FAMILY PROCESS

Parenting Stress During the COVID-19 Outbreak: Socioeconomic and Environmental Risk Factors and Implications for Children Emotion Regulation

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The COVID-19 outbreak imposed to Italian families many changes in their daily life increasing the risk of developing psychological problems. The present study explored risk factors associated with parenting stress and implications for children's emotion regulation in families with different socioeconomic risks. Parents of 2–14 years old children completed a survey reporting difficulties experienced due to the lockdown, level of household chaos, parenting stress, parent involvement in the child's daily life, and children emotion regulation competences. The general mean levels of parenting stress and children emotion regulation abilities were not at clinical level compared with Italian norms. Household chaos predicted higher levels of parenting stress, which, in turn, was associated with less effective emotion regulation in children through the mediating role of parental involvement. More stressed parents were less involved in their children's activities, decreasing children's effective emotion regulation. Only for SES no-risk families, the lockdown constraints increased parenting stress. For SES at-risk families, the impact of parenting stress and involvement on children regulation strategies was stronger, with a protective role played by parental involvement on children's negativity not evident for SES no-risk families. Dealing with the lockdown is a stressful experience for parents who have to balance personal life, work, and children upbringing, without other help. This situation potentially impairs their ability to be supportive caregivers and is consequently detrimental for children well-being. Policies should take into consideration the implications of the lockdown for families' mental health and tailor supportive interventions according to family's risk factors.

Keywords: Children; Children Emotion Regulation; COVID-19; Parenting Stress; Parents; Quarantine; SES risk

Fam Proc x:1–15, 2020

On the 30th of January 2020, the president of the WHO declared the international health emergency after the first clusters of people infected by COVID-19 evidenced in China (WHO, 2020). From the second half of February, the number of Italian infected cases increased making Italy the second most affected country after China at the time.

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Family Process, Vol. x, No. x, 2020 © 2020 Family Process Institute
doi: 10.1111/famp.12601

Since the pandemic kept spreading around the Country, the Italian Prime Minister issued on March 9th a Decree which included many restrictive measures to mobility (Government, 2020). The measures, later extended until May 3rd, known as #Iamstayinghome (#IoRestoaCasa), included the closure of shops, except those selling essential goods, the cancelation of all public and private events and ceremonies, and the shutdown of all schools across the Country (Government, 2020). For the whole population started "the quarantine," that is, the lockdown phase, everyone was banned from leaving home except for non-deferrable work or health reasons or other urgent matters. Working from home was incentivized, but since most of the activities closed, and many people lost their job or went through a severe reduction of their income, followed by a severe economic crisis, which is due to have long-lasting effects. At the time of this study (April 2nd–7th, 2020), after one month the end of the pandemic lockdown could not be predicted, as there were more than 24 000 deaths due to the coronavirus and number of cases was still increasing. After May 3rd, since the number of contagious started to reduce, Italy entered in what was called Phase 2: Many activities were reopened, while schools' closure was maintained, likely to reopen only in September 2020. Since the lockdown started in Italy, many countries followed suit with most of Europe, United States, and Asia adopting similar restrictive measures.

The Impact of the Lockdown on Families' Living Condition

With schools, all childcare-related activities and services closed and children were more than adults banned to leave home. The living condition of families deeply and unexpectedly changed during the lockdown. In the home environment, the educational and supportive role of parents became even more crucial than usually. However, parents had been left alone to manage home schooling and childcare in unprecedented ways. Schools and childcare facilities closure caused children to have reduced learning opportunities, as well as loss of interactions with their peers and with other important educational figures such as teachers (Wang, Zhang, Zhao, Zhang, & Jiang, 2020). Moreover, babysitters and grandparents were not available due to mobility restrictions, and contacts with other children were not allowed. Many parents also had to work from home with additional problems in managing time and spaces in the household. Having to live all together 24/24 hours potentially presents particular challenges for families of a low socioeconomic status, living in small, crowded houses (I.STAT, 2020). In this condition, children do not have enough space to move, to play, and activities are more limited and dependent from parents' ability and/or possibility to engage with children. Parents, on the other hand, do not have time and space for themselves, for the partner, and limited possibilities to take a break from their parental duties.

The Impact of the Lockdown on Families' Well-being

Hence, while mobility restrictions and social isolation associated with the lockdown are successful in reducing the spreading of COVID-19, they represent a serious concern for families' psychological well-being. The lockdown poses a major burden on parents and increases their risk of experiencing stress and negative emotions, with a potential cascade effect on their children's mental health (Sprang & Silman, 2013).

