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NOTE

Climate change anxiety among parents of school-aged children in the UK: experience as a common predictor of cognitive-emotional and functional impairments

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ABSTRACT

Climate change anxiety (CCA) is distress about climate change and its impacts on the environment and human health. CCA is manifested as cognitive-emotional impairment and functional impairment. CCA has been increasingly recognised in the mental health field, however, how to reduce CCA remains uninformed. Parents of school-aged children are vulnerable to CCA, due to parenting stress and worries for the future. We aimed to identify predictors of CCA impairment, from experience of climate change, behavioural engagement, and number of children among parents of school-aged children. A convenience sample of 126 parents (82 mothers and 44 fathers) responded to an online survey. Multiple regression analyses were used. After controlling for age and gender, (a) experience of climate change ($b = 0.16$, $p < 0.01$, 95%CI 0.06–0.27) and behavioural engagement ($b = 0.31$, $p < 0.05$, 95%CI 0.08–0.55) predicted cognitive-emotional impairment, and (b) experience of climate change predicted functional impairment ($b = 0.20$, $p < 0.01$, 95%CI 0.08–0.31). Experience of climate change was a common predictor. Cognitive re-appraisal and compassion practice may help alter the experiential aspect of climate change to mitigate CCA. Future research needs to evaluate the mechanism of climate change experience in order to effectively reduce CCA.

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Climate change anxiety; parental mental health; cognitive-emotional impairment; functional impairment; climate change experience

Introduction

Climate change anxiety (CCA) is commonly regarded as the mental distress an individual experiences, arising from worries about the global climate crises and their consequences (Clayton, 2020). CCA is gaining recognition in mental health (Jackson et al., 2023). For example, the "Stress in America" survey found 61% of the general public ($n = 3192$) felt climate change as a "very/somewhat significant" source of stress, a 10%-increase from

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the same survey in 2018 (American Psychological Association, 2022). Likewise, 74% of UK adults ($n = 4220$) were very or somewhat worried about climate change (Office for National Statistics, 2022).

One population group particularly vulnerable to CCA are parents of young children. Parents can be susceptible to parental stress related to the wellbeing of their children (Curley & Kotera, 2023; Kotera et al., 2022). Their mental health is further impacted by climate change. A 2021 survey reported 69% of 1001 UK parents believed that climate change threatens their children's future (Action Against Hunger, 2021). However, there is a paucity of CCA research in this population.

Evidence for CCA is still nascent, however a systematic review reported CCA was associated with mental health symptoms such as depression and anxiety (Boluda-Verdú et al., 2022). A factor analysis supported that CCA consisted of cognitive-emotional impairment and functional impairment (Clayton & Karazsia, 2020). Cognitive-emotional impairment refers to difficulties an individual may have in how they think and feel. This includes rumination, difficulty sleeping or concentrating. Functional impairment is difficulties an individual may experience in their day-to-day activities, including their professional, social, and personal domains.

In an American study (Clayton & Karazsia, 2020), experience of climate change, meaning a personal account of being affected, was associated with these types of impairment. In the same study, experience of climate change was associated with behavioural engagement, meaning how often one takes eco-friendly actions and how motivated they are to do so (Clayton & Karazsia, 2020). Moreover, parental mental health research consistently reports the number of children they have is positively associated with parental stress (Kotera et al., 2022). However, these relationships have not been explored in UK parents of school-aged children.

This study aimed to identify predictors of cognitive-emotional impairment and functional impairment from experience, behavioural engagement and number of children.

Methods

A cross-sectional study using an online survey was conducted. The study invitation was distributed to social media, and internally through the universities (6th September 2022 to 30th April 2023). No participation compensation was offered. To strengthen the recruitment, a crowdsourcing service, Prolific was used on 30th–31st January 2023. £3 was paid as participation compensation. Ethical approval was obtained from the author MBU's university research ethics committee (ETH2122-4612).

Instruments

Three validated measures, all validated by Clayton and Karazsia (2020), and one demographic questionnaire, developed by the researchers, were used.

The Climate Anxiety Scale (CAS) was used to measure cognitive-emotional impairment (eight items; e.g. Thinking about climate change makes it difficult for me to concentrate) and functional impairment (five items; e.g. My concerns about climate change interfere with my ability to get work or school assignments done). All 13 items utilise a five-

point Likert scale (1 being "never" to 5 being "almost always"). Internal consistencies of each impairment subscale were high in our sample ($\alpha = 0.79$ and 0.78 for cognitive-emotional impairment and functional impairment, respectively).

The Experience of Climate Change Scale (ECCS) consists of three items (e.g. I have noticed a change in a place that is important to me due to climate change), responded on a five-point Likert scale from 1 being "strongly disagree" to 5 being "strongly agree". Internal consistency was high in our sample ($\alpha = 0.82$).

The Behavioural Engagement Scale is a six-item scale rated on the same five-point Likert scale as ECCS. The six items include "I believe I can do something to help address the problem of climate change". Internal consistency was high in our sample ($\alpha = 0.81$).

Our demographic questionnaire asked parents about their (a) sex, (b) age, and (c) number of children.

Analysis

Multiple regression analyses were used to identify whether experience, behavioural engagement, and number of children (Predictor variables) predict cognitive-emotional impairment and functional impairment (Outcome variables) after controlling for parents' sex and age (Control variables). The analyses were performed using SPSS 27.0.

