Revista de Psicología Clínica con Niños y Adolescentes

Parenting and child mental health during the COVID-19 pandemic: An online study with Portuguese and British Families

Ana Isabel Pereira[1], Paul Stallard[2], Magda Sofia Roberto[1], Marlene Sousa[3], & Luísa Barros[1]

[1]*CICPSI, Faculdade de Psicologia, Universidade de Lisboa, Portugal*
[2]*Department for Health, University of Bath, UK*
[3]*ProChild CoLAB, Guimarães, Portugal*

Abstract

COVID-19 and the subsequent public health response created many additional stresses for families. We examined parental behaviour during the COVID-19 pandemic in two European Countries and explored the association between parents' behaviour and children's anxiety and quality of life. Caregivers of children and adolescents ($N = 442$; 86.7% mothers) between 6 and 16 years old ($M = 10$, $SD = 2.85$) participated in an online cross-sectional survey in Portugal and the United Kingdom. Results show that higher children's anxiety and lower quality of life were associated with higher levels of unrealistic parental demands, lower parental self-care, and higher parental emotional dysregulation. Encouragement of children's emotion expression and management of exposure to COVID-19 information was negatively associated with children's anxiety. Promotion of routines, support of children's emotion modulation and promotion of children's healthy lifestyles were positively associated with children's quality of life. The predictors differed according to country and age group. These results highlight the importance of specific parenting behaviours on children's mental health during COVID-19. The need to moderate unrealistic demands and attend to parental self-care to reduce parental emotional dysregulation is important.
Keywords: Parenting; child's anxiety; child's quality of life; COVID-19.

Resumen

Parentalidad y salud mental infantil durante la pandemia de COVID-19: Un estudio online con familias Portuguesas y Británicas. COVID-19 y la subsiguiente respuesta de salud pública crearon muchas tensiones adicionales para las familias. Examinamos el comportamiento de los padres durante la pandemia de COVID-19 en dos países europeos y exploramos la asociación entre el comportamiento de los padres y la ansiedad y la calidad de vida del niño. Cuidadores de niños y adolescentes ($N = 442$; 86.7% madres) entre 6 y 16 años ($M = 10$, $DT = 2,85$) participaran en una online encuesta en Portugal y en el Reino Unido. En los resultados se observa que la mayor ansiedad y una menor calidad de vida de los niños se asociaron con niveles más altos de demandas parentales poco realistas, menor autocuidado y mayor desregulación emocional de los padres. El estímulo a la expresión de las emociones de los niños y el manejo de la exposición a la información de COVID-19 se asoció negativamente con la ansiedad de los niños. La promoción de rutinas, el apoyo a la modulación de las emociones de los niños y la promoción de estilos de vida saludables de los niños se asociaron positivamente con la calidad de vida de los niños. Los predictores difirieron según el país y el grupo de edad. Estos resultados resaltan la importancia de comportamientos parentales específicos en la salud mental de los niños durante el COVID-19. La necesidad de moderar las demandas poco realistas y prestar atención al autocuidado de los padres para reducir la desregulación emocional de los padres es importante.
Palabras clave: Parentalidad; ansiedad en los niños; calidad de vida en los niños; COVID-19.

On 11 March 2020, the World Health Organisation declared COVID-19 a global pandemic (WHO, 2020). The initial COVID-19 priority was upon physical health (Witt et al., 2020), with countries introducing mandatory public health infection control measures to reduce transmission rates, including home confinement, school closure, and restriction of mobility. The broader effects of COVID-19 on

mental health were quickly recognised (Galea et al., 2020; Holmes et al., 2020), and whilst children experienced the lowest hospitalisation and mortality rates (Choi et al., 2020), they were particularly vulnerable to the negative effects of lockdown and social distancing (Crawley et al., 2020; Francourt et al., 2021; Waite et al., 2021). Families had to quickly adapt to the challenges COVID-19 imposed on everyday life

Corresponding author:
Ana Isabel Pereira,
Faculdade de Psicologia da Universidade de Lisboa,
Alameda da Universidade, 1649-013 Lisboa, Portugal,
Email: aipereira@psicologia.ulisboa.pt

(Russell et al., 2020). Parents had to reconcile the demands of work and domestic life in a situation of home confinement, remote working, unstable financial arrangements as well as assuming responsibility for educating their children (Witt et al., 2020). Simultaneously, they had to support their family and children with less help from formal and informal social networks and providers (Crawley et al., 2020). Children were confronted with critical changes in their lives, including social isolation, school closures, perceived threats to the health of family members as well as their own, personal loss, and uncertainty about the future (Dalton et al., 2020). These circumstances have placed increased stress on parents and children (Cameron et al., 2020; Waite et al., 2021).

Individual differences concerning the negative impact of the COVID-19 pandemic are mediated by a number of unique risk and resilience factors (Bonanno et al., 2010). These include the child's development, impact on the family and family resources (Masten & Motti-Stefanidi, 2020; Murray, 2010). Of particular importance is how parents deal with the stressors that confinement imposes and how they help their children to adapt to these challenges (Spinelli et al., 2020; Waite et al., 2021).

Resilience literature identified several promotive and protective parenting behaviours that can foster adaptation and decrease the negative consequences of adversity on children's mental health (Masten & Barnes, 2018). A caregiving relationship, characterised by structure (Bater & Jordan, 2017), warmth (Bayer et al., 2011), and supportive practices that help the child express and regulate their emotions (Pereira et al., 2017), is protective.