Currently, the effects of pandemics such as COVID-19 and, previously SARS, on families and on the parent–child relationship are still unexplored. One study found that levels of post-traumatic stress were four times higher in children who had been quarantined during the SARS outbreak than in those who were not (Sprang & Silman, 2013). A preliminary study conducted in China reported the presence of psychological problems in children during the COVID-19 pandemic, with fear, clinging, inattention and irritability

as the most severe symptoms for younger children (Jiao et al., 2020). As a consequence of the COVID-19 lockdown, children are even more in need than before for their parents' psychological support. Parents are a critical external factor in children emotion regulation, as they help children regulate their arousal and emotional states (Kopp, 1982), and the ability of the caregiver to accurately read and respond to the child signals of distress can lead to a reduction in the distress itself. A previous study following Hurricane Katrina identified youths' perceptions of their parents as more acceptant and less controlling as protective factors for traumatic reactions following the disaster (Costa, Weems, & Pina, 2009). The role of parents is also emphasized during the lockdown by the lack of contact with other adults (e.g., teachers and grandparents) helping regulate their emotions (Liu, Bao, Huang, Shi, & Lu, 2020). Since emotion regulation is a crucial ability to modulate, inhibit, and enhance emotional experiences and expressions to meet situational demands and achieve personal goals (Thompson, 1994), children who are not adequately supported during the lockdown may be at a higher risk for long-lasting negative effects of the COVID-19 outbreak.

Importantly, the lockdown affects the whole population well-being, parents included. Studies conducted on adults similarly evidenced a high presence of psychological distress such as depression, stress, irritability, and post-traumatic stress symptoms associated with quarantine (Brooks et al., 2020; Hawryluck et al., 2004) with long-lasting effects present years after (Liu et al., 2012). When affected adults are also parents, their ability to fulfill the parenting role is impaired causing an exacerbation of the detrimental effect of the pandemic on children. This was confirmed by a recent study evidencing that parental perception of the difficulties associated with the COVID-19's lockdown increased parental levels of dyadic parenting stress, that is, stress experienced in the caregiving role, and in turn increased children emotional and behavioral difficulties (Spinelli, Lionetti, Pastore, & Fasolo, 2020).

Dyadic parenting stress refers to the parent's perception of a mismatch between the resources available to fulfill their parental role and the demands of parenting, and indicates that parents' ability to enjoy and appreciate the relationship with the child is to some extend compromised (Abidin, 1992). Experimental evidences reported that it represents an important risk factor for both parent–child interaction and child psychopathology (e.g., emotional and behavioral problems in children; Neece, Green, & Baker, 2012; Oxford & Lee, 2011). Living in lockdown is a potentially stressful and traumatic experience that may increase the perception of reduced parenting resources (Lange, Callinan, & Smith, 2019) and could be exacerbated by low-quality households and lower socioeconomic status. Variation in parental report on household chaos (e.g., residential instability, lack of routines, and disorganization) is associated with parental perception of the relationship with the child as stressful (Pike, Iervolino, Eley, Price, & Plomin, 2006) and not enjoyable (Wang, Deater-Deckard, & Bell, 2013). All these aspects may be even more relevant for families whose economic status changed due to the economic crisis following the COVID-19 pandemic (Roubinov & Boyce, 2017).

Among the negative consequences of parenting stress, stressed parents have been repeatedly reported as showing lower emotional awareness of the child, lower ability to direct complete attention to the child needs and to function as an external regulator for the child stresses (Fernandes, Canavarro, & Moreira, 2020; Gillis & Roskam, 2019; Spinelli, Poehlmann, & Bolt, 2013). The association of parenting stress with the development of dysfunctional parent–child relationship may be the reason why it constitutes an important risk factor for child psychopathology (Neece et al., 2012; Oxford & Lee, 2011). Particularly during and after potentially traumatic events, such as the COVID-19 emergency, parental support to the child's emotional regulation may be essential to promote child

resilience and mental health (Costa et al., 2009; Hawkins & Manne, 2004; Whitson, Bernard, & Kaufman, 2015).

The Present Study

In sum, the COVID-19 lockdown constitutes a potentially traumatic situation for parents and ultimately children. However, individuals differently react to challenging events according to their personal and environmental resources. Some parents may find particularly difficult coping with such situation, and different levels of perceived parenting stress and lower quality of parenting may depend on environmental and personal conditions (Abidin, 1992; Belsky, 1984). Similarly, children may react differently, but as the literature repeatedly evidenced, the crucial factor in determining children responses to distressing events is the quality of parenting and the parental support they receive (DiCorcia, Sravish, & Tronick, 2013). Still, mechanisms that might explain the risk factors for parents to experience stress during a situation such as the COVID-19 outbreak and how this stress may, in turn, affect children emotional well-being, have not yet been investigated.

A deeper understanding of family processes is necessary to properly address families' needs in present and future intervention programs (Sprang & Silman, 2013) aimed at promoting the well-being of parents and children in these difficult times (Dalton, Rapa, & Stein, 2020; Wang et al., 2020). To fill this gap by shedding light on families' well-being during the COVID-19 outbreak in Italy, we set up a large longitudinal study investigating both parental and children's psychological variables as well as socioeconomic indicators.

In the current paper, we present data from the first wave of data collection, aimed at identifying factors related to the outbreak and to the household condition of the family that may contribute to parenting stress, and how this, in turn, was predictive of parental involvement in the child's everyday activities and child's emotion regulation adjustment. In doing this, we investigated whether the level of family socioeconomic risk during the outbreak influenced the interplay between COVID-19 lockdown's effects, and parental and child's adjustment.

