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Articles

Children and Families' mental health during the first COVID-19 lockdown in Italy

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Abstract

**Background:** This study aimed to screen a wide range of emotional and behavioural variables emerging during the first COVID-19 pandemic-lockdown in a sample of parents and children, residents in the southern part of Italy, and explore which variables could predict children's wellbeing. We hypothesised that difficulties in adapting routines to pandemic restrictions, parents' emotional wellbeing, and attitude towards the pandemic could influence the children's behavioural attitudes.

**Methods:** 221 parents completed the survey and gave information about 246 children. Ad hoc questionnaires were created and then exploratory reduced in factors. *Strengths and Difficulties Questionnaire (SDQ)* for parents assessed positive and negative behavioural attitudes in children. *Depression Anxiety Stress Scale (Italian DASS-21)* scored depression, anxiety and stress in parents.

**Results:** Children presented higher emotional distress (Mean difference ( $M_{diff}$ )=0.6, 95% C.I. 0.2, 0.9,  $p=0.013$ ) and better prosocial behaviour ( $M_{diff}=0.5$ , 95% C.I. 0.1, 0.9,  $p=0.011$ ) than the Italian normative sample. Parents were more depressed than expected in the general population ( $M_{diff}=1.0$ , 95% C.I. 0.3, 1.6,  $p=0.005$ ). Having developed a morbid attachment to an adult ( $B=0.37$ , 95% CI 0.05, 0.69,  $p=0.024$ ), a higher parental depression ( $B=0.1$ , 95% CI 0.02, 0.18,  $p=0.014$ ), and children's suffering from nightmares ( $B=0.35$ , 95% CI 0.03, 0.67,  $p=0.032$ ) explained the 31.9% of the total variance in children's emotional distress. Children's anxiety was related to parents' fear of the pandemic effects ( $r=0.32$ ,  $p=0.001$ ) and avoiding communicative approach ( $r=0.24$ ,  $p=0.011$ ).

**Conclusion:** The first lockdown determined emotional distress and regressive mechanisms in children in the contest of higher parental discomfort, fear of the infection and avoidant communication. Following parents' indications, it could be helpful to provide families with informative and age-appropriate support.

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## 1. Introduction

In 2019, a new type of coronavirus, named *SARS-CoV-2*, appeared in Wuhan, China. This virus caused atypical pneumonia, characterised by febrile respiratory syndrome; complications include acute cardiac injury, acute respiratory syndrome and secondary bacterial infection (Huang et al., 2020). Since the rapid spread of the virus, on January 23, 2020, the Chinese government implemented full or partial lockdown in Wuhan and other cities of the Hubei, affecting a total of about 57 million people in the effort to epidemic containment (Griffiths & Woodyatt, 2020). As a result, the World Health Organization (WHO) declared the 2019 Coronavirus disease (COVID-19) a pandemic on March 10 2020 (World Health Organization, 2020). Italy was the first European country to face the outbreak of SARS-CoV-2; on March 9 2020, the government imposed a national lockdown to contrast the epidemic, including home confinement, social distancing, travel restrictions, and closure of schools, non-essential commercial and manufacturing activities. For most countries worldwide, including Italy, this was the first experience with a lockdown measure for a pandemic. Hence, there was a lack of information about its physical and psychological consequences.

School closure forced over 9 million Italian children and adolescents to stay home for about two months, resulting in a massive reduction of their social contacts and daily activities. Teachers from primary grade onwards provided online lectures to allow students to complete the academic year.

Early shreds of evidence collected worldwide show an impact of social isolation, the pandemic and the parents' stress on children and adolescents (Deolmi & Pisani, 2020). To date, in Italy, research addressing mental health states for children during COVID-19 lockdown is growing. Confinement and routine's changes negatively affected children and parents (Cusinato et al., 2020; Fioretti et al., 2020). Readjusting routines were complex for children who struggled with home learning, sleep patterns, and food intake (Di Giorgio et al., 2020; Mantovani et al., 2021). Indeed, compared to a vacation period, school routine makes children more physically active, reduces their time spent with electronic devices, and regulates their sleep timetable (Brazendale et al., 2017).

Children showed a wide range of psychological symptoms, such as anxiety or mood symptoms (Segre et al., 2020), low concentration, high levels of boredom, irritability and loneliness (Orgilés et al., 2020), increasing regressive and oppositional behaviours than the pre-COVID 19 periods (Pisano et al., 2020), and difficulties in breathing somatic anxiety symptoms (Smirni et al., 2020).

In addition, two studies evidenced contrasting differences between northern and southern regions in Italy. One study found a more significant reaction of anxiety in children residents in

the northern part than in Italy's southern part (Liang et al., 2020a). Another study found the opposite (Buzzi et al., 2020).

During this first lockdown, parents worked often remotely (Fegert et al., 2020), while others faced layoffs, firing or forced holidays. Thus, home confinement was challenging for parents, who had to care for their children on a full-time basis, following up their educational needs and stimulating positive learning experiences with pre-schoolers without external social support. In particular, health professionals parents faced exceptional workload and stress (Sethi et al., 2020); 85.4% of those diagnosed with COVID-19 developed psychopathologies (Moroianu et al., 2021). Hence, during the lockdown, parents were exposed to a greater risk of experiencing stress and negative emotions (Marchetti et al., 2020), with a potential cascading effect on family dynamics and children's wellbeing (Spinelli et al., 2020).

Descriptions and insights about the new challenges of clinical psychology are desirable (Settineri & Merlo, 2020). Furthermore, additional and more targeted research on children's mental health during this long-lasting pandemic experience is desirable (Racine et al., 2020) to identify more specific measures to preserve the whole family's wellbeing.

Given the novelty and complexity of the phenomenon we are facing, this study aimed to describe children and parents' health states and habits during the very early phase of the pandemic. It surveyed a convenient self-selected sample of parents, mostly residents in the southern part of Italy, that was less represented in previous studies.

The survey explored a vast number of variables: 1. families' management of the government rules; 2. their lifestyles and routines during the lockdown; 3. their relationships and communication attitudes; 4. parents' perception about feelings, strengths and difficulties of their children; 5. parents' depression, anxiety, and stress levels; 6. their worries and feelings about the pandemic and the return of their children back to school and 7. their desires for help and support. Additionally, we wanted to exploratory test which of these variables affected children's emotional wellbeing.

We hypothesised that difficulties in adapting routines to pandemic restrictions, parents' emotional wellbeing, and attitude towards the pandemic could influence the children's behavioural attitudes.

## **2. Methods**

### **2.1. Participants and Procedures**

The survey was launched on the 23rd of May 2020, when the government reduced the most restrictive rules introduced during the lockdown. Two hundred twenty-one questionnaires were

collected anonymously and voluntarily by caregivers, having at least one child aged 0-18 years, resident in Italy, between the 23rd of May and the 24th of June 2020, 63% of them (N=140) filled-in within the 5th of June. The survey was administered through the platform Google Form and lasted around 15-minutes. In addition, researchers shared the survey on social networks via text or e-mail invitation. Participants were from 10 different Italian regions; most of them lived in the Southern part (N=183, 83%).