Other parenting behaviours, such as promoting the child's physical activity and a healthy diet, may also be relevant since school closure and home confinement contribute to less physical activity, a more sedentary and overall less healthy lifestyle (Pombo et al., 2021; Wang et al., 2020). Finally, parents play a central role in mediating and managing information related to the pandemic. Daily information about infection rates and deaths, conjectures on the evolution of the pandemic and its impact can be highly anxiogenic to parents and youth (Dalton et al., 2020). Therefore, parents need to effectively communicate with their children about the pandemic by limiting and facilitating the interpretation of the information.

Other emotional and behavioural parenting processes can constitute risk factors for children's mental health. Unrealistic parental expectations and demands (Azar et al., 2017) are associated with harsh parenting, which is a risk factor for children's internalising and externalising problems (Bayer et al., 2011). Similarly, parent emotional dysregulation, specifically parent-child contagion and anxiety transfer, may be important to consider (Han et al., 2016; Parkinson & Simons, 2012; Pereira et al., 2017). These processes can be especially relevant during COVID-19, where parents and children spend increased time together in a context of heightened stress. Indeed, parents need to take care of their own needs to effectively support their children (Murray, 2010). Self-care involves attending to both physical and mental health needs such as engaging in pleasurable activities, exercising, eating healthy food, resting, looking for support when needed, taking time for oneself and adopting stress management practices (Miller et al., 2019; Raynor & Pope, 2016).

The main aim of the current study is to characterise parents' behaviour and child's mental health during the COVID-19 pandemic in Portugal and the United Kingdom (UK) and to analyse the relation between parenting dimensions and child's mental health, considering child's developmental period (middle-childhood vs pre-adolescence and adolescence) and context (Portugal vs the UK). We hypothesise that the different protective (promotion of routines, emotional support, encouragement of children's emotional expression, support of children's emotion modulation, management of the children's exposure to COVID-19 information, promotion of children's healthy lifestyle and self-care) and risk (unrealistic parental demands and emotion dysregulation) parental factors will contribute independently for the explanation of child's outcomes, anxiety and wellbeing.

Method

Participants

The sample consisted of 442 caregivers, living in Portugal ($n = 224$) and UK ($n = 218$). The majority were mothers, had a college degree and lived in an intact family (Table 1). In comparison to the UK participants, Portuguese participants had a higher level of schooling (χ^2 (2) = 21.97, p< .001) and were more likely to be full time workers (χ^2 (2) = 117.56, p< .001). Also, there were more Portuguese fathers participating in the study compared to the UK sample (χ^2 (2) = 8.34, p = .015). There were no significant differences between the two countries regarding children's age (t (440) = 0.95, p = .342), gender (χ^2 (1) = 0.76, p = 0.383) and family structure (χ^2 (1) = 1.32, p = 0.251).

Measures

Socio-Demographic Questionnaire
Demographic information was collected about parents (e.g., age, gender, years of schooling), children (e.g., age, gender) and family situation during the pandemic period (e.g., family loss of income).

Parenting Behaviour
To assess parenting dimensions of interest for this study, several brief scales (3 to 7 items) were constructed. Items were developed based on the literature review or taken from subscales of pre-existing measures (Parents Emotion Regulation Scale – PERS; Pereira et al., 2017; Egna Minnen Bertraffande Uppfostran - Parents version - EMBU-P; Castro et al., 1997). Parents rated all items on a 5 point Likert scale (from 1 "never or almost never" to 5 "always or almost always"). The values of all scales were derived from the mean of all items on each scale. The scales are provided in the supplementary materials (Table S1).

Child-centred positive parenting dimensions
The Promotion of Routines scale consists of 4-items and measures parents' efforts to maintain regular routines, including school activities at home, play/rest, meals, wakeup and sleeping time (e.g., I help my child maintain a time to play/have fun and rest). The scale had an alpha of .83.

The Emotional Support scale is based on the Portuguese version of the EMBU-P (Canavarro & Pereira, 2007). It consists of 4-items and evaluates parental practices of verbal and physical emotional support and acceptance (e.g., I show my child, with words and gestures, that I like him/her). The scale had an alpha of .88.

The Encouragement of Children's Emotional Expression scale is derived from the PERS subscale of orientation to the child's emotions (Pereira et al., 2017). It consists of 4-items and measures parents' capacity to be attentive and understand their child's negative emotions (e.g., when I see my child upset, I try to ask her/him questions to better understand what she/he is feeling). The scale had an alpha of .90.

The Support of Child's Emotion Modulation scale consists of 5-items. It measures how parents can support their child to cope with emotions, including the normalisation of child's feelings, use of distraction strategies, cognitive restructuring, problem-solving and maintenance of hope (e.g., when my child is upset, I help him/her to keep hope). The scale had an alpha of .89.

The Management of the Child's Exposure to COVID-19 information scale consists of 3-items. It measures parents' efforts to give and discuss information related to COVID-19 with their children (e.g., I provide information to my child about COVID-19). This scale had an alpha of .66.

The Promotion of the Child's Healthy Lifestyle scale consists of 5-items and evaluates parents' efforts to promote their child's health, including physical exercise and a healthy diet (e.g., I encourage my child to engage in activities that make him/her move), with an alpha of .75.

Child-centred negative parenting dimensions

The Unrealistic Demands scale consists of 4-items and evaluates parents' demands and excessive pressure on the child regarding school activities, compliance to schedules and unnecessary activities (e.g., I feel that I put too much pressure on my child to complete all school tasks). It had an alpha of .81.

Parent-centred positive dimensions

The Self-care scale consists of 7-items and measures parents' behaviours intended to maintain their own physical and mental health, including the involvement in pleasurable activities, rest, healthy routines and behaviours, stress management, seeking help when needed, maintaining social connections (e.g., I seek help for daily activities when I feel overwhelmed). It had an alpha of .68.