We expected that parents who experience more difficulties dealing with the lockdown and living in more chaotic homes might be more at risk of parenting stress. More stressed parents, overwhelmed by the difficulties of being a parent in such a stressful situation, may find difficult to be positively involved in the everyday activities of their children, being a vehicle to understand and appraise the unexpected situation. As a result, low-quality functioning of the parents can upturn the negative effect of the outbreak and the consequent lockdown on children, increasing the likelihood that children will have less effective emotion regulation strategies and higher levels of emotion negativity (Blair et al., 2008; DiCorcia et al., 2013; Kopp, 1982; Peisch, Dale, Parent, & Burt, 2019). We expected this pattern to be stronger in at-risk for socioeconomic difficulties families, who experienced the loss of the job due to the pandemic or had lower economic and cultural resources.

METHOD

Study Design and Participants

Parents filled out an anonymous online survey, after reading the written consent form and explicitly agreeing to take part to the study. The survey was shared via social media for a limited time window (from April 2nd to 7th, 2020), targeting parents of children aged 2–14 years old. In case of multiple children, the parent was asked to report on one child only. All the questions were related to the past week to be sure to assess the COVID-19 outbreak situation. There was no monetary compensation for participating. The final

sample providing information on study variables included in the current study consisted of 810 parents living in Italy (93% mothers, M_{age} = 39.09 (5.98), educational level: 6% less than high school degree, 39% high school degree, 34% bachelor or master degree, 20% higher education degree) and 7% were fathers (M_{age} = 41.9(6.68), educational level: 2% less than high school degree, 36% high school degree; 38% bachelor or master degree, 24% higher education degree). The 32.4 % of them had one child and the 52.7 % two children. The 45% were from the North, 37% from the Center, and 18% from South of Italy. Children's mean age was 7.16 (3.34), 50% were boys. Data reported in this study are part of a wider longitudinal research project designed with multiple purposes related to the investigation of the psychological impact of COVID-19 outbreak in Italian parents and children. The study was approved by the ethical committee of the Department and was conducted according to American Psychological Association guidelines in accordance with the 1964 Helsinki Declaration.

Measures

Socioeconomic risk index (SES risk index)

An ad hoc dichotomy risk index was computed to evaluate the level of family economic risk (0 = no-risk; 1 = at-risk). If at least one of the following was present, the parent was considered at risk: loss of job due to the pandemic, total family income less than 1250 € per month, parent education level lower than high school. One-hundred-eighty-five participants (22.84%) were in the SES at-risk group. Of these, 58% lost the job due to the pandemic.

Quarantine parent risk index

Difficulties experienced by parents during the lockdown were investigated with a newly developed pool of 13 items (Spinelli et al., 2020). Parents were asked to indicate, using a 7-point Likert scale, during the past week how difficult they perceived dealing with several aspects related to the lockdown such as finding space and time for themselves, the partner, and kids, balance family and work, focus on work, do activities such as reading, and cooking. Cronbach's alpha was satisfactory and equal to .84.

Parent dyadic parenting stress

Perception of parent's stress in the parent–child interaction was investigated using the 15 items of the subscale Parent-Child Dysfunctional interaction domain of the Parenting Stress Index Short Form (PSI; Abidin, 1995). The scale investigates with a 5-point rating scale the extent of parents' agreement or disagreement with statements describing the parent–child relationship as difficult to manage. Cronbach's alpha in the current study was .86. The questionnaire has been extensively validated across countries and its validity and reliability supported in a number of empirical studies (e.g., Feldman, Eidelman, & Rotenberg, 2004; Suttora, Spinelli, & Monzani, 2013).

Parent involvement with the child

To assess the level of parent's activities and support given to the child, the seven items of the Family involvement subdomain of the Parent Report Form CHIP-Child Edition, a widely used and extensively validated questionnaire, were selected (Riley et al., 2004). Parents were asked to rate on a 5-point scale (from none a day to everyday) how often during the past week they, that is, spent time with the child, listened to the child ideas, talked with the child, and asked the child how he/she felt. Cronbach's alpha in the current study was .66 (comparable to that reported by the authors of the instrument, i.e., .75).

Household chaos

Parents reported the level of chaos in the household using a shortened version of the CHAOS-Chaos, Hubbub, and Order Scale (Matheny, Wachs, Ludwig, & Phillips, 1995), including 11 items that are rated on a 5-point scale (from Not true at all to Very true). Items relate to the organization of home spaces and routines and on the quality of home atmosphere. Cronbach's alpha in the current study was .81. The scale has been extensively used in several empirical studies and its reliability and validity repeatedly supported (Matheny et al., 1995; Mills-Koonce et al., 2016).

