Muthén, 2019), we ran multiple linear regression analysis to model the effects of child ER on adjustment, controlling for other relevant variables such as sociodemographic covariates (i.e., sex, age, SES), parental distress derived from the global crisis and specific parenting during the pandemic. Finally, we run a set of mediation analysis to explore if the relation between ER and adjustment in the context of the pandemic, takes place through specific parenting practices elicited by child's temperament. Correlation, regression and mediation analyses were conducted using the data collected concurrently to the pandemic, during the fourth wave of data collection of the longitudinal project (Time 4). Both regression and mediation analyses were conducted by group subsamples.

Results

Table 2 presents the bivariate correlations for the study variables in the total sample. Child falling reactivity/soothability and later ER skills, assessed two years apart, were positively and moderately correlated. This tendency to easily recover the basal arousal was also related to higher levels of structured parenting during the pandemic. Cross-sectionally, ER was positively correlated with both structured and focused parenting and with all indicators of adjustment. Structured and focused parenting were moderately correlated with each other. Both structured and focused parenting were positively related to all indicators of adjustment. However, structured parenting was particularly correlated with child routine maintenance and focused parenting with child social-oriented reflection during the pandemic. Moreover, child social involvement during the pandemic was positively and moderately correlated with both routine maintenance and social-oriented reflection.

What are the associations between ER skills and behavioral and socioemotional indicators of positive adjustment?

Table 3 contains the results of regression analysis examining the effects of child ER skills on child positive outcomes during the COVID-19 pandemic (Time 4), across groups of children with different levels of previously reported reactivity (Time 2), and accounting for other relevant covariates. Higher ER was associated to positive outcomes across groups, but both the particular outcome predicted, and the magnitude of the effects varied substantially. These effects were slightly stronger in the group of low reactive children. Specifically, higher levels of ER predicted higher levels of routine maintenance and social-oriented reflection. In the group of high reactive children, higher levels of ER were associated to higher levels of child social involvement. In the mild reactive group, ER predicted child routine maintenance during the pandemic. Interestingly, these effects emerged even after controlling for other relevant covariates (e.g., parenting practices, parental distress) that, as our results showed, have, also, a relevant predictive value. Both types of specific parenting practices were associated to indicators of child adjustment across groups, but their effects were considerably stronger for the mild and high reactive children, particularly for the latter. An overall pattern of associations was found in which structured parenting was predominantly associated to behavioral indicators of adjustment (i.e., routine maintenance), whereas focused parenting mainly accounts for the cognitive ones (i.e., social-oriented reflection). Finally, higher levels of parental distress derived from the health and socioeconomic COVID-19 crisis were associated to lower levels of routine maintenance in the group of high reactive children.

Do specific parenting practices mediate the relation between ER skills and particular positive outcomes?

The mediation model explored is depicted in Figure 1. The results of multiple mediation analyses showing the effects of child ER on child routine maintenance through specific parenting practices during the pandemic (Time 4) are presented in Table 4. These effects were

Table 2. Correlations and descriptive statistics of the study variables in the total sample

	1	2	3	4	5	6	7	8	9	10
1. Sex	-									
2. Age	.02	-								
3. Family SES	.02	-.02	-							
4. (Prev.) Sooth	.03	-.05	.03	-						
5. ER	.06	.06	.07*	.38***	-					
6. Str. Parent	-.01	-.05	.17***	.06	.16**	-				
7. Foc. Parent	-4	-.05	.09*	.11**	.19***	.48***	-			
8. Routines	.13***	-.02	-.02	.01	.17***	.25***	.16***	-		
9. Reflection	.05	.12**	.00	-.03	.12***	.18***	.34***	.32***	-	
10. Social Inv.	.11**	-.03	.02	.00	.11**	.21***	.26***	.55***	.52***	-
Mean	-	7.09	.008	4.56	1.92	3.28	3.48	2.23	2.88	2.66
SD	-	1.05	.47	1.06	0.68	0.51	.045	0.53	0.80	.046
N		852	846	833	821	773	773	770	770	770
Range	-	5-Sep	-1.5-1.3	1-Jul	0-4	1.40-4	1.75-4	0.5-4	2-Apr	1.17-4

*Note. *p<.05, **p<.01, ***p<.001; SD =Standard Deviation; N= sample size. ER: Emotion Regulation; (Prev.) Sooth: Previously assessed Soothability/ Falling Reactivity; Str. and Foc. Parent: Structured and Focused Parenting; Social Inv: Social Involvement.*