Parent-centred negative dimensions

The Parent's Emotion Dysregulation scale from the PERS (Pereira et al., 2017) subscale. It is composed of 5 items and measures parents' difficulty managing their own emotions in front of their child and emotion contagion between parents and child (e.g., I do get angry with my child, only because I am nervous or angry with other issues in my life). The scale had an alpha of .69.

Outcome measures

The Revised version of Screen for Child Anxiety Related Emotional Disorders (SCARED-R; Muris et al., 1999) measures anxiety symptoms. Parents rate each item about their child's behaviour during the last month on a Likert scale of 0 (never or almost never) to 2 (often). We used the Portuguese (Pereira et al., 2015) and English versions (Muris, 2007), composed of 69 items. The total value presented an alpha of .95.

The KIDSCREEN-10 Index measures children's quality of life (The Kids Screen Group Europe, 2006). Parents are asked to rate each item about their child's behaviour during the last week on a five-point Likert scale (from "not at all or never" to "extremely or always"). We used the Portuguese and UK versions (The Kids Screen Group Europe, 2006). The scale presented an alpha of .81.

Data Collection Procedures

The APA *Ethical Principles of Psychologists and Code of Conduct* (APA, 1992) were followed. This study was reviewed and approved by the ethics committees at the Universities of Lisbon, Portugal, and Bath, UK.

We conducted a cross-sectional online study with a convenience sample. An online survey and data collection tool were developed in the Qualtrics Platform and hosted by the Faculty of Psychology, University of Lisbon. Participants were recruited from the community through different forms: newspapers, social media, email and institutional advertising. Caregivers of 6 to 16-year-old children (as long as they lived with the child) were invited to participate. Participants who had more than one child in this age range were asked to choose only one child and to complete the survey thinking specifically on that child. Data was collected between 1 May and 27 June 2020, right after the period with the highest incidence of new cases and mortality rate in each country. It coincided with a period of multiple restrictions, including home confinement, school closure, remote working for many parents and enforcement of social distancing.

Data Analysis Procedures

Statistical analyses were performed using SPSS (v.26, SPSS Inc., Chicago, IL). First, we use Chi-Square tests of Independence to analyse the relations between socio-demographic variables and families situation during the COVID-19 pandemic and participants' country of origin (Portugal and UK) and children's age (6 to 9 years and 10 to 16 years). Next, we analysed the differences between the groups according to the participants' country of origin and children's age regarding parents' behaviour and child's adjustment, using *t*-tests for independent samples. Cohen´s *d* was calculated to give an estimate of effect sizes. Finally, standard multiple linear regression models were estimated for the dependent variables of interest. The regression models were estimated according to the participants' country of origin and the children's age.

Results

COVID-19 Pandemic Impact on Families

The majority of families had at least one adult working exclusively remotely from home, and the vast majority of children was involved in distance learning (Table 1).

Table 1. Demographic variables and Family situation during the COVID-19 Pandemic in Portugal and UK: absolute and relative frequencies and comparisons between countries

	Portugal (n = 224)		UK (n = 218)	
	n	%	*n*	%
Socio-demographic characteristics				
Caregiver				
Mothers	184	82.1%	199	91.3%
Fathers	36	16.1%	16	7.3 %
Other	4	1.8%	3	1.4%
Parents' schooling				
No college degree	27	12.1%	52	23.9%
University Graduated	74	33.0%	92	42.2%
University Postgraduated	123	54.9%	74	33.9%
Parents' occupation				
Full-time work	196	87.5%	90	41.1%
Part-time work	9	4.0%	102	46.6%
Other	19	8.5%	26	12.3%
Household structure: living with both parents	173	77.2%	179	81.7%
Child's gender (Male)	115	51.3%	121	55.5%

	Portugal (*n* = 224)		UK (*n* = 218)	
	n	%	*n*	%
Child's age	M = 10.13, SD = 2.90		M = 9.87, SD = 2.80	
Family situation during the Pandemic				
Child in home-schooling	219	97.8%	193	88.1%
One adult or more with remote work	172	76.8%	144	66.1%
Income reduction				
None	128	57.1%	116	53.2%
Yes, less than 30%	50	22.3%	78	35.8%
Yes, more than 30%	46	20.5%	24	11.0%
Child infected by COVID-19	3	1.3%	29	13.3%
Someone close infected by COVID-19	14	6.3%	59	27.1%
Child with outside activities everyday or almost everyday	33	16.1%	163	83.2%

There were differences between the Portuguese and the UK sample concerning the Pandemic impact on families. Portuguese participants were more likely to have adults working remotely from home (χ^2 (1) = 6.24, p = 0.012), to lose more than 30% of their income (χ^2 (2) = 13.55, p < .001) and to have children involved in distance learning (χ^2 (1) = 15.81, p <.001). Only a small percentage of children or immediate family members was infected or suspected to be infected by COVID-19. Child and family actual and suspected infections were more common in the UK sample (for child χ^2 (1) = 23.55, p <.001 ; for family χ^2 (1) = 34.71, p <.001). The most striking difference between the two samples was the engagement in outdoor activities (χ^2 (1) = 76.91, p <.001). In Portugal, only 16.1% of children went for outside activities every day or almost every day, compared to 83.2% in the UK.

Characterisation of Parenting Behaviour and Child´s Adjustment

Descriptive statistics for caregivers' parenting and child´s adjustment for the total sample, country and children's age groups are pre-

sented in Table 2. The correlations between the main dimensions and children's age and gender are provided in the supplementary materials (Table S2).