Children's emotion regulation

Children abilities to regulate emotions were investigated using the Italian version of the Emotion regulation checklist (ERC; Molina et al., 2014; Shields & Cicchetti, 1997) completed by parents. The instrument, presenting adequate psychometric proprieties (Molina et al., 2014), is composed by 24 items describing child emotional reactions and includes two factors: Emotion regulation (i.e., the capacity to adjust one's own arousal to adapt to the environment; eight items) and Negativity (i.e., promptness against emotional antecedents and coping responses following negative emotions; 16 items). Each item is rated on a 4-point scale (from almost never to almost always). To obtain the total scores, items are summed and higher scores on the Emotion Regulation subscale reflect adaptive emotion regulation and higher scores on the Negativity subscale reflect higher levels of negative emotion dysregulation. Cronbach's alpha in the current study was .63 for the Emotion regulation scale and .80 for the Negativity scale (values are comparable to those reported in the Italian validation study).

Analyses Plan

We first computed descriptive statistics and bivariate correlations among study variables in the full sample and separately in the two groups differing for SES levels, labeled SES risk, and SES no-risk from now onwards. The two SES groups were compared for mean values along the investigated variables, and the proportion of subjects at risk for high levels of parenting stress and children's difficulties in emotion regulation strategies computed considering those scoring two standard deviations away from the sample mean values. Afterward, for exploring the interplay among COVID-19 lockdown, home chaos, parental stress and involvement, and children's emotion regulation, we estimated a multivariate mediation model with PSI Parenting stress predicting ERC Emotion Regulation and ERC Negativity through the mediating role of Parental involvement. Two environmental factors, that is household chaos and quarantine parent risk index, were included in the model as predictors of PSI Parenting stress. By doing this, we explored the contribution of COVID-19 and home environment on parental perception of stress in the parent–child relationship and the impact of parenting stress on children's emotion regulation strategies through the role of parental involvement. Both direct and indirect effects of parenting stress were estimated. The target model was compared with a null model, with a model inverting the mediator (i.e., Parental involvement) with the predictor (i.e., PSI Parenting stress), and with a model inverting the mediator with outcome variables (i.e., ERC Emotion Regulation and ERC Negativity). Akaike weights, providing the probability of a model to support new data conditional on the set of models considered, were used for model comparison (Wagenmakers & Farrell, 2004), with higher values providing support for a model against the other investigated models. Regression parameters were then explored for the best fitting model. Finally, in order to further explore differences, if any, between SES at-risk and no-risk condition, we replicated the mediation model with a

multi-group analysis. Analyses were run using the statistical software R, using lavaan package.

RESULTS

Descriptive Statistics

Means, *SD*s, and correlation values among variables of interest in the full sample are reported in Table 1. Due to the large sample size, correlation values equal or above .07 (i.e., trivial in effect size) were significant at $p \leq .05$; thus, for interpreting effects we considered the strength of the association (namely Pearson's *r*) as an effect size and we reported significance level in the table. Importantly, the quarantine parent risk index positively and moderately correlated with household chaos ($r = .46$) and, to a lower extent, with PSI Parenting stress ($r = .21$) and children's ERC Negativity ($r = .27$). Associations between quarantine parent risk index and parent involvement and children's ERC Emotion Regulation were low and negative (both equal to $r = -.12$). Household chaos showed a moderate and positive correlation with PSI Parenting stress ($r = .37$) and children's ERC Negativity ($r = .41$), and a moderate and negative correlation with Parental Involvement ($r = -.28$) and children's ERC Emotion Regulation ($r = -.30$). Parental involvement was negatively and moderately associated with PSI Parenting stress ($r = -.40$) and children's ERC Negativity ($r = -.24$), and positively correlated, to a comparable extent, with children's ERC Emotion Regulation ($r = .31$). PSI Parenting stress correlated positively and moderately with ERC Negativity ($r = .48$) and negatively and moderately with ERC Emotion Regulation ($r = -.43$).

Importantly, exploration of bivariate associations among investigated variables run separately for the two SES groups suggested that the quarantine parent risk index presented a stronger association with PSI Parenting stress in the SES no-risk group compared to the SES at-risk group (associations were $r = .25$ and $r = .12$, respectively), whereas for what pertain to PSI Parenting stress and parent involvement correlations with ERC Negativity and ERC Regulation, associations were overall stronger in the SES at-risk group compared to the SES no-risk group (see Table 2). Overall, mean values along study variables in the two groups were comparable except for the quarantine parent risk index, which was significantly higher in the SES no-risk group (t (295.77) = 3.22, $p = .001$, see Table 2), and for ERC Negativity, which was significantly higher in the SES at-risk group (t (291.02) = −2.31, $p = .02$, Table 2). Pertaining to PSI Parenting stress, the percentage of subjects at risk, scoring two standard deviations above the mean value, was comparable in the two SES groups, with 33% in the SES at-risk group and 30% in the SES no-risk group. For emotion regulation competences, in the SES no-risk group only 3% of children scored two standard deviations above ERC Negativity compared to 7% in the SES