Table 3. Results of regression analysis modeling the effects of child ER skills across groups of children with different levels of emotional and general reactivity

Predictors	*Child Positive Outcomes*								
	High Reactive Children (*n*=159)			Mild Reactive Children (*n*=523)			Low Reactive Children (*n*=151)		
	ROU	REF	SOC	ROU	REF	SOC	ROU	REF	SOC
Covariates	B	B	β	β	β	β	β	β	β
Sex	.12	.16*	.27***	.12*	.04	.09*	.17	-.09	-.03
Age	-.05	.04	-.05	-.03	.14**	.02	.04	.19*	-.06
Family SES	-.10	.03	-.09	-.05	-.06	.00	-.12	.09	-.02
COVID-19 impact									
Parental distress	-.17*	-.06	-.09	.05	.09*	.08	.10	.05	.08
Child Temperament									
Emotion Regulation	.14	.12	.13*	.09*	.05	.04	.22**	.17*	.03
Specific parenting									
Structured Parenting	.38***	.02	.26**	.19***	.02	.10*	.25**	.15	.09
Focused Parenting	-.01	.37***	.13	.05	.32***	.26***	-.03	.16	.12
R2	.21**	.19**	.22**	.08**	.17***	.18***	.14*	.16**	.04

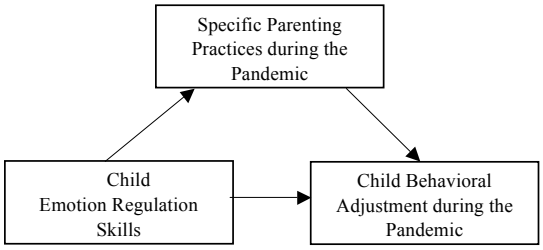
*Note. *p<.05, **p<.01, ***p<.001; n= sample size (subsample). ROU: Routine maintenance; REF: Social-oriented reflection; SOC: Prosocial involvement High, mild and reactive groups had the lower, mean and higher parent-reported high scores in the Soothability dimension.*

Table 4. Results of mediation analysis modeling the effects of child ER skills on routine maintenance through specific parenting practices in groups of children with different levels of reactivity

Mediator: Parenting practices	*Outcome: Routine Maintenance*		
	High Reactive Children (*n*=159)	Mild Reactive Children (*n*=523)	Low Reactive Children (*n*=151)
Model 1	β (SE)	β (SE)	β (SE)
ER->STR	.09 (.09)	.17 (.04) ***	.08 (.09)
STR->ROUT	.32 (.08) ***	.19 (.04) ***	.22 (.08) **
ER-> ROUT	.18 (.08) *	.10 (.05) *	.19 (.07) **
Indirect effect	.03 (.03)	.03 (.01) *	.02 (.02)
Model 2			
ER->FOC	.10 (.08)	.16 (.04) ***	.27 (.04) ***
FOC->ROUT	.12 (.10)	.14 (.04) **	.11 (.07)
ER-> ROUT	.20 (.08) *	.10 (.05) *	.18 (.08) *
Indirect effect	.01 (.01)	.02 (.01) *	.03 (.02)

*Note: *p<.05, **p<.01, ***p<.001; n= sample size (subsample). ER: Emotion Regulation; STR and FOC: Structured and Focused Parenting, respectively*

Figure 1. Hypothesized mediation model examined in this study



Note: Two types of specific parenting practices (structured and focused) were tested separately as mediators of the relation between child emotion regulation skills and behavioral indicator of positive adjustment (i.e., child routine maintenance)

also modeled by groups of children with different levels of reactivity reported at Time 2. The Fit indices of the different models tested were in the range of the cut-off values indicating a good to excellent fit for the data (i.e., CFI > .95, RMSA < .06). First, the positive direct effect of higher levels of ER on routine maintenance was found in all the

mediation models explored, that is, with structure and focused parenting as mediators, and across groups of high, mild and low reactive children. However, the indirect effects were found only in the group of children with the levels of reactivity in the mean score range. Specifically, for this group, higher levels of ER predicted a higher degree of routine maintenance not only through direct effects, but also via both types of parenting.

Discussion

Consistently with our hypothesis, our findings support the contribution of ER skills to child adjustment during the COVID-19 pandemic. Most importantly, not only through direct, but also indirect effects. Higher levels of ER skills were associated to diverse positive outcomes (e.g., child routine maintenance, social-oriented reflection and prosocial involvement). Moreover, they also appear to contribute to elicit certain specific parenting practices (e.g., oriented to preserve family and child routines or an open communication about the pandemic), ultimately accounting for an optimal behavioral adjustment in terms of child maintenance of daily routines during the pandemic. Importantly, these effects were tested considering previous levels of child reactivity as a moderator of the cross-sectional relations. In this regard, despite the direct effects were found in the direction and strength expected across all groups of children, the indirect effect was only demonstrated in the group of those mildly reactive.