## **2.2. The Survey**

### **2.2.1. Sociodemographic data and family status**

An *ad hoc* questionnaire was created to collect 1. *parents*: gender, age, parental grade, educational achievement, number of children, employment status, changes in the parent's work setting due to the pandemic; 2. *children*: gender, age, school, adoption, and special educational and mental health needs; 3. *families' conditions*: family asset, annual family income and changes to them due to COVID-19 situation, number of home's rooms, presence of pets, and the existence of at least one external place, like a balcony or a garden, number of components living together and their medical conditions, including COVID-19 diagnoses.

### **2.2.2. Management of the government's rules and information in families.**

This section investigated families' current condition of isolation, capacity to follow the government's recommendations and knowledge about COVID 19. In addition, we explored sensitive or avoidant parents' communication regarding COVID-19 and encouragement in emotional openness and new coping strategies development in children.

### **2.2.3. Families' lifestyles during the lockdown.**

Information about regular schedules and daily routine for mealtimes and sleep hours, study and other entertainment habits; contacts with friends and parents, i.e. calls, video calls, instant messaging, social networking and videogaming; and time spent on physical activities and outdoor.

### **2.2.4. Families and children's relationships.**

These questions investigated the quality of the relationship between children and parents and other significant adults, levels of children's oppositional behaviours, and the presence of children's close confidants for advice and comfort.

**2.2.5. Children's emotions.** Questions investigated difficulties in emotions, concentration, behaviour and ability to get along with others and how these difficulties interfered with daily life. There were detected emotional reactions and feelings about COVID-19, fears of self and

other's infection, worries of losing scholastic year, friendships, future opportunities, and family's money, and the presence of nightmares, anxiety and morbid attachment behaviours.

**2.2.6. Strengths and Difficulties Questionnaire (SDQ).** It was a self-report tool designed for parents to assess children's positive and negative behavioural attitudes between 4 and 16. The questionnaire contained 25 items divided into five areas: 1) Hyperactivity and attention disturbances; 2) Conduct disturbances; 3) Emotional difficulties; 4) Peer's relationships; 5) Prosocial behaviours. We used the Italian version of the *SDQ* (Cronbach's  $\alpha$  ranged between 0.73 and 0.89) (Marzocchi et al., 2002).

**2.2.7. Parents' emotions.** These questions examined parents' worries about COVID-19, fear of self and others' infection, and the long-term impact of the pandemic on the economy and their job. They also collected worries about their child's wellbeing, future, education, child's time spent on screen, child's behaviours, and worries about other family members not living in the same home. Parents were also questioned about their preoccupations about the future, safety and living conditions, home chores, finances, and the possibility of taking care of themselves. There were also collected their worries about children came back to school.

### **2.2.8. Depression Anxiety Stress Scale (Italian DASS-21).**

A self-report questionnaire was created to score and differentiate between the core symptoms of depression, anxiety, and stress. It consisted of 21 items which investigated three areas: 1) Depression, assessing a lack of incentive, low self-esteem, and dysphoria; 2) Anxiety, comprising somatic and subjective symptoms, as well as acute responses to fear; 3) Stress, referring to persistent arousal, tension, impatience and irritability. For this study, we used the Italian version of the *DASS-21* (Cronbach's  $\alpha$  in a community sample: Anxiety, 0.74; Depression, 0.82; Stress, 0.85) (Bottesani et al., 2015).

### **2.2.9. Families' perceived need for help in response to COVID-19.**

Participants described their desire to receive advice, support or help with their children's response to the COVID-19 situation, which areas they would like help, and how they would like to receive this help.

## **2.3. Ethics**

According to the Helsinki declaration, the local ethics committee (protocol number 5/2020) approved the study, which was shared respecting individual privacy. A consent form was fully available by a link. All participants actively agreed to complete the survey by clicking the box "I accept the study's terms".

## 2.4. Statistical Analyses

Statistical analyses were performed using STATA 15 (StataCorp, 2017) and SPSS 25 (IBM Corporation, 2017). Descriptive statistics of all study variables were computed. Then, Spearman correlations were calculated to display the bivariate relationship among the single variables (ordinal and continuous). To compare SDQ and DASS-21 scores with those from the normative sample, we used Hartley-F summary non-parametric t-tests. To explore what affected children's emotional wellbeing, we inserted correlated variables as predictors in a stepwise linear regression having emotional distress of children (SDQ) as the outcome and children's gender, age and region as fixed terms.

Supplementary, we wanted to examine psychometric properties of the measures created *ad hoc*, by two-factor analyses for parents' and children's answers loading factors with eigenvalues  $\geq 1.0$ , where Cronbach's alpha and mean inter-item correlation (MIC) tested their internal consistency. The factors were then correlated to inform future study directions.

Tentatively, on 3 March 2021, a follow-up questionnaire was administered to participants to explore any changes in psychological reactions between the first COVID-19 wave and subsequent ones. The questionnaire investigated fewer variables to favourite its completion, i.e. the presence of new infections or contacts with people infected by COVID-19; furthermore, the DDAS-21 and SDQ questionnaires were re-administered to investigate parents and children's psychological health, respectively. A repeated-measures ANOVA with age and sex correction was used to analyse differences between time points in the DASS-21 and SDQ mean scores.

## 3. Results

Parents who agreed to complete the survey were prevalently mothers (N=214, 96.8%), 39 years-old (sd=5.5), graduated (N=89, 40.3%) or post-graduate (N=86, 38.9%), having one (N=111, 50.3%) or two children (N=95, 42.9%). 83.2% (N=184) were employed (38% full-time employed and 28.6% self-employed) at the time of the survey, and 41% were health professionals (N=75). 65% of parents (N=115) declared to be in a smart-working position. The families' medium earning was between 12.000 and 48.000 euros per year (N=175, 71%). However, 62% (N=137) suffered a decrease in total earning due to the COVID-19 emergency. During the lockdown, 86.4% of families (N=191) was living in the asset of mother and father (N=188) or two mothers (N=3) with children; in houses with four rooms (SD=1.3). 31% (N=68) of families also had a pet, and 79.5% (N=175) had at least a balcony or other external places to use with their children (Table 1).