TABLE 1
Descriptive and Bivariate Correlations for the Full Sample

	Mean (*SD*)	Range	1	2	3	4	5
1. Quarantine parent-RI	46.34 (16.15)	10–84					
2. Household chaos	29.73 (7.47)	12–53	.46**				
3. Parent involvement	4.15 (0.56)	1.7–5	−.12**	−.28**			
4. PSI Parenting stress	21.95 (7.58)	12–55	.21**	.37**	−.40**		
5. ERC Negativity	28.19 (6.21)	16–52	.27**	.41**	−.24**	.48**	
6. ERC Emotion Regulation	25.52 (3.23)	16–32	−.12**	−.30**	.31**	−.43**	−.40**

Note. ERC = Emotional Regulation Checklist; PSI = Parenting Stress Index; RI = Risk Index.

at-risk group. For ERC Emotion Regulation, in the SES no-risk group there were 4% of children who felt below two standard deviations, and 5% in the SES at-risk group.

Multivariate Regression Models

Comparison of multivariate regression models (see Table 3) showed that the target mediation model including Parenting involvement as the mediating variable outperformed the null model (Akaike weights were, respectively, ~1.00 and ~ <.00 for the mediation and the null model) as well as the model inverting the mediator with the predictor (Akaike weights were, respectively, ~1.00 and ~<.00 for the original mediation model and the model including PSI Parenting stress as the mediating variable). Similarly, the target model outperformed a model inverting the mediator with the two outcome variables (Akaike weights were, respectively, ~1.00 and ~<.00 for the original model and the model including the two ERC strategies as mediating variables). Standardized estimates of the mediation model in the full sample are reported in Table 4. All regression parameters were significant at $p < .001$ except for the role of quarantine parent risk index on PSI Parenting stress ($p = .442$) and for Parenting involvement on ERC Negativity ($p = .076$). Results showed that the mediation path was supported only for ERC Emotion Regulation (indirect effect ß = −.07, $p < .001$, total effect ß = −.42, $p < .001$, $R^2 = .21$), but not for ERC Negativity (indirect effect ß = .02, $p = .78$, total effect ß = .48, $p < .001$, $R^2 = .23$). For this latter, only a direct significant effect of PSI Parenting stress on ERC Negativity was identified. However, data explained the same amount of variance for both ERC outcome variables.

Finally, a multi-group analysis was run including the SES risk condition as the grouping variable. In Figures 1 and 2 are reported standardized estimated parameters in the two groups, namely no-risk and SES risk, respectively. Results were overall stable but some important differences as well emerged. More specifically, the quarantine parent risk index significantly predicted PSI Parenting stress only for SES no-risk group, but the model was able to explain higher variance for both outcome variables in the SES at-risk group (see Figures 1 and 2). In families belonging to the SES at-risk group, Parental Involvement was a significant mediator of the impact of PSI Parenting stress and ERC Negativity (indirect effect ß = .06, $p = .051$, total effect ß = .56, $p < .001$, $R^2 = .36$) and ERC Emotion Regulation (indirect effect ß = −.09, $p = .002$, total effect ß = −.50, $p < .001$, $R^2 = .30$). On the contrary, in the SES no-risk group, Parental Involvement

TABLE 2

Descriptive and Bivariate Correlations in the SES No-risk (Above the Diagonal, n = *625) and SES At-risk (Below the Diagonal,* n = *185) Groups*

	Mean (*SD*) SES At-risk	**Mean (*SD*) SES No-risk**	**1**	**2**	**3**	**4**	**5**	**6**
1. Quarantine parent-RI	42.96 (16.34)	47.34 (15.97)	—	.45**	−.11*	.25**	.30**	−.13
2. Household chaos	29.47 (7.96)	29.81 (7.32)	.47**	—	−.24	.38**	.42**	−.29**
3. Parent involvement	4.16 (0.58)	4.15 (0.56)	−.17*	−.38**	—	−.39**	−.21**	.29**
4. PSI Parenting stress	22.73 (8.67)	21.72 (7.21)	.12	.34**	−.42**	—	.44**	−.40**
5. ERC Negativity	29.14 (6.40)	27.91 (6.13)	.24*	.42**	−.35**	.48**	—	−.38**
6. ERC Emotion Regulation	25.29 (3.27)	25.59 (3.22)	−.11	−.32**	.40**	−.43**	−.47**	—

Note. ERC = Emotional Regulation Checklist; PSI = Parenting Stress Index; RI = Risk Index.
*$P < .05$; **$P < .001$

TABLE 3
Model Comparison on the Whole Sample: AIC and Akaike Weights

Model	AIC	Akaike Weights
Null model	28,777	0
Target model[a]	15,715	1
Model inverting the mediator with the predictor	15,769	0
Model inverting the mediator with outcomes	15,764	0

[a]Household chaos and quarantine parent risk index predict PSI Parenting stress, PSI Parenting stress predicts Emotion Regulation directly and through the mediating role of Parent Involvement.