UK parents reported significantly higher levels of emotional support (t (440) = -4.06, p < .001), promotion of healthy lifestyle (t (440) = -4.60, p < .001) and lower levels of unrealistic demands (t (440) = 8.08, p < .001) and parental emotional dysregulation (t (440) = 4.35, p < .001) than the Portuguese parents.

There were also significant differences between the two children's age groups concerning promotion of routines (t (440) = 3.88, p < .001), emotional support (t (440) = 2.94, p = .003) and promotion of healthy lifestyle (t (440) = 2.36, p = .019), with parents of younger children (6 to 9 years old) reporting higher levels than those with pre-adolescents and adolescents (10 to 16 years old).

Concerning child's anxiety and quality of life there were no significant differences between countries (child's anxiety t (440) = 0.66, p = .511; child's quality of life t (440) = 1.76, p = .080) or group ages (child's anxiety t (440) = -1.84, p = .067; child's quality of life t (440) = 0.81, p = .418). Globally, this sample presented lower quality of life (*M* = 40.38, *SD* = 7.60, *n* = 442) compared with data from a HRQoL international survey, involving 11 countries (*M* = 49.74, *SD* = 10.14, *n* = 8,072) (t (8512) = 19.114, *p* < .001, *Cohen's d* = 0.93 (Europe, 2006). In respect to anxiety data, only normative data from Portugal was available, and the results suggest that there were no statistical significant differences between the total anxiety score of the Portuguese sample of the current study (*M* = 31.17, *SD* = 18.56, *n* = 224) and the values of a normative sample from Portuguese children (*M* = 32.68, *SD* = 18.87, *n* = 1,065) (Pereira et al., 2015) (t (1287) = 1.092, *p* < .275, Cohen's d = 0.08).

Caregivers´ Parenting Behaviour and Child´s Anxiety

Evaluation of assumptions suggested normality (Country: *ZSk* = 1.08, *ZKu* = 2.24; Age: *ZSk* = 1.08, *ZKu* = 1.74), homoscedasticity

Table 2. Parent´s behaviour and youth's adjustment by country and by age group: Mean, standard deviation, t-test for independent samples and Cohen's d

	Portugal (*n* = 224) *M* (*SD*)	UK (*n* = 218) *M* (*SD*)	*t*	Cohen's *d*	6- 9 years (*n* = 210) *M* (*SD*)	10-16 years (*n* = 232) *M* (*SD*)	*t*	Cohen's *d*
Parents' behaviour								
Promotion of routines	3.23 (0.84)	3.20 (0.78)	0.48	0.04	3.38 (0.68)	3.08 (0.89)	3.88***	0.38
Emotional support	3.35 (0.66)	3.59 (0.54)	-4.06***	0.40	3.56 (0.52)	3.39 (0.68)	2.94**	0.28
Encouragement of child's expression	3.39 (0.61)	3.52 (0.62)	-2.23	0.21	3.50 (0.58)	3.41 (0.65)	1.43	0.15
Support of child's emotion modulation	3.14 (0.62)	3.17 (0.68)	-0.38	0.05	3.17 (0.59)	3.14 (0.70)	0.44	0.05
Management of child's exposure to information	3.20 (0.63)	3.16 (0.68)	1.01	0.06	3.17 (0.63)	3.22 (0.68)	-1.62	0.08
Promotion of healthy lifestyle	2.82 (0.67)	3.11 (0.66)	-4.60***	0.44	3.04 (0.65)	2.89 (0.70)	2.36*	0.22
Self-care	2.17 (0.61)	2.15 (0.69)	0.21	0.03	2.17 (0.64)	2.15 (0.66)	0.39	0.03
Unrealistic demands	1.20 (0.59)	0.83 (0.75)	8.08***	0.55	1.14 (0.79)	1.09 (0.79)	0.54	0.06
Emotional dysregulation	1.39 (0.73)	1.04 (0.64)	4.35***	0.51	1.20 (0.64)	1.15 (0.62)	0.85	0.08
Child's adjustment								
SCARED-R	31.17 (18.56)	29.72 (21.95)	0.66	0.07	28.46 (17.51)	32.25 (22.38)	-1.84	0.19
KIDSCREEN-10	40.97 (6.96)	39.76 (8.18)	1.76	0.16	40.72 (7.02)	40.07 (8.08)	0.81	0.09

*Note. SCARED-R Screen for Child Anxiety Related Emotional Disorders – Revised Version; KIDSCREEN-10 Health Questionnaire for Children and Young People -10 index. The significance level considered was p < .025 according to Bonferroni correction. *** p < .001; ** p < .01; * p < .05. Skewness (|Sk| < 3) and kurtosis (|Ku| < 10) values (Maroco, 2014) were considered and complemented with visual inspection of Q-Q plots suggesting reasonable normal distribution.*

Table 3. Parenting predictors of child's anxiety: Regression coefficients, standard errors and diagnostic statistics

