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# PLOS ONE

## Parenting behaviour, child anxiety and quality of life during the COVID-19 pandemic: An online study with Portuguese and British families --Manuscript Draft--

<b>Manuscript Number:</b>	
<b>Article Type:</b>	Research Article
<b>Full Title:</b>	Parenting behaviour, child anxiety and quality of life during the COVID-19 pandemic: An online study with Portuguese and British families
<b>Short Title:</b>	Parenting, child's mental health and COVID-19
<b>Corresponding Author:</b>	Ana Isabel Pereira, Ph.D. Universidade de Lisboa Lisboa, PORTUGAL
<b>Keywords:</b>	Parents' supportive behaviour; parents' unsupportive behaviour; child's anxiety; child's quality of life; COVID-19
<b>Abstract:</b>	<p>COVID-19 and the subsequent public health response involving lockdown, social distancing, remote working, and home education created many additional stressors for families. We examined parental behaviour during the COVID-19 pandemic in two European Countries and explored the association between parent's behaviour and child anxiety and quality of life .</p> <p>Caregivers of children and adolescents ( N = 442) between 6 and 16 years old ( M = 10, SD = 2.85) participated in an online cross-sectional survey in Portugal and the UK. Carers provided information about socio-demographics, family situation, supportive and unsupportive parental behaviours, parental self-care, youth anxiety, and quality of life. 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 child anxiety. Promotion of routines, support of children's emotion modulation, and promotion of children's healthy lifestyles were positively associated with the child'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.</p>
<b>Order of Authors:</b>	<p>Ana Isabel Pereira, Ph.D.</p> <p>Paul Stallard</p> <p>Magda Sofia Roberto</p> <p>Marlene Sousa</p> <p>Luisa Barros</p>
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Additional data availability information:	

Lisbon, 25<sup>th</sup> february, 2020

Dear Editor

We are pleased to submit an original research article entitled “Parenting behaviour, child anxiety and quality of life during the COVID-19 pandemic: An online study with Portuguese and British Families” for consideration for publication in PLOS ONE. The current paper examines the relationship between parenting behaviour and child anxiety and quality of life during the first outbreak of COVID-19. We have found several significant associations between parenting (e.g. unrealistic parental demands, parental emotional dysregulation, promotion of routines, encouragement of children's emotion expression, support of children's emotion modulation, management of exposure to COVID-19 information, promotion of children's healthy lifestyles, parental self-care) and child's mental health, with differences according to country and age group. This study is part of a larger European study conducted during the first outbreak of the pandemic and follows a previous paper with the same sample that focused on a qualitative part of the study that identified positive aspects from the pandemic and of the social distancing restrictions reported by parents (<https://www.cambridge.org/core/journals/bjpsych-open/article/posttraumatic-growth-during-the-covid19-pandemic-in-carers-of-children-in-portugal-and-the-uk-crosssectional-online-survey/66826594FC933FF4DE40E9ABDB061A02>).

We feel that the profile of the editor Hamideh Bayrampour is adequated to the research domain of this paper.

All the authors of the study contributed significantly to the research and/or manuscript writing and agree with the submission of the manuscript in this form. This manuscript has not been published and is not under consideration for publication elsewhere. Finally, we have no conflicts of interest to disclose.

Thank you for your consideration! Sincerely,

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Paul Stallard, Department for Health, University of Bath, United Kingdom

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1     **Parenting behaviour, child anxiety and quality of life**  
2     **during the COVID-19 pandemic: An online study with**  
3             **Portuguese and British families**

4  
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14     All the authors contributed equally to this work.

15

16 **Abstract**

17 COVID-19 and the subsequent public health response involving lockdown, social  
18 distancing, remote working, and home education created many additional stressors for  
19 families. We examined parental behaviour during the COVID-19 pandemic in two  
20 European Countries and explored the association between parent's behaviour and child  
21 anxiety and quality of life.