TABLE 4
Multivariate Analysis in the Full Sample: Standardized Estimated Parameters

	ß	*p*	*R*-square
PSI Parenting stress			
Quarantine parent-RI	.05	.164	
Household chaos	.34	<.001	
Parent involvement			
PSI Parenting stress	−.40	<.001	
ERC Emotion Regulation	.21		
PSI Parenting stress	−.36	<.001	
Parent involvement	.17	.001	
ERC Negativity			.23
PSI Parenting stress	.46	<.001	
Parent involvement	−.06	.076	

Note. ERC = Emotional Regulation Checklist; PSI = Parenting Stress Index; RI = Risk Index.

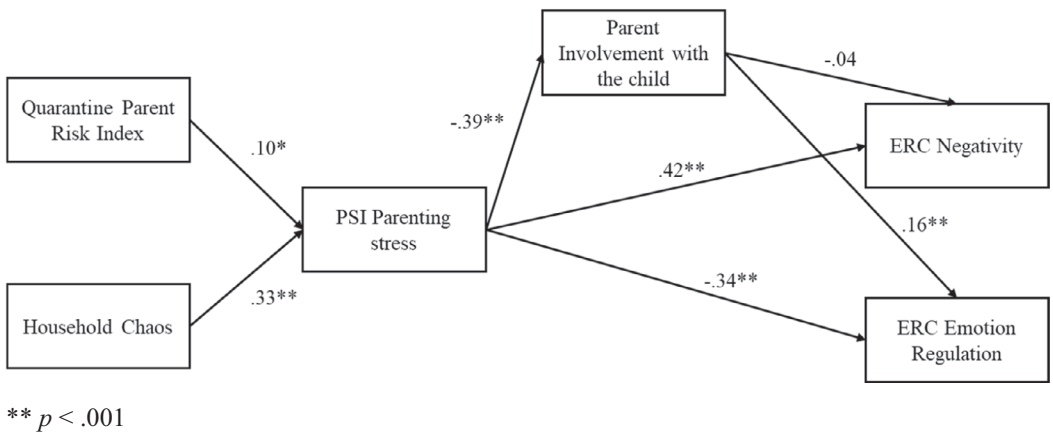

FIGURE 1. SES No Risk Group Multivariate Mediation Model: Standardized Estimated Parameters. **$P < .001$.

mediated the impact of PSI Parenting stress on ERC Emotion Regulation (indirect effect ß = −.06, $p = .02$, total effect ß = −.40, $p < .001$, $R^2 = .18$), but not on ERC Negativity (indirect effect ß = .02, $p = .30$, total effect ß = .44, $p < .001$, $R^2 = .20$).

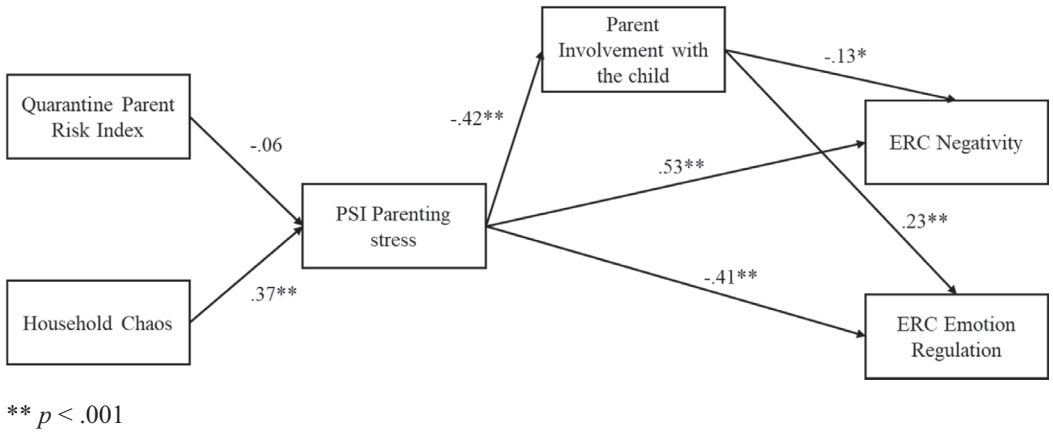

FIGURE 2. SES At-Risk Group Multivariate Mediation Model: Standardized Estimated Parameters. $^{**}P < .001$.

DISCUSSION

Italy was, after China, chronologically the second country most affected from the COVID-19 outbreak. Starting from the beginning of March 2020, Italians accepted many limitations of their social life to contain the pandemic. Schools, shops, and many commercial activities closed, and people were asked to stay at home. Particularly, daily life of families suddenly deeply changed, and the lockdown imposed a major burden on parents, called to take a full-time educational and caregiving role while also trying to live their own lives and get on with their everyday job commitments, for some of them, or dealing with unemployment for others. With data collected after the first month of lockdown, this study aimed to explore how the COVID-19 lockdown experience affected parents' perception of the quality of the relationship with their children, namely dyadic parenting stress, and whether this in turn compromised parental involvement with the child and child emotional well-being in families with different socioeconomic risks.