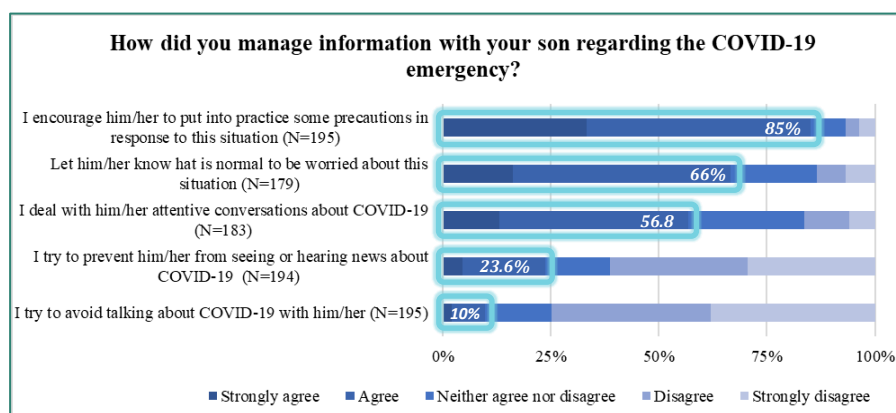
**Table 1.** Parent's characteristics

<b>Sex</b> (N=221)	
Female	214 (96.8)
Male	7 (3.2)
<b>Age</b> (N=221)	39.06 (5.5)
<b>School</b>	
None	1 (0.5)
Compulsory	2 (0.9)
Second-Grade	43 (19.4)
Degree	89 (40.3)
Post-Degree	86 (38.9)
<b>Job</b> (N=221)	
Full-time parent	36 (16.2)
Student	1 (0.5)
Self-employed	63 (28.6)
Part-time employed	37 (17.7)
Full-time employed	84 (38.0)
<b>Health profession</b> (N=184)	
Yes	75 (40.7)
No	109 (59.3)
<b>Did your work change due to the COVID-19 emergency?</b> (N=177)	
No, I am still going working	30 (16.9)
No, I was already working from home	4 (2.3)
Yes, I am in smart-working now	115 (65)
Yes, I cannot work now	22 (12.4)
Yes, I lost my work	6 (3.4)
<b>Total familial earnings Euro / per year</b> (N=221)	
<=7.000	6 (2.7)
7.000 - 12.000	25 (11.3)
12.000 - 24.000	74 (33.5)
24.000 - 48.000	83 (37.5)
48.000 - 96.000	32 (14.5)
>96.000	1 (0.5)
<b>Did the total earn decrease due to the COVID 19 emergency?</b> (N=221)	
Yes	137 (61.9)
No	84 (38.1)
<b>N° of children</b> (N=221)	
One	111 (50.3)
Two	95 (42.9)
Three	15 (6.8)
<b>Living conditions</b>	
<b>Who lives in your home?</b> (N=221)	
Mother, father and child/children	188 (85)
Mother only	8 (3.5)
Two Mothers	3 (1.4)
Mother, father and other family members	14 (6.4)
Mother and other	8 (3.7)
<b>How many rooms?</b> (N=221)	4 (1.3)
<b>Pets</b> (N=221)	
Yes	68 (30.8)
No	153 (69.2)
<b>External spaces</b> (N=221)	
Yes	175 (79.5)
No	46 (20.5)

The referred health of families was generally good, with only 21% (N=46) of mothers, 14.3% (N=29) of fathers and 7.7% (N=16) of children presenting with one health problem. Only four among family members and two among children in the whole sample were diagnosed with COVID-19. Nine family members (N=2) and children (N=7) had only a suspect infection.

### 3.1. Management of the government's rules and information in families.

The 68.7% (N=152) of families were not isolated but practising social distancing to be prudent at the interview time, while 13.1% (N=29) lived the same routine as before the lockdown. 95.9% (N=212) of parents declared to strictly follow the government's recommendations to prevent the spread of COVID-19, and 70% (N=167) of children were referred to do the same. 76% of parents (N=168) declared good to excellent information about COVID-19, but only 24.3% (N=58) of children were well-informed. 85% of parents (N=166) encouraged their children to put into practice some precautions in response to the emergency, 66% (N=119) normalized the child's worries about the current situation, and 56.8% (N=104) took attentive conversations with their child about COVID-19. 23.6% (N=46) of parents tried to prevent their child from seeing or hearing information, and only 10% (N=19) avoided any conversation with their child about COVID-19 (Figure 1).



**Figure 1.** Parents' information management with children

*3.2. Families' lifestyles during the lockdown.* Families challenged to maintain a similar scheduled routine, with 60% of them able to preserve meal times adequately and sleep hours (N=138, 59.5%) and study and other entertainments habits (N=143, 62.2 %) as before. Around 50% of children spent less than 30 minutes per day wasting energy on physical activities (N=107, 43.5%) or staying outdoors (N=128, 52.1%). Children stayed in contact at least once a day with their friends by Whatsapp and SMS (N=77, 53.8%), or playing videogames (N=77, 49%), while 43.5% (N=87) used video calls. The preferred way to contact other family members was by video calls (N=144, 66.7%), calls (N=125, 64.4%), and Whatsapp and SMS (N=83, 55.7%), used once a day at least (Figure 2).



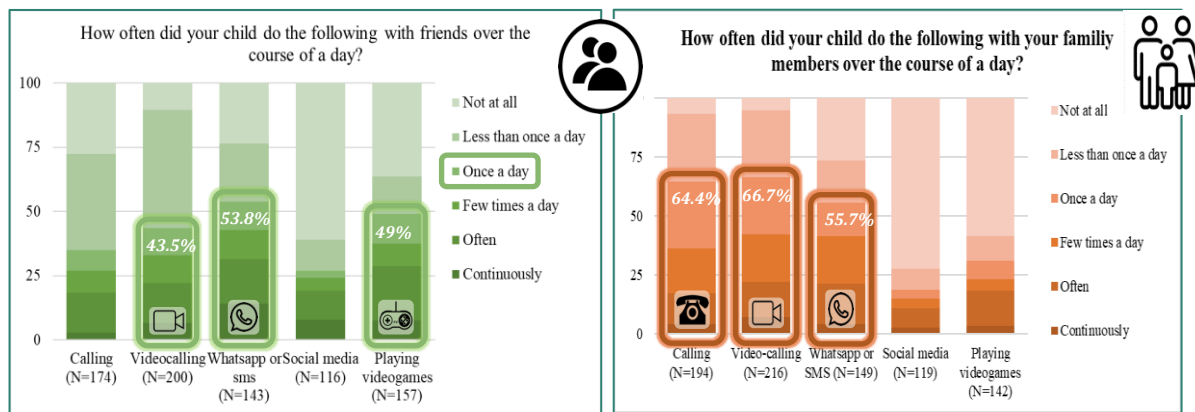


Figure 2. Children's contacts with other family members and friends

3.3. Families and children's relationships.

Parents referred a good emotional relationship with their child in 75% of cases (N=171) and between the child and other adults (N=141, 62.6%) or children at home (N=59, 48%). The partner's relationship was referred good in 79.3% of cases (N=176), while conflictual communication was very low. Lastly, parents perceived that their child would have no problems turning to an adult for advice and comfort (N=61, 63%) and referred at least a good friend their child confiding in (N=41, 46.9%) on an adequate basis (Figure 3).