22 Caregivers of children and adolescents ( $N= 442$ ) between 6 and 16 years old ( $M = 10$ ,  $SD$   
23  $= 2.85$ ) participated in an online cross-sectional survey in Portugal and the UK. Carers  
24 provided information about socio-demographics, family situation, supportive and  
25 unsupportive parental behaviours, parental self-care, youth anxiety, and quality of life.  
26 Higher children's anxiety and lower quality of life were associated with higher levels of  
27 unrealistic parental demands, lower parental self-care, and higher parental emotional  
28 dysregulation. Encouragement of children's emotion expression and management of  
29 exposure to COVID-19 information was negatively associated with child anxiety.  
30 Promotion of routines, support of children's emotion modulation, and promotion of  
31 children's healthy lifestyles were positively associated with the child's quality of life. The  
32 predictors differed according to country and age group. These results highlight the  
33 importance of specific parenting behaviours on children's mental health during COVID-  
34 19. The need to moderate unrealistic demands and attend to parental self-care to reduce  
35 parental emotional dysregulation is important.

36

37 Keywords: Parents' supportive behaviour, parents' unsupportive behaviour, child's  
38 anxiety, child's quality of life, COVID-19

39

## 40 **Introduction**

41

42       On 11 March 2020, the World Health Organisation declared COVID-19 to be a  
43 global pandemic (1). In Europe, until August 2020, there were more than 4 million  
44 confirmed cases, with substantial variability between countries. In the UK, the European  
45 country with the highest death rate due to COVID-19 during the first outbreak, there were  
46 334,471 confirmed cases and 41,499 deaths, compared with 57,768 confirmed cases and  
47 1,819 deaths in Portugal (2). The initial response priority for COVID-19 was physical  
48 health (3), with countries introducing mandatory public health infection control measures  
49 to reduce transmission rates, including home confinement, school closure, and mobility  
50 restriction. The broader effects of COVID-19 on mental health were quickly recognised  
51 (4, 5), and whilst children experienced the lowest hospitalisation and mortality rates (6),  
52 they were particularly vulnerable to the negative effects of lockdown and social  
53 distancing (7). Families had to adapt to the challenges COVID-19 imposed on everyday  
54 life (8) quickly. Parents had to reconcile the demands of work and domestic life in a  
55 situation of home confinement, remote working, unstable financial arrangements, and  
56 assuming responsibility for educating their children (3). Simultaneously, they had to  
57 support their family and children with less help from formal and informal social networks  
58 and providers (7). Children were confronted with critical changes in their lives, including  
59 social isolation, school closures, perceived threats to the health of family members as well  
60 as their own, personal loss, and uncertainty about the future (8). These circumstances  
61 have increased stress on parents and children and negatively affected their mental health  
62 (9, 10).

63 Individual differences in disaster outcomes are mediated by several unique risk and  
64 resilience factors (11). These include the child's development, the impact on the family,  
65 and family resources (12, 13). Of particular importance is how parents deal with the  
66 stressors that confinement imposes and how they help their children adapt to these  
67 challenges (14).

68 Resilience literature identified several promotive and protective parenting  
69 behaviours that can foster adaptation and decrease the negative consequences of adversity  
70 on a child's mental health (15). A caregiving relationship characterised by structure (16),  
71 warmth (through emotional support, the transmission of affection and acceptance), e.g.  
72 (17), and adequate responsiveness (using supportive practices that help the child express  
73 and regulate their emotions), e.g. (18) is protective.

74 Other parenting behaviours such as promoting a child's physical activity and a  
75 healthy diet may also be relevant where school closure and home confinement contribute  
76 to less physical activity and a more sedentary and overall less healthy lifestyle (19).  
77 Finally, parents play a central role in mediating and managing information related to the  
78 pandemic. Daily information about infection rates and deaths, conjectures on the  
79 pandemic's evolution and its impact, can be highly anxiogenic to parents and youth (8).  
80 Therefore, parents need to effectively communicate with their children about the  
81 pandemic whilst limiting and facilitating interpretation of the information.