	Portugal (n = 224)		UK (n = 218)		6-9 years (n = 210)		10-16 years (n = 232)	
	B(SE)	β	B(SE)	β	B(SE)	β	B(SE)	β
Promotion of routines	0.76(1.55)	0.03	-1.67(2.24)	-0.06	1.49(1.97)	0.06	-1.24(1.80)	-0.05
Emotional support	-2.50(2.60)	-0.09	-1.82(3.33)	-0.05	-4.16(2.93)	-0.12	1.10(2.89)	0.03
Encouragement of child's expression	3.70(2.91)	0.12	7.96(3.35)*	0.22	5.28(2.87)	0.17	6.67(3.34)*	0.19
Support of child's emotion modulation	1.97(2.82)	0.07	-3.11(3.01)	-0.1	-0.11(2.72)	0	-3.35(3.06)	-0.1
Management of child's exposure to information	3.39(2.29)	0.12	2.82(2.16)	0.09	-1.24(1.96)	-0.05	4.88(2.36)*	0.15
Promotion of health lifestyle	-0.62(2.11)	-0.02	-2.90(2.61)	-0.09	-.12(2.07)	-0.01	-1.79(2.40)	-0.06
Self-care	-0.30(2.17)	-0.01	-3.18(2.92)	-0.1	-4.09(2.03)*	-0.15	-0.04(2.37)	0
Unrealistic demands	4.48(1.81)*	0.17	7.22(2.18)**	0.25	3.75(1.68)*	0.17	6.82(2.05)**	0.24
Emotional dysregulation	9.48(2.39)***	0.3	1.72(2.70)	0.05	3.66(2.26)	0.13	6.52(2.80)*	0.18
R2(R2a)	.15(.12)		.12(.08)		.11(.07)		.15(.12)	
F	F(9, 214) = 4.337, p < .001		F(9, 208) = 3.062, p = .002		F(9, 200) = 2.751, p = .005		F(9, 222) = 4.407, p < .001	
Durbin-Watson	2.269		1.987		2.002		1.811	
Maximum VIF value	2.303		2.087		1.989		2.442	

*Note. *** p < .001; ** p < .01; * p < .05.*

Table 4. Parenting predictors of child's quality of life: Regression coefficients, standard errors and diagnostic statistics

	Portugal (n = 224)		UK (n = 218)		6-9 years (n = 210)		10-16 years (n = 232)	
	B(SE)	β	B(SE)	β	B(SE)	β	B(SE)	β
Promotion of routines	0.14(.32)	0.03	1.05(.49)*	0.16	0.88(.46)	0.14	0.34(.38)	0.06
Emotional support	0.95(.53)	0.16	.035(.72)	0.04	0.38(.68)	0.05	0.34(.62)	0.05
Encouragement of child's expression	-0.37(.59)	-0.06	-1.23(.73)	-0.15	-0.92(.67)	-0.12	-1.15(.71)	-0.15
Support of child's emotion modulation	0.18(.57)	0.03	1.80(.66)**	0.24	1.36(.63)*	0.19	1.53(.65)*	0.22
Management of child's exposure to information	0.01(.46)	0	-0.20(.47)	-0.03	.04(.46)	0.01	0.28(.50)	0.04
Promotion of health lifestyle	0.96(.43)*	0.16	0.10(.57)	0.01	-0.66(.48)	-0.1	0.89(.51)	0.13
Self-care	1.11(.44)*	0.17	0.13(.50)	0.02	1.70(.47)***	0.25	-0.01(.50)	0
Unrealistic demands	-1.43(.37)**	-0.26	-2.26(.47)***	-0.33	-1.26(.39)**	-0.23	-1.25(.44)**	-0.2
Emotional dysregulation	-1.02(.48)*	-0.15	-0.76(.59)	-0.09	-0.55(.53)	-0.08	-1.05(.60)	-0.13
R2(R2a)	.27(.24)		.24(.21)		.21(.17)		.20(.16)	
F	F(9, 214) = 8.608, p < .001		F(9, 208) = 7.263, p < .001		F(9, 200) = 5.763, p < .001		F(9, 222) = 6.008, p < .001	
Durbin-Watson	2.069		1.933		1.964		1.8	
Maximum VIF value	2.303		2.087		1.989		2.442	

*Note. *** p < .001; ** p < .01; * p < .05.*

(absence of funnel shape) and errors independence. Three outliers were identified by regression model (p < .001) and kept in the analyses because Cook's distance values were lower than 1.

The results from the regression analyses with children´s anxiety as the dependent variable are shown in Table 3. The model explaining child´s anxiety in the Portuguese sample explained 15% of the outcome variance [F(9, 214) = 4.337, p < .001]. Only two variables were significant predictors: unrealistic parental demands and emotion dysregulation. Concerning the UK sample, parenting dimensions explained 12% of child´s anxiety variance [F(9, 208) = 3.062, p = .002]. Encouragement of child's expression, parental self-care and unrealistic demands all significantly predicted child´s anxiety.

Concerning the younger group sub-sample, two parenting dimensions were significant predictors, self-care and unrealistic demands. Globally, the model explained 11% of the outcome variance [F(9, 200) = 2.751, p = .005]. Finally, the model explaining anxiety in the sub-

sample relative to the pre-adolescents and adolescents explained 15% of the outcome [F(9, 222) = 4.407, p < .001]. Several parenting dimensions were significant predictors, including encouragement of child's expression, management of child's exposure to information, self-care, and parental unrealistic demands and emotion dysregulation.

All the significant protective and risk parental dimensions were associated with the child's anxiety in the predicted direction.

Caregivers' Parenting Behaviour and Child's Quality of life

Assumptions were met revealing adequate normality (Country: ZSk = .34, ZKu = .48; Age: ZSk = .09, ZKu = .17), with plot visual inspection suggesting homoscedasticity. Durbin-Watson test statistics were also illustrative of residuals independence. Mahalanobis distance suggested the existence of three outliers by regression model (p < .001), which were maintained in the analyses due to Cook's distance

values being less than 1.

Table 4 presents the results from the regression analyses with children´s quality of life as an outcome. The model relative to the predictors of child´s quality of life in the Portuguese sample explained 27% of the outcome variance [$F(9, 214) = 8.608$, $p < .001$], with four significant predictors: promotion of healthy lifestyle, parental self-care, unrealistic demands and emotion dysregulation. In relation to the UK sample, parenting dimensions explained 24% of child´s quality of life variance [$F(9, 208) = 7.263$, $p < .001$]. Promotion of routines, support of child's emotion modulation and unrealistic demands all significantly predicted child´s quality of life.