Interestingly, taking into consideration the general mean levels of parenting stress and children emotion regulation abilities, the picture reflects a population not particularly different from the average means of previous studies conducted before the pandemic. This suggests that the COVID-19 pandemic itself, at least initially, was not associated with clinically relevant issues both in parents and in children (Lades, Laffan, Daly, & Delaney, 2020). However, the ranges are wide, suggesting a notable variability of psychological responses among individuals. Some children and parents reacted to the lockdown showing clinical symptoms, others did not.

Results evidenced that the level of household chaos affected parenting stress both in SES at-risk and no-risk groups. Parents living in a more chaotic and less organized house perceived the relationship with the child as a more stressful and less enjoyable experience. This was in agreement with our hypothesis that living in a more unstable and less organized environment during the lockdown would be associated with lower quality of parent–child shared time (Mikolajczak, Raes, Avalosse, & Roskam, 2018; Pike et al., 2006). In a previous study on parents' individual and dyadic stress during the COVID-19 lockdown, the physical quality of the environment, that is, the dimension of the house and the presence of garden or terraces, was not related to parenting stress (Spinelli et al., 2020). The data suggest that the organization of familiar routines and activities are more important than the physical characteristics of the house, to foster good parent–child interactions

during the lockdown. This is a crucial point since it confirms that, even in a particular situation such as the lockdown, house chaos and disorganization have a crucial detrimental effect on parent–child relationship and in general on family well-being (Mills-Koonce et al., 2016; Pike et al., 2006).

Different patters emerged between SES no-risk for socioeconomic condition parents and at-risk parents who lost their job due to the pandemic and live with lower economic resources. Parents in the no-risk group reported more difficulties in dealing with lockdown strengths, and, only for them, those constraints affected parenting stress. Having to deal with the practical changes to the family routine was associated with perception of the relationship with the child as less enjoyable and more stressful (Mikolajczak et al., 2018). It is possible that school closure and the absence of other supporting resources, such as grandparents and babysitters, impacted more on these families: having usually more access to supportive resources reduced their ability to cope with taking care of children while having to work at home (Wang et al., 2020). Difficulties in balancing working hours at home and daily care of their children may be particularly notable for parents with executive roles who are required, more than others, to work from home. According to national surveys and media reports, working mothers particularly seem to have been significantly impaired by the lockdown and by the absence of childcare services, increasing already at play gender disparities. And our sample is prevalently composed by mothers. The lack of a significant effect of the strengths of the lockdown in the SES at-risk families may be due to the lower perception they have of the lockdown as stressful and to the stronger effect of household chaos on parenting stress. We can hypothesize that for those lower in socioeconomic resources, daily stresses associated with parenting 24/24 in low-quality environment have such a strong detrimental effect on the quality of parent–child perception that masks the effect of lockdown (Rubin et al., 2006). Moreover, the majority of these families in our sample were characterized by a reduction of their income due to the loss of the job because of the pandemic, therefore worries about their financial future may have played a role in the process beyond the lockdown itself.

The differences in the two groups also suggest that families potentially at lower socioeconomic risk could actually be the most affected by the life changes due to the lockdown. This observation is relevant since governments attention is focused more on the economic impact of the COVID-19 outbreak than on the families' adaptation to the lockdown. However, families' psychological well-being, even for those with lower SES risk, seem substantially influenced by the new life condition imposed by the pandemic.

Even if the lockdown gives families more time to share and stay together, the quality of this time may be compromised due to parents being overwhelmed by parenting duties, job-related duties, and confinement in the house. In our results, these higher levels of parenting stress were directly associated with reports of more children emotion regulation problems confirming that, particularly in this potentially traumatic situation, parenting stress is associated with lower emotional adjustment in children (Abidin, 1992; Neece et al., 2012).

Parents reporting higher levels of stress were less engaged with their children, they were less interested in children emotional well-being, they paid less attention to the child, and in general spent less time with the child, despite the lockdown imposed parents and children to spend the whole day at home. This lack of involvement, in turn, exacerbated child emotion regulation problems. This effect was stronger for SES at-risk families, suggesting that when children are part of an at-risk environment due to limited socioeconomic resources, the protective role of parenting is even more necessary and impacting. Very interestingly, while for the not at-risk group parental involvement mediated the impact of parenting stress on children's emotion regulation competences, but not on children negative emotionality, in the SES at-risk group parental involvement played a

protective role on children's emotion negativity. Children in these families showed more negative and liable emotional reactions to stimuli than children in the no-risk group, but this negativity was significantly reduced when they experienced emotionally relevant time with the parent (Blandon, Calkins, Keane, & O'Brien, 2008). These children seemed to be more vulnerable to the effects of low socioeconomic conditions in terms of higher rates of negative emotions, but also seemed to be more sensitive to positive experiences such as higher levels of parental involvement in their everyday activities during the lockdown (de Villiers, Lionetti, & Pluess, 2018).