82 Other emotional and behavioural parenting processes can constitute risk factors for  
83 children's mental health. Unrealistic parental expectations and demands (20) are  
84 associated with harsh parenting, which is a risk factor for children's internalising and  
85 externalising problems (17). Similarly, parent emotional dysregulation, specifically,  
86 parent-child contagion and anxiety transfer, may be important to consider (18, 21, 22).  
87 These processes can be especially relevant during COVID-19, where parents and children

88 spend increased time together in a context of heightened stress. Indeed, parents need to  
89 take care of their own needs to support their children (14) effectively. Self-care involves  
90 attending to both physical and mental health needs such as engaging in pleasurable  
91 activities, exercising, eating healthy food, resting, looking for support when needed,  
92 making time for oneself, and stress management practices (23, 24).

93         The main aim of the current study is to characterise parents' behaviour and child's  
94 mental health during the COVID-19 pandemic in Portugal and the UK and to analyse the  
95 relation between parenting dimensions and child's mental health, considering child's  
96 developmental period (middle-childhood vs. pre-adolescence and adolescence) and  
97 context (UK v.s. Portugal). We hypothesise that the different protective (promotion of  
98 routines, emotional support, encouragement of children's emotional expression, support  
99 to child's emotion modulation) and risk (unrealistic demands, emotion dysregulation,  
100 management of the child's exposure to COVID-19 information, promotion of the child's  
101 healthy lifestyle, and self-care) parental factors would contribute independently to explain  
102 the child's outcomes, anxiety, and well-being. Additionally, an exploratory objective is  
103 to analyze the differences between countries and developmental periods concerning  
104 parental factors and child's adjustment.

105

## 106 **Method**

107

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

111 An online survey and data collection tool were developed in a Qualtrics Platform  
112 and hosted by the Faculty of Psychology, University of Lisbon. Participants were  
113 recruited from the community through various channels: newspapers, social media, email,  
114 and institutional advertising. Carers of 6 to 16-year-old children (as long as they resided  
115 with the child) were invited to participate. All participants provided written informed  
116 consent, by clicking “yes, I agree to participate in this research”, before completing the  
117 survey. When participants had more than one child in this age range, they were asked to  
118 choose one of their children when completing the survey. Data was collected between 1st  
119 May and 27th June, just following the first outbreak of the pandemic. It coincided with  
120 the imposition of multiple restrictions, including home confinement, school closure,  
121 remote working for many parents, and social distancing.

122

## 123 **Measures**

### 124 **Socio-demographic questionnaire**

125 Demographic information was collected about parents (e.g., age, gender, years of  
126 schooling), children (e.g., age, gender), and information regarding family situation during  
127 the pandemic period (e.g., family loss of income).

### 128 **Parenting behaviour**

129 To assess parenting dimensions of interest for our objectives, several brief scales  
130 (3 to 7 items) were developed specifically for this study. Items were developed from  
131 literature review or taken from subscales of pre-existing measures (Parents Emotion  
132 Regulation Scale - PERS; (18); Egna Minnen Bertröffande Uppfostran - Parents version  
133 - EMBU-P; (25). Parents rated all items on a 5 point Likert scale (from 1 never or almost

134 never to 5 always or almost always). The values of all scales were derived from the mean  
135 of all items on each scale.

136         The *Promotion of Routines scale* consists of 4-items and measures parents' efforts  
137 to maintain regular routines, including school activities at home, play/rest, meals, wake-  
138 up time and sleeping time (e.g., I help my child maintain a time to play/have fun and rest).  
139 The scale had an alpha of .83.

140         The *Emotional Support scale* is based on the Portuguese version of the EMBU\_P  
141 (26). It consists of 4-items and evaluates parental practices of verbal and physical  
142 emotional support and acceptance (e.g., I show my child, with words and gestures, that I  
143 like him/her). The scale had an alpha of .88.

144         The *Encouragement of Children's Emotional Expression scale* is derived from the  
145 PERS subscale of orientation to the child's emotions (18). It consists of 4-items and  
146 measures parents' capacity to be attentive and understand their child's negative emotions  
147 (e.g., when I see my child upset, I try to ask her/him questions so that she/he can better  
148 understand what she/he is feeling). The scale had an alpha of .90.