The results of the regression model with the younger child's subsample showed three parenting dimensions as significant predictors of children's quality of life, support of child's emotion modulation, self-care and unrealistic demands. The model explained 21% of the outcome variance [$F(9, 200) = 5.763$, $p < .001$]. Finally, the model explaining the quality of life in pre-adolescents and adolescents explained 20% of the outcome [$F(9, 222) = 6.008$, $p < .001$]. Two parenting dimensions were significant predictors, support of child's emotion modulation and unrealistic demands.

The significant protective and risk parenting factors were associated with children's quality of life in the predicted direction.

Discussion

COVID-19 posed and continues to pose significant threats to the mental health and wellbeing of families. This period has been characterised by multiple additional stressors including, financial strain, threats to the health of oneself and significant others, decrease in social support, confinement related issues and disruption of daily routines (Prime et al., 2020).

Our data highlights the variety of parenting behaviours adopted by caregivers during the COVID-19 pandemic in two European countries. There were small differences between countries and between children´s age groups in the use of specific parenting strategies. The exceptions to this were the dimensions of unrealistic parental demands and emotion dysregulation, where Portuguese parents significantly reported higher levels than the UK parents. Some specific life conditions may explain these significant differences between the two countries that likely imposed a more stressful experience for Portuguese parents, namely the exposure to more financial adversity (e.g., more loss of income) and to a higher burden related to work-family conciliation (e.g., more parents were working full-time). Nevertheless, there were no differences between the two countries and between age groups concerning children's quality of life and children's anxiety, suggesting that differences in parenting did not accompany differences in children's adjustment.

In terms of children´s health, the comparison with studies conducted before the pandemic does not indicate that children's anxiety has increased during COVID-19, although there has been a marked deterioration in children's quality of life. This may reflect the timing of our survey, undertaken 6 weeks after the pandemic was declared. In fact, by this stage, lockdown probably had a negative impact on children's everyday life. However, anxiety may have returned to pre-pandemic levels as children acquired sufficient information to resolve any COVID-19 misunderstandings or uncertainties. This result is consistent with a longitudinal study that examined the trajectories of depression and anxiety of adolescents and young adults during the pandemic, showing a quadratic trajectory accompanying the increase and decline in COVID-19 infection rate (Hawes et al., 2021).

Despite the importance of parents attending to their own needs, parental self-care was low (Murray, 2010). Undoubtedly, COVID-19 created many additional stressors for parents with which they needed to cope to effectively support their children. This seems particularly important since we find that less parental self-care and more emotional dysregulation were associated with poorer mental health outcomes for children. This finding is consistent with a cross-sectional COVID-19 survey in Italy, where parents who found it difficult to have space and time for themselves reported more stress and greater emotional problems in their children (Spinelli et al., 2020). These findings suggest that it is especially important to encourage parents to prioritise their own psychological care during a pandemic or other adverse event.

For both countries, unrealistic parental demands were associated with child's anxiety and impaired their quality of life. Our scale assessed parental demands related to schoolwork and everyday routines, which had significant implications during the COVID-19 lockdown. School closure resulted in parents assuming the responsibility of providing their child's education, a role which many found challenging, unsupported and ill-prepared to undertake (Spinelli et al., 2020). Similarly, lockdown resulted in considerable disruption to everyday routines, putting pressure on parents to create and maintain a daily structure. Given the possibility of future COVID-19 surges and the re-imposition of lockdown and school closure, there is a need to plan how potential negative effects, particularly for families in more vulnerable social situations, can be mitigated (Hafstad et al., 2021; Van Lancker & Parolin, 2020; Wang et al., 2020).

Parents' difficulties managing their own emotions were associated with increased levels of child's anxiety and poor quality of life in Portugal. The adverse effect of parental emotional dysregulation on children's anxiety has previously been documented (Han et al., 2016). Our data suggest the need to prioritise parental coping and the need for parents to develop alternative ways of managing the additional stressors created by the COVID-19 pandemic, especially for those more exposed to stressful experiences (e..g higher burden related to work-family conciliation in Portuguese parents).

Our results also suggest some protective parental strategies. Consistent with the literature, promotion of routines was associated with higher levels of child's quality of life in the UK (Bater & Jordon, 2017). Parental behaviour encouraging children's emotional expression and supporting children's emotional modulation were protective factors regarding child's mental health. Parents play an important role in the socialisation of children's emotion regulation (Morris et al., 2017), a transdiagnostic factor underlying different children's mental health problems (Aldao et al., 2016). In this sense, this dimension may be critical in times of heightened stress for children.

Finally, our results suggest that managing children's exposure to COVID-19 information (for older children: 10 to 16 years old) and promoting a healthy lifestyle (for younger children: 6 to 9 years old) were important. The need to communicate effectively with children during the pandemic and provide open, honest and understandable information has been highlighted (Dalton et al., 2020), especially for older children, since they are more exposed to different sources of information (e.g. TV News, social media, peers), some of them unreliable. Similarly, and in line with other studies (Oliva et al., 2021), parents' efforts to promote physical activities and a healthy diet appear especially important during home confinement.

Despite its important contribution, this study has some limitations. Firstly, this was a cross-sectional study involving interested volunteers and undertaken at one particular time-point during the COVID-19 pandemic. The cross-sectional approach of the current

study prevents us from drawing any conclusions about the directions of effects concerning the associations found between parenting and children's mental health. Our participants tended to be more highly educated and, for that reason, our findings may not represent the broader population or reflect parenting behaviours during the initial stages of the pandemic.