Results

One hundred and twenty-six parents (82 mothers and 44 fathers) participated. Their age distribution was 63 in 36–45 years old, 39 in 26–35, 14 in 46–55, 4 in 56 or above, 3 in 18–25, and 3 did not prefer to say (in order of frequency).

For cognitive-emotional impairment (Table 1), experience of climate change ($b = 0.16$, $p < 0.01$, 95%CI 0.06–0.27) and behavioural engagement ($b = 0.31$, $p < 0.05$, 95%CI 0.08–0.55) were significant positive predictors. The number of children was not a significant predictor ($b = -0.02$, $p > 0.05$, 95%CI −0.06–0.03).

For functional impairment (Table 2), only experience of climate change was a significant predictor ($b = 0.20$, $p < 0.01$, 95%CI 0.08–0.31). Neither behavioural engagement

Table 1. Predicting cognitive-emotional impairment.

	Outcome variable: Cognitive-emotional impairment			
	B	SE_B	β	95% CI [lower, upper]
Step 1				
Aged Under 35	0.04	0.02	0.15	−0.01, 0.09
Aged Over 45	0.01	0.03	0.04	−0.05, 0.08
Sex (Mother = 1, Father = 0)	0.04	0.02	0.14	−0.01, 0.08
Adj. R^2		.02		
Step 2				
Aged Under 35	0.04	0.02	0.14	−0.01, 0.08
Aged Over 45	0.02	0.03	0.07	−0.04, 0.08
Sex (Mother = 1, Father = 0)	0.03	0.02	0.11	−0.02, 0.07
Experience of Climate Change	0.16	0.05	0.28**	0.06, 0.27
Behavioural Engagement	0.31	0.20	0.23*	0.08, 0.55
Number of Children	−0.02	0.02	−0.07	−0.06, 0.03
Adj. R^2 Δ		.17		

**$p < 0.01$, *$p < 0.05$. Three predictor variables in total predicted 17% of variance in cognitive-emotional impairment (moderate effect size).

Table 2. Predicting functional impairment.

	Dependent variable: Functional impairment			
	B	SE_B	β	95% CI [lower, upper]
Step 1				
Aged Under 35	0.02	0.03	0.08	−0.03, 0.08
Aged Over 45	0.02	0.04	0.06	−0.05, 0.09
Sex (Mother = 1, Father = 0)	0.02	0.03	0.06	−0.04, 0.07
Adj. R^2		−.02		
Step 2				
Aged Under 35	0.03	0.03	0.10	−0.02, 0.08
Aged Over 45	0.03	0.03	0.09	−0.03, 0.10
Sex (Mother = 1, Father = 0)	0.00	0.02	0.01	−0.04, 0.05
Experience of Climate Change	0.20	0.06	0.31**	0.08, 0.31
Behavioural Engagement	0.16	0.13	0.11	−0.11, 0.42
Number of Children	0.03	0.02	0.12	−0.02, 0.08
Adj. R^2 Δ		.15		

**$p < 0.01$. Three predictor variables in total predicted 15% of variance in functional impairment (moderate effect size).

($b = 0.16$, $p > 0.05$, 95%CI −0.11–0.42) nor number of children ($b = 0.03$, $p > 0.05$, 95%CI −0.02–0.08) was a significant predictor.

Discussion

This study aimed to identify predictors of two CCA components: cognitive-emotional impairment and functional impairment. Experience of climate change and behavioural engagement were predictors of cognitive-emotional impairment, whereas experience of climate change was the only predictor of functional impairment.

Experience of climate change was a predictor of both cognitive-emotional impairment and functional impairment. This suggests engaging with the experiential aspect of climate change may help reduce impairments. Experience of climate change relates to one's perception of being affected, therefore altering the perception may help soften the impairments. For example, cognitive re-appraisal was found effective for reducing stress and maintaining concentration (Kotera, 2018). Such psychological skills are essential to building resilience, protecting one's functionality in difficult situations (Kotera et al., 2021).

Moreover, practicing compassion can activate one's soothing mind, relating to safeness and contentment (Gilbert, 2010). CCA is pertinent to the threat mind, relating to anxiety and fear. This can cause an exaggerated level of anxiety, reducing joy and increasing stress. Exercises such as imagery, letter-writing, and breathing, can help activate the soothing mind, which helps alter one's perception (Gilbert, 2009). Likewise, awareness training may be helpful, bringing attention to the here-and-now (Braun & Kotera, 2022). Such training can enhance a sense of common humanity (an awareness that we all have life's difficulties) (Neff & Germer, 2018), stabilising our mind. Creating a community or listening to other people's accounts about CCA (Kotera et al., 2024) may be a practical way to implement these approaches.

Limitations of this study included using the self-report measure, which might have resulted in response biases (Kotera et al., 2020), and causality not assessed. Moreover, two weaknesses identified in a previous CCA synthesis – definition and inclusion of minority populations (Coffey et al., 2021) – were not addressed in this study. However, we

evaluated CCA's associations in a new sample of UK parents. Future research needs to investigate the mechanism of CCA (e.g. qualitative studies) and include people in minority groups (e.g. cultural minorities (Kotera et al., 2023)).

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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