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

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



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

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

167           The *Parent's Emotion Dysregulation scale* from the PERS (18) subscale of lack  
168 of parent emotional control. It measures parents' difficulty in managing their own  
169 emotions in front of their child and emotion contagion between parent and child (e.g., I  
170 do get angry with my child, only because I am nervous or angry with other issues in my  
171 life). The scale had an alpha of .69.

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

## 176 **Outcome measures**

177           The *Revised version of Screen for Child Anxiety Related Emotional Disorders*  
178 (*SCARED-R*,(27) measures symptoms of anxiety including separation anxiety disorder,  
179 school phobia, generalised anxiety disorder, panic disorder, social phobia, obsessive-  
180 compulsive disorder, animal phobia, situational-environmental phobia, and blood-  
181 injection-injury phobia, and post-traumatic stress disorder. Parents rate each item based  
182 on their child's behaviour during the last month on a Likert scale of 0 (never or almost

183 never) to 2 (often). We used the Portuguese (28) and English version (29), composed of  
184 69 items. The total value presented an excellent alpha for this sample (.95).

185 *The KIDSCREEN-10 Index* measures a child's quality of life, including physical  
186 and psychological well-being, relationship with parents and peers, and school adaptation.  
187 Parents are asked to rate each item based on their child's behaviour during the last week  
188 on a five-point Likert scale (from not at all or never to extremely or always). We used the  
189 Portuguese and UK versions (30). In this study, this scale presented an alpha of .81.

## 190 **Data analysis**

191 Analyses were performed using SPSS (v.26, SPSS Inc., Chicago, IL). First, the  
192 relations between socio-demographic variables and families' situation during the COVID-  
193 19 pandemics and participants' countries of origin (Portugal and the UK) and the  
194 children's age (6 to 9 years and 10 to 16 years) were analysed using Chi-Square tests of  
195 Independence. Next, we analysed the differences between the groups according to the  
196 participants' countries of origin and the children's age in relation to parents' behaviour  
197 and child's adjustment. Finally, standard multiple linear regression models were  
198 estimated for the dependent variables of interest. The regression models were estimated  
199 according to the participants' countries of origin and the children's age.

200 Statistical assumptions underlying linear regression models were tested.  
201 Particularly, normality and homoscedasticity of the residuals, absence of multivariate  
202 outliers, errors independence, and multicollinearity. Normal distribution was assessed  
203 through skewness ( $|Sk| < 3$ ) and kurtosis ( $|Ku| < 10$ ) values (31), with homoscedasticity  
204 being evaluated by visual inspection of the scatter plot of residuals versus predicted  
205 values. As for outliers, Mahalanobis distance ( $D^2$ ) was computed (32), with observations  
206 being declared multivariate outliers when values, after being compared to a  $\chi^2$  distribution

207 with  $p$  degrees of freedom, exceeded the quantile for some inverse probability ( $p < .001$ ;  
208 33). Also, an outlier was considered influential when Cook's distance values were higher  
209 than 1 (34). Residual independence was evaluated using the Durbin-Watson test. Finally,  
210 variance inflation factor values (VIF greater than 5) were checked for identifying  
211 multicollinearity (35). Significance tests were two-tailed using a significance level of  
212 0.05.

213

## 214 **Results**

215

### 216 **Socio-demographic characteristics**

217 The sample consisted of 442 caregivers residing in Portugal ( $n=224$ ) and the UK  
218 ( $n=218$ ). The majority were mothers, had a college degree, and lived in an intact family  
219 (Table 1). The Portuguese participants were more likely to be fathers, have more years of  
220 schooling, and be full-time workers. There were no significant differences between the  
221 two countries regarding children's age ( $t(440) = 0.95, p = .342$ ).