These results confirm the importance, particularly in this potentially traumatic situation and in low SES families, of parents' emotional support to children to foster their emotional regulation abilities. The ability to adapt to the strengths of the lockdown and the quality of the household prevented parents to experience the relationship with the child as a stressful experience, and this, in turn, allowed the parent to be present as a supportive figure for the child to help him/her to appraise the potentially traumatic experience of the lockdown (Wang et al., 2020). Parents were encouraged to discuss and explain the pandemic situation to children to prevent psychological negative consequences; however, there is no clarity on how to do it, parents may be unprepared to manage these explanations and their children reactions (Dalton et al., 2020). Our study evidenced that parents involved in the everyday life of their child, that is, those asking the child how he/she feels, sharing fun moments, doing activities together, and listening to the child ideas, may foster children resilience in such a distressful situation. These activities help the child perceiving the parent as a secure base to rely upon for emotional support (Bowlby, 1988; Mesman et al., 2018) to find ways to understand the uniqueness and unexpectedness the lockdown and the reason behind the many restrictions and changes to usual social life associated with it, and to find better ways to regulate the distress (Hawkins & Manne, 2004; Liu et al., 2020; Thompson & Meyer, 2007). Whereas a less sensitive and emotionally detached parent may fail to provide the scaffolding necessary for children to co-regulate and eventually self-regulate their distress and arousal over time (Blair et al., 2008; Peisch et al., 2019).

Implications and Future Directions

Implications of our findings are relevant for clinical intervention targeting the family environment. A focus on parents and on how they deal with everyday routines not only during the emergency but also during normal circumstances may be key to prevent and avoid more serious consequences on parenting stress and children's well-being. The role of high-quality parent–child interactions and, specifically, of time to share emotions has to be promoted to help parents being supportive for children emotion regulation. Moreover, interventions may be focused especially to at-risk families that seem to have children more vulnerable but also more able to benefit from the role of parent emotional support and consequently from the intervention (de Villiers et al., 2018).

Some limitation of the study should be addressed. Firstly, our results are based on parent reports. Even if this is common practice in studies on children and online surveys were they only way to reach parents during the lockdown, a direct examination of children symptoms or a child report, would have been more appropriate. Another limitation is the cross-sectional nature of these data and, more specifically, the absence of any information pertaining parents and children well-being before the COVID-19 lockdown. This makes difficult to understand if the paths observed are specific to the COVID-19 situation or may be observed generally. The absence of longitudinal data also does not allow us test alternative models such as the recursive impact of children's difficulties in emotion regulation on parental stress. Lastly, the data were collected with an online survey leaving unexplored

the well-being of families with no access to social media and to web-connection. Even though the questionnaire was accessible also through mobile phone, widely disseminated in Italy across all levels of socioeconomic status, we still might have lost the opportunity of reaching families living in very high risk and extreme conditions.

Many other aspects not considered in our survey should address in future studies. Cross-cultural studies are needed since the pandemic affected most countries, we may expect differences in families' responses due to cultural issues and to the different impact of COVID-19 in different countries. Moreover, future studies should explore whether our models are applicable to non-emergency situations or they are characteristic of the current outbreak. Lastly, the ERC questionnaire measures children emotion regulation abilities, but it does not provide validated cutoff values with a clinical/psychopathological relevance. An administration of diagnostic tools to children who showed more emotion regulation difficulties will help in understanding which children may develop psychopathology.

Despite these limitations, this study on families during the COVID-19 might provide useful information on family's perceptions and processes at play during the lockdown. As a second wave of data collection is currently ongoing, we anticipate the opportunity of deepening our understanding of family processes at play through longitudinal modeling of data across the different phases of COVID-19.

A longitudinal exploration of family adjustment during this specific period will give us further information to develop a more accurate understanding of the long-term effects of the COVID-19 outbreak. We may expect that families who are finding more difficult coping with this potentially traumatic situation, even after only the first month of lockdown, may show difficulties that last over time, as previous studies on the effects of similar pandemic outbreaks reported (X. Liu et al., 2012), or levels of higher poor coping might become evident later, particularly if we expect a cascade effect from the parent to the child.

CONCLUSIONS

This study provides evidence that challenges imposed to families by COVID-19 outbreak may affect mental health as shown by previous studies on similar situations (Brooks et al., 2020). However, previous studies involved the general adult population, leaving the analyses of the impact of pandemic lockdown on parents and children well-being mainly unexplored. It is within the family that the child may find ways to regulate the distress exacerbated by the potentially traumatic experience of the outbreak. It is on families that the attention of Governments has to focus, and the target of interventions has to be family processes. The best way to prevent children poor coping is to support families in dealing with the challenges of having children at home and, at a dyadic level, helping the parent and the child to develop an emotionally shared relationship (Dadds, 1987). The picture of Italian families' well-being may be very similar to that of families of the other countries affected by the pandemic. There is the urgent need to support families dealing with COVID-19 lockdown now and after the health emergency is concluded. Prevention and intervention programs focused on helping parents to deal with the challenge of having to balance personal life, work, and children upbringing, can have a significant impact in fostering well-being and mental health both in parents and children.

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