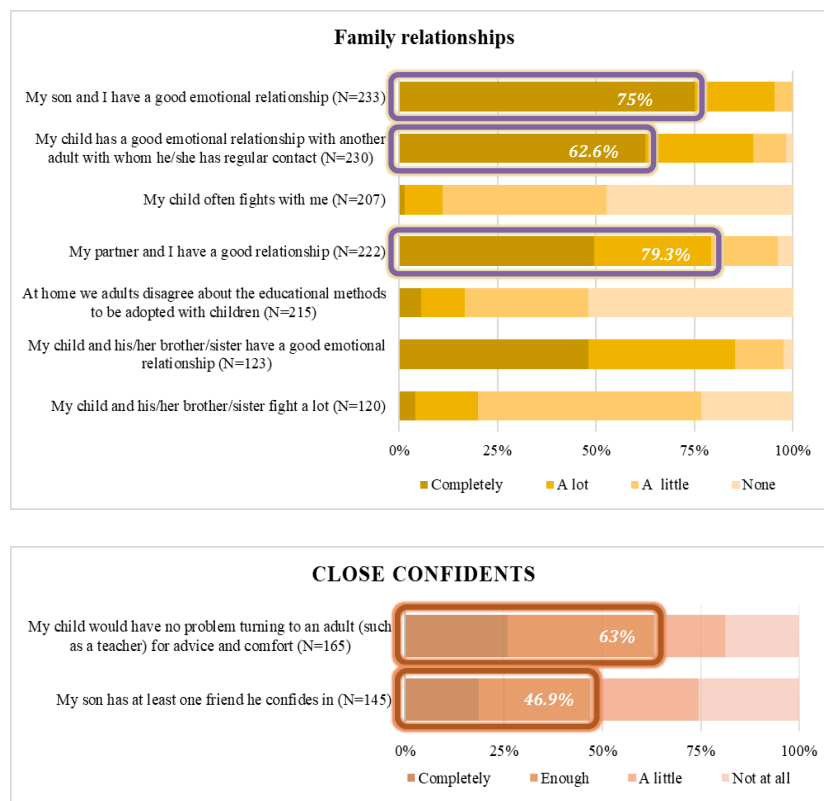
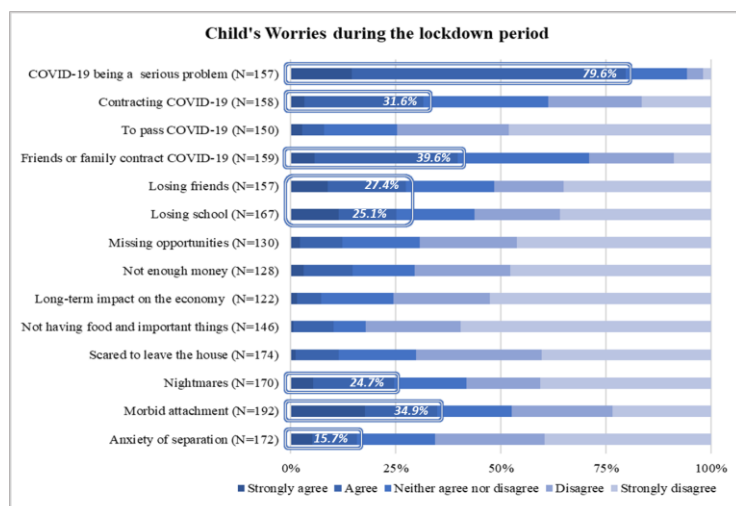


Figure 3. Children's close relationships

**3.4. Children's emotions.** Parents refer that 79.6% of children (N=125) think that COVID-19 is a severe problem and more than 30% of them is worried that friends, family members (N=63, 39.6%) or their selves (N=50, 31.6%) could contract it. Furthermore, losing friends (N=43, 27.4%) and school (N=42, 25.1%) are worries present in at least 25% of the sample. In addition, 34.9% (N=67) developed a morbid attachment for a family member, while 24.7% (N=42) experimented with nightmares and 15.7% (N=27) developed anxiety of separation during the lockdown period (Figure 4).



**Figure 4.** Child's worries

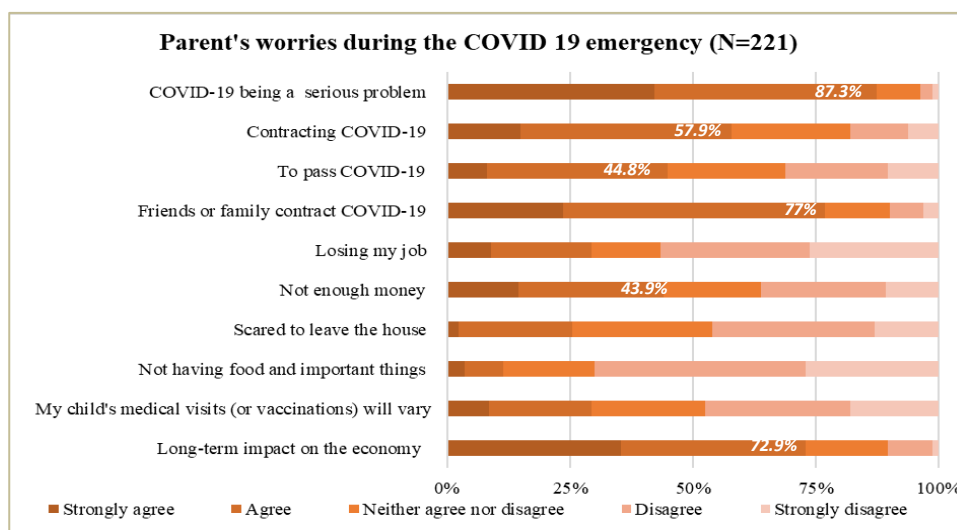
The Strengths and Difficulties Questionnaire (SDQ) was filled-in for 165 children and resulted in sub-clinical scores in each of the four difficulties subscales (all scores lower than four) and in the strength subscale (scores higher than four). However, nearly one in three scored mild to severe emotional distress (29.5%) and problematic peer relationships (30.2%), with the former presented higher scores than the Italian normative sample. The Emotional Distress (Cronbach's  $\alpha=0.72$ ) and the Prosocial Behaviour scales (Cronbach's  $\alpha=0.71$ ) had the best reliability. They presented higher scores than the Italian normative sample, thus indicating higher emotional suffering (Mean difference ( $M_{diff}$ )=0.6, 95% C.I. 0.2, 0.9,  $p=0.013$ ) and better prosocial behaviour ( $M_{diff}=0.5$ , 95% C.I. 0.1, 0.9,  $p=0.011$ ) than that expected in the general population. Parents scored their child's difficulties as mild in the 43% of the cases (N=37), and that 70% of children suffered from less than one month (N=19, 22%) or 1-5 months (N= 41, 47%). However, more than 25% of parents indicated that some of the difficulties scored at the SDQ thoroughly caused severe family discomfort (N=27, 27.6%) and interfered with family life (N=25, 25.5%) (Table 3).