222

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230 Table I.  
 231 Demographic variables and Family's situation during the COVID-19 Pandemic

	Portugal ( <i>n</i> = 224 )		UK ( <i>n</i> = 218 )		$\chi^2$
	<i>n</i>	%	<i>N</i>	%	
Socio-demographic characteristics					
Carer					8.34*
Mothers	184	82.1%	199	91.3%	
Father	36	16.1 %	16	7.3 %	
Other	4	1.8%	3	1.4%	
Parent schooling					21.97***
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%	
Parent occupation					117.56***

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 %	1.32
Child's gender (Male)	115	51.3 %	121	55.5%	1.66
Child's age	10.13 ( <i>SD</i> = 2.90)		9.87 ( <i>SD</i> = 2.80)		
Family situation during the Pandemic					
Child in home-schooling	219	97.8 %	192	88.1%	15.92***
One adult or more with remote work	172	76.8%	144	66.1%	6.24**
Income reduction					13.550***
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%	23.55***
Someone close infected by COVID-19	14	6.3%	59	27.1%	34.71***

Child's with outside activities every day/almost every day	33	16.1%	163	83.2%	76.91***

232 *Note.* The significance level considered was  $p < .025$  according to Bonferroni correction. \*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .025$ .

233 **COVID-19 pandemic impact on families**

234           The majority of families had at least one adult working exclusively remotely from  
235 home, and the vast majority of children were involved in distance learning (Table 1).  
236 However, Portuguese participants were more likely to have adults working remotely from  
237 home, lose more than 30% of their income, and have children involved in distance  
238 learning. Only a small percentage of children or immediate family members were infected  
239 or suspected to be infected by COVID 19. Child and family actual and suspected  
240 infections were more common in the UK sample. The most striking difference between  
241 the two samples was the engagement in outdoor activities. In Portugal, only 20.1% of  
242 children went for outside activities every day or almost every day, compared to 61.1% in  
243 the UK.

244 **Characterisation of parenting behaviour and child's**  
245 **adjustment**

246           Descriptive statistics for caregivers parenting and child's adjustment for the total  
247 sample, country, and age groups are presented in Table II.

248

249 Table II.

250 Parent's behaviour and youth adjustment

	Portugal ( <i>n</i> = 224) <i>M</i> ( <i>SD</i> )	UK ( <i>n</i> = 218) <i>M</i> ( <i>SD</i> )	<i>t</i>	<i>Cohen's d</i>	6- 9 years ( <i>n</i> = 210) <i>M</i> ( <i>SD</i> )	10-16 years ( <i>n</i> = 232) <i>M</i> ( <i>SD</i> )	<i>t</i>	<i>Cohen's d</i>
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 to 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 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

251

*Note.* SCARED-R Screen for Child Anxiety Related Emotional Disorders – Revised Version, KIDSCREEN-10 Health Questionnaire for

252

Children and Young People -10 index. The significance level considered was  $p < .025$  according to Bonferroni correction. \*\*\*  $p < .001$ ; \*\*

253  $p < .01$ ; \*  $p < .05$ . Skewness ( $|Sk| < 3$ ) and kurtosis ( $|Ku| < 10$ ) values (Maroco, 2014) were considered and complemented with visual  
254 inspection of Q-Q plots suggesting reasonable normal distribution.

255 UK parents reported significantly higher levels of emotional support, promotion of  
 256 healthy lifestyle, and lower levels of unrealistic demands and parental emotional  
 257 dysregulation. There were also significant differences between the two children's age  
 258 groups concerning emotional support, promotion of routines, and healthy lifestyles, with  
 259 parents of younger children reporting higher levels.

260 In relation to the child's adjustment, this sample presents lower quality of life ( $M = 40.38$ ,  
 261  $SD = 7.60$ ,  $n = 442$ ) compared with data from a HRQoL international survey, involving  
 262 11 countries ( $M = 49.74$ ,  $SD = 10.14$ ,  $n = 8,072$ ) ( $t(8512) = 19.114$ ,  $p < .001$ , *Cohen's d*  
 263  $= 0.93$  (30). Nevertheless, there were no statistical significant difference between the  
 264 total anxiety score of the Portuguese sample in the current study ( $M = 31.17$ ,  $SD = 18.56$ ,  
 265  $n = 224$ ) and the values of a normative sample from Portuguese children ( $M = 32.68$ ,  $SD$   
 266  $= 18.87$ ,  $n = 1,065$ ) (28) ( $t(1287) = 1.092$ ,  $p < .275$ , *Cohen's d*  $= 0.08$ ).