Secondly, we have relied on parental reports, predominantly mothers, which may not necessarily reflect the views of other caregivers or children within the household. Also, although parents' reports of children's adjustment are commonly used to evaluate children's mental health, this may have impacted the results because parents tend to underreport internalised symptoms.

Thirdly, a number of our questionnaires were constructed specifically for this study. Although they were informed by existing literature and instruments had good internal reliability, their more comprehensive psychometric properties are unknown.

Finally, multiple regression models for anxiety revealed high standard errors and as such, caution is required when interpreting the results.

Notwithstanding these limitations, our study provides an insight into parenting practices, child's anxiety and quality of life in two European countries during the peak of the COVID-19 pandemic. Prioritising the mental health needs of parents, in particular emotional regulation, may be important in reducing anxiety and improving the quality of life of children during these uncertain times.

Funding

Conflict of Interest

The authors declare no conflict of interest.

References

Aldao, A., Gee, D. G., De Los Reyes, A., & Seager, I. (2016). Emotion regulation as a transdiagnostic factor in the development of internalising and externalising psychopathology: Current and future directions. *Developmental Psychopathology*, *28*(4pt1), 927-946. https://doi.org/10.1017/S0954579416000638

Azar, S. T., McGuier, D. J., Miller, E. A., Hernandez-Mekonnen, R., & Johnson, D. R. (2017). Child neglect and maternal cross-relational social cognitive and neurocognitive disturbances. *Journal of Family Psychology*, *31*(1), 8-18. https://doi.org/10.1037/fam0000268

Bater, L. R., & Jordan, S. S. (2017). Child routines and self-regulation serially mediate parenting practices and externalising problems in preschool children. *Child & Youth Care Forum*, *46*(2), 243-259. https://doi.org/10.1007/s10566-016-9377-7

Bayer, J. K., Ukoumunne, O. C., Lucas, N., Wake, M., Scalzo, K., & Nicholson, J. M. (2011). Risk factors for childhood mental health symptoms: National longitudinal study of Australian children. *Pediatrics*, *128*(4), e865-879. https://doi.org/10.1542/peds.2011-0491

Bonanno, G. A., Brewin, C. R., Kaniasty, K., & Greca, A. M. (2010). Weighing the costs of disaster: Consequences, risks, and resilience in individuals, families, and communities. *Psychological Science in the Public Interest*, *11*(1), 1-49. https://doi.org/10.1177/1529100610387086

Cameron, E. E., Joyce, K. M., Delaquis, C. P., Reynolds, K., Protudjer, J. L. P., & Roos, L. E. (2020). Maternal psychological distress & mental health service use during the COVID-19 pandemic. *Journal of Affective Disorders*, *276*, 765-774. https://doi.org/10.1016/j.jad.2020.07.081

Canavarro, C., & Pereira, A. I. (2007). A avaliação dos estilos parentais educativos na

perspectiva dos pais: A versão portuguesa do EMBU-P [The evaluation of parenting rearing styles in parents perspective: The Portuguese version of EMBU-P]. *Psicologia: Teoria Investigação e Prática*, *2*, 271-286.

Castro, J., de Pablo, J., Gómez, J., Arrindell, W. A., & Toro, J. (1997). Assessing rearing behaviour from the perspective of the parents: A new form of the EMBU. *Social Psychiatry and Psychiatric Epidemiology*, *32*(4), 230-235. https://doi.org/10.1007/BF00788243

Choi, S. H., Kim, H. W., Kang, J. M., Kim, D. H., & Cho, E. Y. (2020). Epidemiology and clinical features of coronavirus disease 2019 in children. *Clinical and Experimental Pediatrics*, *63*(4), 125-132. https://doi.org/10.3345/cep.2020.00535

Crawley, E., Loades, M., Feder, G., Logan, S., Redwood, S., & Macleod, J. (2020). Wider collateral damage to children in the UK because of the social distancing measures designed to reduce the impact of COVID-19 in adults. *BMJ Paediatrics Open*, *4*(1), e000701. https://doi.org/10.1136/bmjpo-2020-000701

Dalton, L., Rapa, E., & Stein, A. (2020). Protecting the psychological health of children through effective communication about COVID-19. *Lancet Child and Adolescent Health*, *4*(5), 346-347. https://doi.org/10.1016/S2352-4642(20)30097-3

Fancourt, D., Steptoe, A., & Bu, F. (2021). Trajectories of anxiety and depressive symptoms during enforced isolation due to COVID-19 in England: A longitudinal observational study. *The Lancet. Psychiatry*, *8*(2), 141–149. https://doi.org/10.1016/S2215-0366(20)30482-X

Galea, S., Merchant, R. M., & Lurie, N. (2020). The mental health consequences of COVID-19 and physical distancing: The need for prevention and early intervention. *JAMA Internal Medicine*, *180*(6), 817-818. https://doi.org/10.1001/jamainternmed.2020.1562

Han, Z. R., Lei, X., Qian, J., Li, P., Wang, H., & Zhang, X. (2016). Parent and child psychopathological symptoms: The mediating role of parental emotion dysregulation. *Child and Adolescent Mental Health*, *21*(3), 161-168. https://doi.org/10.1111/camh.12169

Holmes, E. A., O'Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., Ballard, C., Christensen, H., Cohen Silver, R., Everall, I., Ford, T., John, A., Kabir, T., King, K., Madan, I., Michie, S., Przybylski, A. K., Shafran, R., Sweeney, A., Worthman, C. M., Yardley, L., Cowan, K., Cope, C., Hotopf, M., & Bullmore, E. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. *Lancet Psychiatry*, *7*(6), 547-560. https://doi.org/10.1016/S2215-0366(20)30168-1