**Table 3.** Summary t-test comparison of the sample's scores at SDQ subscales with the Italian normative sample

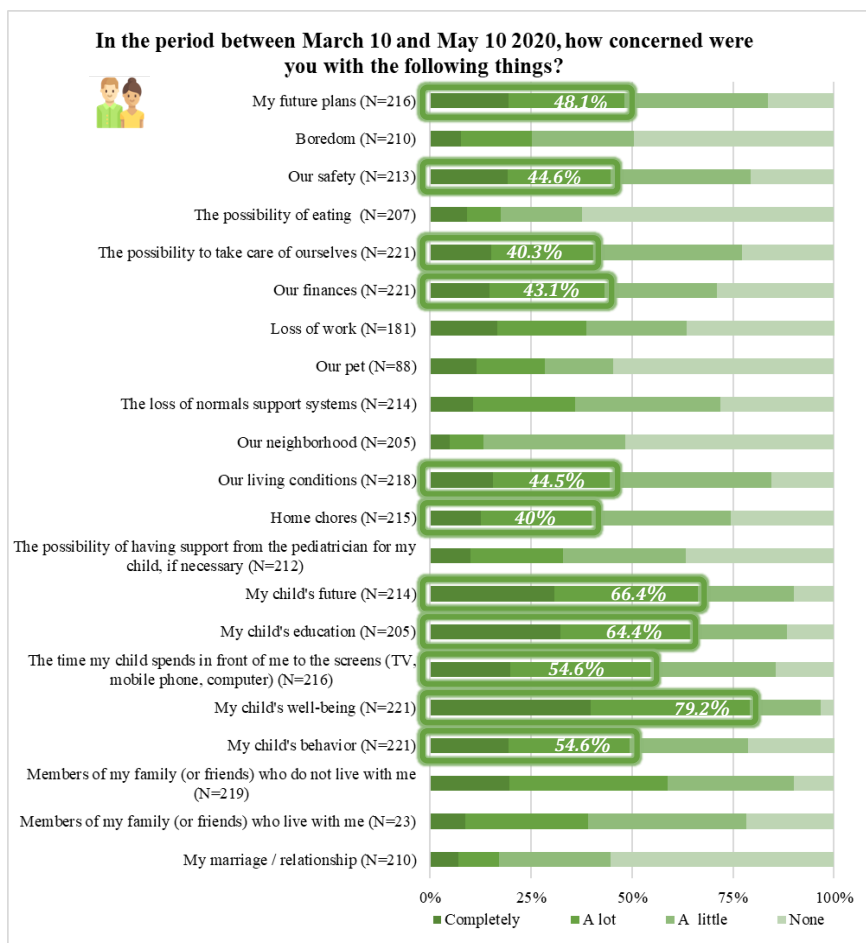
N=165	M (SD)	Cronbach's $\alpha$	Differences with the normative sample <sup>b</sup>		
			Hartley test ( <i>F</i> )	M <sub>diff</sub> (95% C.I.)	<i>p</i>
<b>Emotional distress</b>	2.6 (2.2)	0.72	1.05	0.5 (0.1, 0.9)*	<b>0.011</b>
<b>Behavioural problems</b>	2.0 (2.4)	0.43	1.20**	0.1 (-0.2, 0.5) <sup>a</sup>	0.453
<b>Hyperactivity</b>	3.1 (1.9)	0.55	2.47**	-0.2 (-0.6, 0.2) <sup>a</sup>	0.311
<b>Peer relationships</b>	1.8 (1.3)	0.3	2.36**	0.05 (-0.21, 0.31) <sup>a</sup>	0.708
<b>Prosocial behaviour</b>	7.1 (2.1)	0.71	1.61**	0.6 (0.2, 0.99) <sup>a*</sup>	<b>0.003</b>

\* $p < 0.005$ ; \*\* $p < 0.001$ . <sup>a</sup> Equal variances not assumed. <sup>b</sup> Bottesi et al., 2015.

**3.5. Parents' emotions.** The parents' worries were mainly due to the awareness of COVID-19 being a severe problem (N=193, 87.3%). More than 70% of parents were worried that friends or family members could contract it (N=170, 77%) and the pandemic's long-term impact on the economy and their job (N=161, 72.9%). 57.9% (N=128) were also worried to contract the virus. More than 40% were worried to pass COVID-19 to others (N= 99, 44.8%) and about total familial earning (N= 97, 43.9%) (Figure 5).

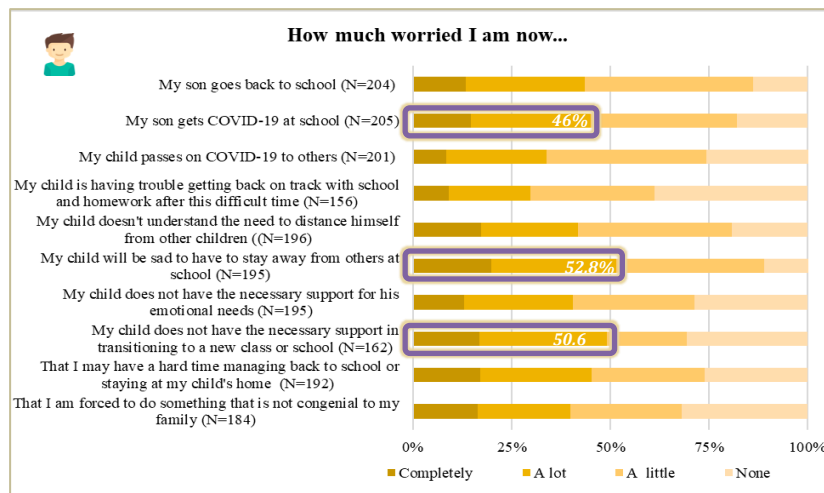
**Figure 5.** Parents' worries

During the lockdown, more than 60% of parents were worried about their child's wellbeing (N= 175, 79.2%), future (N=142, 66.4%), and education (N=132, 64.4%). At least 50% referred worries about the child's time spent in front of screens 54.6% (N=118) and their child's behaviour (N=109, 49.3%). Almost 60% was worried about other family members not living in the same home (N=129, 58.9%). At least 40% of parents expressed preoccupation about their future plans (N=104, 48.1%), their safety (N=95, 44.6%), and living conditions (N= 97, 44.5%), the home chores (N=86, 40%), their finances (N=91, 43.1%) and the possibility to take care of their selves (N=85, 40.3%) (Figure 6).



**Figure 6.** Parents’ long-term worries

Finally, we asked parents how much they were worried about their child’s perspective coming back to school. Most concerns were about the children’s negative emotions to have to stay away from others at school (N=103, 52.8%) and the absence of support to children transitioning to a new class or school (N=82, 50.6%). In addition, 46% of parents were worried that their children could contract COVID-19 at school (N=94) (Figure 7).