## 267 **Caregivers' parenting behaviour and Child Anxiety**

268 Evaluation of assumptions suggested normality (Country:  $Z_{Sk} = 1.08$ ,  $Z_{Ku} = 2.24$ ;  
 269 Age:  $Z_{Sk} = 1.08$ ,  $Z_{Ku} = 1.74$ ), homoscedasticity (absence of funnel shape) and errors  
 270 independence. Three outliers were identified by the regression model ( $p < .001$ ) and kept  
 271 in the analyses because Cook's distance values were lower than 1. Additional diagnostic  
 272 statistics are presented in Table II. For both countries, unrealistic demands regression  
 273 coefficient differed significantly from 0. Encouragement of the child's emotional  
 274 expression was significant for families from the UK, and emotional dysregulation was  
 275 significant for families from Portugal. For parents of 6 to 9 years old children, a positive  
 276 association between unrealistic demands and global child's anxiety was found, as well as  
 277 a negative association between parental self-care and the latter. When children were older,  
 278 regression coefficients were statistically significant for the encouragement of the child's

279 emotional expression, management of the child's exposure to information, unrealistic  
280 demands, and emotional dysregulation (see Table III).

Table III

Regression coefficients, standard errors and diagnostic statistics for anxiety predictors

	Portugal ( <i>n</i> = 224)		United Kingdom ( <i>n</i> = 218)		6-9 years ( <i>n</i> = 210)		10-16 years ( <i>n</i> = 232)	
	<i>B</i> ( <i>SE</i> )	$\beta$	<i>B</i> ( <i>SE</i> )	$\beta$	<i>B</i> ( <i>SE</i> )	$\beta$	<i>B</i> ( <i>SE</i> )	$\beta$
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 to child's emotion modulation	1.97(2.82)	0.07	-3.11(3.01)	-0.1	-.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	-	-0.12(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	
$R^2(R^2_a)$	.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		

282 Note. \*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$ .

283

284

## 285 **Caregivers' parenting behaviour and Child's Quality of life**

286 Assumptions were met revealing adequate normality (Country:  $Z_{Sk} = .34$ ,  $Z_{Ku} =$   
287  $.48$ ; Age:  $Z_{Sk} = .09$ ,  $Z_{Ku} = .17$ ), with plot visual inspection suggesting homoscedasticity.  
288 Durbin-Watson test statistics were also illustrative of residuals independence.  
289 Mahalanobis distance suggested the existence of three outliers by regression model ( $p <$   
290  $.001$ ), which were maintained in the analyses due to Cook's distance values being less  
291 than 1.

292 For the Portuguese sample, promoting physical activity, self-care, unrealistic  
293 demands, and emotional dysregulation contributed to explaining children's quality of life,  
294 with regression coefficients being statistically significant. For British families, only  
295 promoting routines, modulation of children's emotions, and unrealistic demands  
296 significantly predicted this outcome. Differences were also found when comparing  
297 children's ages. Even though unrealistic demands, and modulation of children's emotions,  
298 were significant predictors of the child's quality of life for both groups, statistically  
299 significant results for self-care were also found for those with younger children (see Table  
300 IV).

Table IV

Regression coefficients, standard errors and diagnostic statistics for quality of life

predictors

	Portugal ( <i>n</i> = 224)		United Kingdom ( <i>n</i> = 218)		6-9 years ( <i>n</i> = 210)		10-16 years ( <i>n</i> = 232)	
	<i>B</i> ( <i>SE</i> )	B	<i>B</i> ( <i>SE</i> )	B	<i>B</i> ( <i>SE</i> )	β	<i>B</i> ( <i>SE</i> )	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 to 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	.004(.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
$R^2(R^2_a)$	.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. \*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$ .