The association between ER skills and diverse indicators of child adjustment during the COVID-19 pandemic is consistent with the findings of a large body of research supporting the essential role of these core individual characteristics, not only for child's healthy development (Campos et al., 2004; Eisenberg et al., 2010) but also in stress coping processes in response to challenging situations (Compas et al., 2017). Moreover, the stronger effects of ER skills found in the group of low reactive children are not surprising. Children with previously reported lesser levels of basal and emotional arousal and lesser difficulties to regulate it, would be in some sort of constitutional advantage to deal with the crisis. Precisely, due to the absence of potentially threats undermining the adequate acquisition and use of adaptive regulatory skills (i.e., excessive negative emotionality, Bridget et al., 2009). At the same time, these findings are somehow a reflection of the relatively stable nature of these emotion-regulation systems over time, after their rapid and early development during the first years of life (Eisenberg et al., 2010).

In addition, our findings suggest that the way in which parents have adapted their parenting practices to the specific characteristics pandemic could be partially elicited by their child's temperament, at least, for those children characterized as mildly reactive. Overall, this is consistent with the findings of previous developmental research that has demonstrated the existence of child-driven effects. That is, the effects of children's dispositional variables (e.g., negative emotionality, Bridget et al., 2009; activity level, Bryan et at., 2009) or specific behaviors (e.g., early reading skills; Ansari, & Crosnoe, 2015; academic functioning; Yan, & Ansari., 2016; disruptive behavior; Schulz, Leijten, Shaw, & Overbeek, 2019) on parenting behaviors. Evocative gene-environment correlations (Cheung, Harden, & Tucker-Drob, 2006), could help to explain how a more regulated temperament could elicit positive parenting practices in a higher extent during the COVID-19 pandemic.

However, our findings also indicate that these specific parenting practices fail to serve as a useful explicative mechanism through which define the adjustment of children with the highest and lowest levels of reactivity. In fact, what seems to be predominantly determinant for these extreme groups are the concurrent levels of these regulatory capacities, as indicates the higher magnitude of the ER skills' direct effect on child routine maintenance in the mediation models. Specifically, for both high and low reactive children, higher levels of ER skills are associated to better behavioral adjustment but overall fail to elicit specific parenting with the exception of focused parenting in the low reactive group. However, the absence of these child-driven effects, and more broadly, the indirect effect in these groups, might not surprising. It could be the case that relatively stable emotion-regulation capacities in its extreme forms, overshadow or limit for good and for bad, the potential influence of temporary factors such as specific strategies displayed by parents within the particular context of the pandemic. Yet, this tentative explanation should be probed.

Our study is, to our knowledge, the first to date to examine these relations within the COVID-19 pandemic context. However, our findings have to be necessarily considered in light of some limitations. First, our data was exclusively parent-reported. Thus, we did not control for possible informant-biases. Complementing the assessment with self-reports, at least, from older children would be recommended. Second, we have only focused on two types of specific parenting and exclusively in child positive adjustment. That is, we did not model nor replicated these effects considering other parenting practices specifically related to the pandemic (e.g., avoidant) and/or potential negative outcomes (e.g., behavioral, emotional problems). Third, we did not control the presumably important effect of the moment, specific date, when data was collected (i.e., during or after the home confinement period). For these reasons, the possibility of generalizing our conclusions is limited. Future research, however, could address these methodological limitations. Particularly interesting would be to examine to which extent other potentially relevant factors (e.g., general parenting style, family SES) could be involved in the explanation of some of our findings (e.g., absence of indirect effects in extreme group subsamples).

In sum, we provide preliminary empirical evidence on the contribution of ER skills and parenting practices to child adjustment during the COVID-19 pandemic. We have mainly focused on ER skills, which, under these circumstances too, appear as basic individual capacities influencing multiple domains. On a practical level, the potential beneficial effects of ER skills-based interventions, are numerous. Hence, it is reasonable to consider child ER-skills essential targets of intervention for preventive and clinical treatments, oriented to promote children and family well-being during the current times of the pandemic, serving to facilitate both child adjustment but also positive parenting behaviors.

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Conflict of interests

The authors declare no conflict of interest.

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