**Figure 7.** Parents and their children’s school

At the DASS, all scores were subclinical, but participants were more depressed than the community Italian sample ( $M_{diff}=1.0$ , 95% C.I. 0.3, 1.6,  $p=0.005$ ) (Table 4).

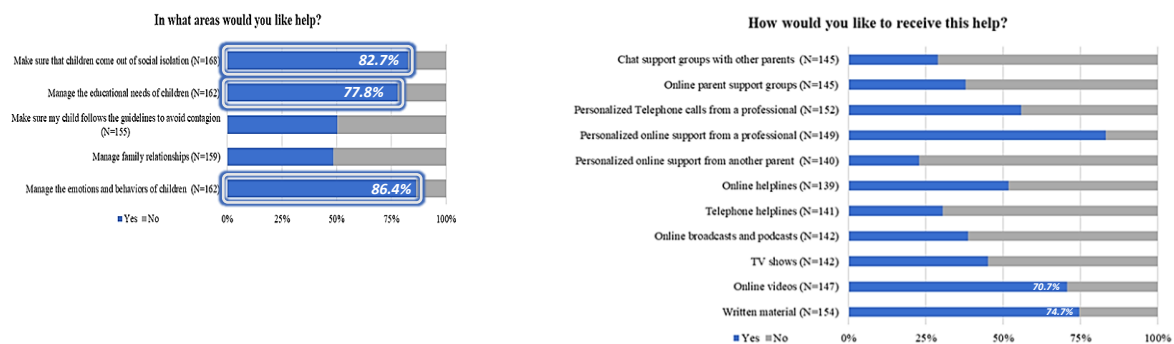
**Table 4.** Summary t-test comparison of the sample's scores at DASS 21 with the Italian normative sample

N=221	M (SD)	Cronbach's $\alpha$	Differences with the normative sample <sup>b</sup>		
			Hartley test ( <i>F</i> )	$M_{diff}$ (95% C.I.) <sup>a</sup>	<i>p</i>
<b>DASS 21 Depression</b>	4.5 (4.7)	0.90	2.15**	1.0 (0.3, 1.6)*	<b>0.005</b>
<b>DASS 21 Anxiety</b>	2.9 (3.9)	0.84	2.29**	0.54 (-0.3, 1.1)	0.068
<b>DASS 21 Stress</b>	6.8 (5.2)	0.91	1.89**	0.43 (-0.3, 1.2)	0.277
<b>DASS 21 Total</b>	14.3 (12.4)	0.94	2.25**	2.02 (0.1, 3.8) *	<b>0.032</b>

\* $p<0.005$ ; \*\* $p<0.001$ . <sup>a</sup>. Equal variances not assumed. <sup>b</sup> (Marzocchi et al., 2002).

### 3.6. Families' perceived need for help in response to COVID-19.

The two-thirds of the sample ( $N=150$ , 68%) reported that there could be helpful to receive advice, support or help with their child's response to the COVID-19 situation in the managing of their behaviours, emotions ( $N=140$ , 86.4%), and educational needs ( $N=126$ , 77.8%), and making sure that they came out from the social isolation ( $N=139$ , 82.7%). They also indicated the preferred ways to receive this support online, by personalized support from a professional ( $N=124$ , 83.2%), written material ( $N=115$ , 74.7%), and videos ( $N=104$ , 80.7%) (Figure 8).



**Figure 8.** Families' needs for help

### 3.7. Which variables related to children's Emotional distress?

Emotional distress was higher in older children ( $r=0.173$ ,  $p=0.028$ ), and related to higher parents' scores in depression ( $r=0.324$ ,  $p>0.001$ ), anxiety ( $r=0.271$ ,  $p=0.001$ ) and stress ( $r=0.225$ ,  $p=0.006$ ) at DASS. Children with higher emotional distress were also more worried about losing opportunities in their future ( $r=0.214$ ,  $p=0.024$ ), suffered from nightmares ( $r=0.262$ ,  $p=0.002$ ) and anxiety of separation ( $r=0.311$ ,  $p<0.001$ ), and developed a morbid attachment to an adult ( $r=0.377$ ,  $p<0.001$ ) during the lockdown. There was also a correlation

between higher emotional distress and frequent fights between the child and the parent ( $r=0.234$ ,  $p=0.004$ ) and brothers or sisters ( $r=0.295$ ,  $p=0.004$ ). Instead, children with lower emotional distress were more likely to have preserved a similar routine as before the lockdown in the meal and sleep times ( $r=-0.185$ ,  $p=0.019$ ) in studying and playing times ( $r=-0.227$ ,  $p=0.004$ ). They spent more hours in daily physical activities ( $r=-0.175$ ,  $p=0.028$ ), and they were more likely to turn to an adult for advice and comfort ( $r=-0.194$ ,  $p=0.024$ ).

Having developed a morbid attachment to an adult explained 15.3% of the variance more than the sociodemographic variables alone ( $B=0.37$ , 95% CI 0.05, 0.69,  $p=0.024$ ), a higher parental depression added another 4.8% ( $B=0.1$ , 95% CI 0.02, 0.18,  $p=0.014$ ), and children's suffering from nightmares increased another 4% of the predictive power ( $B=0.35$ , 95% CI 0.03, 0.67,  $p=0.032$ ). The model explained 31.9% of the total variance in children's emotional distress (Table 5).

**Table 5.** Model Summary Regression to Predict Emotional Distress of Children During the Lockdown

Model	R	R <sup>2</sup>	R <sup>2</sup> <sub>Adj</sub>	SE <sub>estimate</sub>	R <sup>2</sup> <sub>Change</sub>	F <sub>Change</sub>	df1	df2	<i>P</i> -value
1	0.279 <sup>a</sup>	0.078	0.045	1.980	0.078	2.364	3	84	0.077
2	0.481 <sup>b</sup>	0.231	0.194	1.819	0.153	16.549	1	83	0.000
3	0.528 <sup>c</sup>	0.279	0.235	1.772	0.048	5.431	1	82	0.022
4	0.565 <sup>d</sup>	0.319	0.269	1.733	0.040	4.783	1	81	0.032

a. Predictors: (Constant), Region, children's sex, children's age.

b. Predictors: (Constant), Region, children's sex, children's age, morbid attachment.

c. Predictors: (Constant), Region, children's sex, children's age, morbid attachment, DASS\_D

d. Predictors: (Constant), Region, children's sex, children's age, morbid attachment, DASS\_D, nightmares.