## Discussion

COVID-19 posed and continues to pose significant threats to the mental health and well-being 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 to daily routines (36).

Our data highlights the variety of parenting behaviours used by carers during the first peak of the COVID-19 pandemic in two European countries, with different infection and death rates. There were minor differences between countries or children's age groups in using the specific parenting strategies assessed. The exceptions were unrealistic parental demands and emotion dysregulation with Portuguese parents reporting higher levels. In terms of the child's health, the comparison with studies conducted before the pandemic does not indicate that child anxiety has increased during COVID-19, although there has been a marked deterioration in the child's quality of life. This may reflect the timing of our survey, undertaken six weeks after the pandemic was declared. Currently, lockdown will have been negatively impacting the child's everyday life. However, anxiety may have returned to pre-pandemic levels as children acquire sufficient information to resolve any COVID-19 misunderstandings or uncertainties.

Despite the importance of parents attending to their own needs, parental self-care was rated low (13). Undoubtedly, COVID-19 will have created many additional stressors for parents, which they will need to cope with to support their children effectively. This seems particularly important given our finding that less self-care and more parent emotional dysregulation was associated with poorer mental health outcomes for children,

particularly younger children. This finding is consistent with a cross-sectional COVID survey in Italy where parents who found it difficult to make space and time for themselves reported more stress and greater child emotional problems (14). These findings suggest that it is especially important to encourage parents to prioritise their own psychological care during a pandemic.

Unrealistic parental demands were associated with child anxiety and impaired the quality of the child's life across both countries. Our scale assessed parental demands relating to completing schoolwork and complying with everyday routines and therefore had significant implications during the COVID lockdown. School closures resulted in parents assuming increased responsibility for providing their child's education, a role which many found challenging, unsupported, and ill-prepared to undertake (14). Similarly, lockdown resulted in considerable disruption to everyday routines putting pressure on parents to create and maintain a daily structure. Given the current re-imposition of lockdown and school closures, there is a need to plan how potential negative effects can be mitigated, particularly for those who may be most disadvantaged (19, 37).

Parents' experience of difficulties managing their own emotions was associated with increased child anxiety and poor quality of life in Portugal. The adverse effect of parental emotional dysregulation on child anxiety has previously been documented (21). 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 COVID-19.

Our results also suggest some protective parental strategies. Consistent with the literature, promotion of routines was associated with increased child's quality of life in the UK (Bater & Jordon, 2017). Parental behaviour encouraging the child's emotional expression and support for the child's emotional modulation protected the child's mental health. Parents play an important role in the socialisation of children's emotion regulation

(38), a transdiagnostic factor underlying different child's mental health problems (39), and this may be particularly important in times of heightened stress for children.

Finally, our results suggest that management of the child's exposure to COVID information (older children) and promotion of a healthy lifestyle (younger children) were important. The need to communicate effectively with children during pandemics and provide open, honest, and understandable information has been highlighted (8), especially for older children, more exposed to different information sources (e.g., TV news, social media, peers), some of them unreliable. Similarly, parents' efforts to promote physical activities and a healthy diet appear especially important during home confinement.

Our study does have several limitations. Firstly, this was a cross-sectional study involving interested volunteers undertaken at one particular time-point during COVID-19. The cross-sectional approach of the current study prevents us from drawing any conclusions about the directions of effects regarding the associations found between parenting and children's mental health. Secondly, our participants tended to be more highly educated, and as such, our findings may not represent the broader population or reflect parenting behaviour during the initial stages of the pandemic. Also, we have relied on parental reports, predominantly mothers, and this may not necessarily reflect the views of other carers or children within the household. Although parent's reports of the child's adjustment are common in evaluating 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. Whilst they were informed by existing literature and instruments and had good internal reliability, their wider 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 practice, child anxiety, and quality of life in two European countries with different disease rates during the first peak of COVID 19. Addressing parents' mental health needs, particularly emotional regulation, may be necessary in reducing anxiety and improving the quality of life of children during these uncertain times.

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