Masten, A. S., & Barnes, A. J. (2018). Resilience in children: Developmental perspectives. *Children (Basel)*, *5*(7), 98. https://doi.org/10.3390/children5070098

Masten, A. S., & Motti-Stefanidi, F. (2020). Multisystem resilience for children and youth in disaster: Reflections in the context of COVID-19. *Adversity and Resilience Science*, 1-12. https://doi.org/10.1007/s42844-020-00010-w

Miller, A. E., Green, T. D., & Lambros, K. M. (2019). Foster parent self-care: A conceptual model. *Children and Youth Services Review*, *99*, 107-114. https://doi.org/https://doi.org/10.1016/j.childyouth.2019.01.014

Morris, A. S., Criss, M. M., Silk, J. S., & Houltberg, B. J. (2017). The impact of parenting on emotion regulation during childhood and adolescence. *Child Development Perspectives*, *11*(4), 233-238. https://doi.org/10.1111/cdep.12238

Muris, P. (2007). *Normal and abnormal fear and anxiety in children and adolescents*. Elsevier. https://doi.org/10.1016/B978-0-08-045073-5.X5000-X

Muris, P., Merckelbach, H., Van Brakel, A., & Mayer, A. B. (1999). The revised version of the screen for child anxiety related emotional disorders (SCARED-R): Further evidence for its reliability and validity. *Anxiety Stress Coping*, *12*(4), 411-425. https://doi.org/10.1080/10615809908249319

Murray, J. S. (2010). A collaborative approach to meeting the psychosocial needs of children during an influenza pandemic. *Journal of Special Pediatric Nursing*, *15*(2), 135-143. https://doi.org/10.1111/j.1744-6155.2009.00229.x

Oliva, S., Russo, G., Gili, R., Russo, L., Di Mauro, A., Spagnoli, A., Alunni Fegatelli, D., Romani, M., Costa, A., Veraldi, S., & Manti, F. (2021). Risks and protective factors associated with mental health symptoms during COVID-19 home confinement in Italian children and adolescents: The #Understandingkids study. *Frontiers in Pediatrics*, *9*, 664702. https://doi.org/10.3389/fped.2021.664702

Parkinson, B., & Simons, G. (2012). Worry spreads: Interpersonal transfer of problem-related anxiety. *Cognition and Emotion*, *26*(3), 462-479. https://doi.org/10.1080/02699931.2011.651101

Pereira, A. I., Barros, L., Roberto, M. S., & Marques, T. (2017). Development of the Parent Emotion Regulation Scale (PERS): Factor structure and psychometric qualities. *Journal of Child and Family Studies*, *26*(12), 3327-3338. https://doi.org/10.1007/s10826-017-0847-9

Pereira, A. I., Muris, P., Barros, L., Goes, R., Marques, T., & Russo, V. (2015). Agreement and discrepancy between mother and child in the evaluation of children's anxiety symptoms and anxiety life interference. *European Child and Adolescent Psychiatry*, *24*(3), 327-337. https://doi.org/10.1007/s00787-014-0583-2

Pombo, A., Luz, C., Rodrigues, L. P., & Cordovil, R. (2021). Effects of COVID-19 confinement on the household routines of children in Portugal. *Journal of child and family studies*, 1–11. Advance online publication. https://doi.org/10.1007/s10826-021-01961-z

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

Raynor, P., & Pope, C. (2016). The role of self-care for parents in recovery from substance use disorders: An integrative review of parental self-care. *Journal of Addictions Nursing*, *27*(3), 180-189. https://doi.org/10.1097/JAN.0000000000000133

Russell, B. S., Hutchison, M., Tambling, R., Tomkunas, A. J., & Horton, A. L. (2020). Initial challenges of caregiving during COVID-19: Caregiver burden, mental health, and the parent–child relationship. *Child Psychiatry & Human Development*, *51*(5), 671-682. https://doi.org/10.1007/s10578-020-01037-x

Spinelli, M., Lionetti, F., Pastore, M., & Fasolo, M. (2020). Parents' stress and children's psychological problems in families facing the COVID-19 outbreak in Italy. *Frontiers in Psychology*, *11*, 1713. https://doi.org/10.3389/fpsyg.2020.01713

The Kids Screen Group Europe (2006). *The KIDSCREEN Questionnaires - Quality of life questionnaires for children and adolescents. Handbook*. Pabst Science Publishers.

Van Lancker, W., & Parolin, Z. (2020). COVID-19, school closures, and child poverty: A social crisis in the making. *The Lancet Public Health*, *5*(5), e243-e244. https://doi.org/10.1016/S2468-2667(20)30084-0

Waite, P., Pearcey, S., Shum, A., Raw, J.A.L., Patalay, P. and Creswell, C. (2021), How did the mental health symptoms of children and adolescents change over early lockdown during the COVID-19 pandemic in the UK?. JCPP Advances, 1: e12009. https://doi.org/10.1111/jcv2.12009

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

WHO. (2020, 11 March). *WHO Director General's opening remarks at the media briefing on COVID-19.*

https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

Witt, A., Ordóñez, A., Martin, A., Vitiello, B., & Fegert, J. M. (2020). Child and adolescent mental health service provision and research during the Covid-19 pandemic: Challenges, opportunities, and a call for submissions. *Child and Adolescent Psychiatry Mental Health*, *14*, 19. https://doi.org/10.1186/s13034-020-00324-8