### 3.8. Exploratory analysis

Parents' attitude and worries about COVID-19 during lockdown were assessed with 15 items created *ad hoc*, rated on a five-point scale ranging from 0 (strongly disagree) to 4 (strongly agree) (Figure 1 and 5). Exploratory factor analysis (EFA) suggested a four-factor solution: 1) fear of infection (five items;  $\alpha=0.85$ ; MIC=0.54); 2) fear of pandemic effects (five items;  $\alpha=0.76$ ; MIC=0.54); 3) focused parenting (three items;  $\alpha=0.83$ ; MIC=0.62); 4) avoidant parenting (two items;  $\alpha=0.69$ ; MIC=0.66) (Table 6).

**Table 6.** Exploratory Factor Analysis on Parents' Attitude and Worries About COVID-19

	Fear of infectio n	Fear of pandemi c effects	Focused parenting	Avoidant parenting
I am worried to contract COVID-19	0.85			
I am concerned that friends or family may contract COVID-19	0.84			
I am scared to leave the house during this time	0.76			
I am worried to pass COVID-19 to someone else	0.76			
I think COVID-19 is a severe problem	0.72			
I am worried about losing my job		0.84		
I am worried about the family's incomes		0.83		
I am worried that we'll not have enough food and primary resources during the emergency		0.65		
I am concerned about the long-term impact that COVID-19 will have on the economy and my job plans		0.63		
I am concerned about the variation in my child's medical examinations (or vaccinations)		0.47		
All the conversations I have with my child about the current situation and COVID-19 are dealt seriously			0.88	
I talk my son about how it is normal to be worried about the current COVID-19 situation			0.88	
I encourage my son to take some precautions in response to the COVID-19 situation			0.84	
I try to avoid talking to my son about COVID-19				0.87
I try to prevent my child from seeing or hearing news or information about COVID-19				0.87

Emotional reactions and feelings about COVID-19 experienced by children were assessed with nine ad hoc questions rated on a five-point scale ranging from 0 (strongly disagree) to 4 (strongly agree) (Figure 4). Exploratory factor analysis (EFA) suggested a two-factor solution: 1) fear of infection (four items;  $\alpha=0.75$ ; MIC=0.45); 2) anxiety (five items;  $\alpha=0.83$ ; MIC=0.89) (Table 7).

**Table 7.** Exploratory Factor Analysis on Children's Worries About COVID-19

	Anxiet y	Fear of infection
He/she is worried about losing friends	0.82	
He/she is anxious when one of our family leaves the house	0.81	
He/she is worried about losing school year	0.72	
He/she has developed a morbid attachment to other family's members or to me	0.72	
He/she has nightmares during this time	0.71	
He/she is worried about contracting COVID-19		0.85
He/she is concerned that friends of the family may contract COVID-19		0.81
He/she is scared to leave the house during this time		0.65
He/she thinks COVID-19 is a severe problem		0.61

Parents and children's fear of infection were related to each other ( $r=0.32$ ,  $p=0.001$ ), while children's anxiety was higher if parents had higher fear of the pandemic effects ( $r=0.32$ ,  $p=0.001$ ) and when they adopted an avoiding communicative approach to the situation ( $r=0.24$ ,  $p=0.011$ ) (Table 8).

**Table 8.** Exploratory Factor Analysis on Parent's Worries About COVID-19

	1.	2.	3.	4.	5.	6.
<b>1. Parent's fear of infection</b>	-					
<b>2. Parent's fear of pandemic effects</b>	0.02	-				
<b>3. Focused parenting</b>	-0.05	0.06	-			
<b>4. Avoidant parenting</b>	0.05	0.05	-0.05	-		
<b>5. Child anxiety</b>	0.04	0.32*	0.03	0.24*	-	
<b>6. Child fear of infection</b>	0.32*	0.08	0.16	-0.02	-0.05	-

\*Sig. at  $\leq 0.05$

### 3.9. Follow-up data on fifty-nine parents and their children

Fifty-nine follow-up questionnaires were collected. Participants' sociodemographic characteristics were representative of the original sample (all  $p$  values were  $>.05$ ). None of the children was infected by COVID-19, while only one family's member contracted the virus. Results on DASS-21 showed a significant worsening on all the dimensions analysed (depression ( $F(1, 56)=5.334$ ,  $p=.025$ ); anxiety ( $F(1, 56)=5.818$ ,  $p=.019$ ); and stress ( $F(1, 56)=4.923$ ,  $p=.031$ ) in parents. The SDQ scores slightly increase in all dimensions without reaching statistical significances, with a higher increase in difficulties experimented in peer relationships (emotional distress ( $F(1, 37)=.125$ ,  $p=.726$ ); behavioural problems ( $F(1, 37)=.110$ ,  $p=.742$ ); prosocial behaviours ( $F(1, 37)=.375$ ,  $p=.544$ ); and hyperactivity ( $F(1, 37)=.748$ ,  $p=.393$ ); peers' relationship ( $F(1, 37)= 2.635$ ,  $p=.113$ )).

## 4. Discussion

This study aimed to screen a wide range of emotional and behavioural variables during the first lockdown in a sample of parents, residents in the southern part of Italy and explore which variables could predict children's wellbeing in these challenging times.

Our sample was very similar to other Italian studies' samples in terms of the higher proportion of mothers answering, as compared to fathers, their mean age, employment state and education (Liang et al., 2020b; Marchetti et al., 2020; Orgilés et al., 2020; Pisano et al., 2020; Spinelli et al., 2020). In addition, mothers from middle-income families were represented, thus profiling the median audience of such online surveys, available to fill in a medially lengthy questionnaire about their children's psychological wellbeing. This evidence suggests the implementation of future studies to reach a more representative sample than those generally described.



There were several protective factors (Spinelli et al., 2020): such as living in a region at low risk at the moment of the survey, in houses that were generally big enough for a four-component median family, with at least an external place to use, and in families experimenting a good health condition of their components and no conflictual relationships. On the other hand, most families experimented with a decreased income, professional uncertainty, and a new working condition at home (smart-working), which probably increased their negative emotions (Cusinato et al., 2020; Delmastro & Zamariola, 2020).

Parents reported several worries about their children's safety, education and future, resulting in higher levels of depression than expected in the general population (see also Romero et al., 2020). Our sample was almost entirely constituted of mothers at risk of developing distress (Mazza et al., 2020), probably because they managed the most of the additional housework and childcare during the pandemic (Del Boca et al., 2020). They were in a condition where they had to balance personal life, work from home, and raise little children (Benassi et al., 2020; Bruno et al., 2020; Marchetti et al., 2020) by providing to their educational needs in a new condition of online lessons.

Indeed, parents referred to contrasting emotions about the perspective of their children's coming back to school, with a balance between fear of the infection at school and worries about children's isolation and loss of sustain. 41% were healthcare professionals, who are particularly at risk (Sethi et al., 2020). Families tried to maintain the same routine as before, but it was inevitably changed due to the government's instructions that families mostly followed. However, previous literature (Wang et al., 2020) and guidelines on preserving children's mental health (Dalton et al., 2019; GOV.UK, 2020) highlighted the value of routines in providing safety and stability in the context of uncertainty and correlations in our sample confirmed this intuition. Researchers have suggested simple advice for children (Ferraro et al., 2020) and adults in order to reduce the risk of developing mental health problems: limit the sources of stress, break the isolation even if at a distance, maintain the usual rhythm, focus on the benefit of the isolation, and ask for professional help (Fiorillo & Gorwood, 2020).

Parents were concerned about their children's increased screen time. Indeed, coupled with other risk factors, it has been related to increasing weight in children (Pietrobelli et al., 2020) and the risk to develop problematic online gambling (Frisone et al., 2020). On the other hand, phones, video calls, and video games were the only way children could contact or play with their friends and other family members. Future studies should focus on the brain's impact after this experience, which forced all of us to connect for so long only through the new technologies, probably impacting the developing minds more than others.

Two third of children showed good emotional wellbeing and non-clinical scores on SDQ. However, emotional distress was medially higher in our sample than the general population, with a better propensity to prosocial behaviours. Indeed, parents referred to a good attitude of their children in their close relationships, which let us wish about “a sort of new herd immunity” against these isolation times, as Settineri and Merlo (2020) suggest.

Most of the children were in the early stage of their development (five-six years old); their emotional distress increased at increasing age. It mainly was expressed with nightmares and morbid attachment with an adult and related to higher parental depression (see also Spinelli et al., 2020). This finding suggests a regressive mechanism in a contest with higher familial discomfort.

The factorial analysis suggested the fear of the infection differing from the fear of the pandemic effects, both in parents and children. Not surprisingly, parents’ fear of the infection was related to children’s fear of the infection and children’s anxiety related to their parent’s fear of the pandemic effects and an avoidant parental communication approach about the pandemic.

This last result is of particular interest. We could hypothesise that avoiding an argument capable of upsetting adults could produce anxiety in children. This pandemic created an underlying uncertainty, which has become media noise, an “infodemic” defined as an overload of online and offline information (WHO World Health Organization, 2020). On the other hand, it has constituted a sense of disorientation and displacement of the “common man,” who failed in the first part of this experience to get a clear idea to support his adaptation skills effectively. In this context, the management of information sources becomes a primary task for parents. Parents should adopt a communicative approach, sustain their self-efficacy (Morelli et al., 2020), receive doubts and fears of the child, and providing useful information to prevent the contagion (Romero et al., 2020). Of note, we know that regular media and social media use was found as a predictor for fear of the coronavirus’ development (Mertens et al., 2020).

Previous studies highlighted the importance of sensitive and effective communication about life-threatening events (Dalton et al., 2019) because when children experience a lack of information, they attempt to make sense of the situation on their own, with the risk of a misinterpretation (Christ & Christ, 2006; Edwards & Davis, 1997). Therefore, addressing families information management is an essential component of a community-led response to the COVID-19 pandemic (Dalton et al., 2020). In addition, some studies have identified intolerance to uncertainty as an essential vulnerability factor for the development of psychopathology during the pandemic (Bakioğlu et al., 2020; Deniz, 2021; Parlapani et al., 2020; Rettie & Daniels, 2020; Satici et al., 2020; Smith et al., 2020). Intolerance to uncertainty refers

to negative subjective emotions that develop in response to situations or contexts in which sufficient and precise information is not available to understand what is happening. Negative emotions may include frustration, anger and rage, anxiety in varying degrees, from concern to panic, and the feeling of helplessness of the situation (Freeston et al., 2020). Suppression, which allows the subject to remove disturbing content from consciousness, has been identified as the mechanism used to counter pandemic uncertainty and maintain wellbeing (Merlo et al., 2021).

The worsening of anxiety, depression and stress in parents at follow-up was higher than in their children. This finding suggests that prolonged exposure to the pandemic condition affects the mental health of adults the most in the short term. Thus, we can imagine that prolonged quarantine's duration, lack of clear institutional information, and economic difficulties have contributed to worsening mental health in the adult population (Brooks et al., 2020). On the other hand, these data also suggest good resilience of very young children (aged  $\leq 6$ ), apart from higher sufferance in the relationship with their peers. However, the paucity of the data collected and their limitation to solely two tests prevent from drawing firm conclusions about risk and protective factors intervening.

Finally, parents perceived a need for help with their child's response to the pandemic situation and declared to prefer online personalised professional support, videos or written material. Online mental health services, including hotline, psychiatric interview, counselling, and Read-Reflect-Share group bibliotherapy, have been tested during the COVID-19 pandemic with successful results (Tanhan et al., 2020). However, no guidelines were developed for the Italian population, nor the international guidelines were translated into Italian languages. This lack of information from public health institutions needs to be addressed, providing parents with knowledge such as 1. Distress and mental disturbances' signals in children and adolescents; 2. Best practices and attitude to talk about COVID-19 topic and negative emotions associated; 3. Strategies to maintain or develop new healthy schedules and routines and regularly contact with significant ones; 4. Support with online learning, providing hardware facilities and classroom services tips and tutorials; 5. To monitor healthy screen times.

## **5. Limitations**

This study results should be interpreted in light of its limitations. Firstly, no data on the effects of the COVID-19 pandemic were available at the investigation time. Therefore, we used a cross-sectional online survey to recruit an Italian sample that experienced home confinement. Due to the cross-sectional study design, causality cannot be inferred; further longitudinal data are needed. Moreover, we used only parent self-report measures to collect children's information, with the risk of potential bias. In addition, we used ad hoc questionnaires to capture specific

COVID-19-related factors along with validated psychological assessment measures. Finally, the sample was small but comparable to other Italian study samples regarding sociodemographic characteristics.

## **6. Conclusion**

This pandemic is becoming a colossal sociological and psychological experiment, representing a generalized traumatic experience and a pressure for the mass psyche. During its first wave, Sicily and other southern regions went into lockdown without direct perception of the pandemic. Indeed, a reduced number of positive COVID-19 cases was detected, as our sample also reports. However, the unpredictability of the situation, which became a psychological, economic, and social emergency, made a massive change to our ability to adapt to the world, relationships, and life. Our “mental tissue” was devoid of defensive mechanisms, and a sort of “anticipatory grief” (Settineri & Merlo, 2020) was probably part of our response to this situation. Children are particularly at-risk, and we are now sadly aware that the pandemic will be a long-lasting problem, and new extraordinary measures will probably be adopted to prevent further disasters. This study suggests that the first lockdown impacted parents and children of a population considered at low-risk and residents in the southern part of Italy. It determined emotional distress and regressive mechanisms in rising children, when verbal communication became crucial, in the contest of higher parental discomfort, fear of the infection and avoidant communication. Following parent’s indications, it could be useful to provide them with informative and age-appropriate video and professional support to motivate children to seek healthy lifestyles and *guidelines on communication approaches to promote families’ wellbeing during the pandemic*.

## **Conflict of Interest Statement**

The authors declare that the research was conducted in the absence of any potential conflict of interest.

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