

Worrying about individual health and worrying about ecological health; the relationship between eco-anxiety and health anxiety

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SUMMARY

Objective: Hypothesizing that there may be a relationship between eco-anxiety, which reflects concerns about the deterioration of ecological health, and health anxiety, which is an indicator of concern about the deterioration of personal health, we investigated the relationship between eco-anxiety and health anxiety, health cognitions, and metacognitions about health.

Method: The study included 367 participants between the ages of 18 and 25. The sociodemographic data form, the Hogg Eco-Anxiety Scale, the Health Anxiety Inventory, the Health Cognitions Questionnaire, and the Metacognitions about Health Questionnaire were completed by the participants.

Results: The total score of eco-anxiety was significantly higher in women than in men ($p = 0.002$). There was a significant positive correlation between the eco-anxiety scale and total scores of health anxiety, health cognitions, and metacognitions about health scales ($p < 0.001$). In addition, there was a significant positive correlation between the eco-anxiety level and difficulty coping with illness, perceived likelihood of illness, awfulness of illness, beliefs that thoughts can cause illness, beliefs about biased thinking, and beliefs that thoughts are uncontrollable ($p < 0.05$).

Discussion: Our findings point to the intertwined nature of eco-anxiety and health anxiety in an era of increasing environmental crises. Our study also suggests a positive correlation between eco-anxiety and health cognitions and metacognitive beliefs about health, suggesting this intersection. Understanding the complex interplay between ecological anxiety, health anxiety, health cognitions, and metacognitions about health is important for the development of targeted interventions.

Key Words: Climate Change, Eco-Anxiety, Health Anxiety, Health Cognitions, Metacognitions About Health

INTRODUCTION

Climate change is defined as one of the most important challenges of our time, with serious impacts on both the physical and mental well-being of individuals (1). Eco-anxiety is defined as individuals experiencing emotional reactions such as worry and fear in the face of global climate change threats (2). Different terms such as eco-anxiety, climate change anxiety, environmental distress or ecological stress are used interchangeably in the literature (2). While eco-anxiety is not officially classified as a disorder, it is noted that severe instances of the condition may necessitate mental health services (3).

Eco-anxiety, defined as worry about global environmental conditions has become an important factor affecting the quality of life and psychological well-being of many individuals (4). Most people agree that one of the greatest risks to world health today is climate change and that its effects on mental health threaten public health worldwide (5). Individuals are becoming increasingly aware of the effects of climate change due to alarming reports published by major organizations such as the World Health Organisation (6). According to a 2018 study by the Yale Climate Change Programme, 69% of respondents are concerned about global warming (7). People are becoming increasingly anxious and concerned about how climate change may affect their health as its effects become more noticeable (8).

DOI: 10.5505/kpd.2025.33678

Cite this article as: Subasi Turgut F, Ozturk M. Worrying about individual health and worrying about ecological health; the relationship between eco-anxiety and health anxiety. Turkish J Clin Psych 2025; 28:113-122

The arrival date of article: 02.12.2024, **Acceptance date publication:** 16.04.2025

Turkish J Clinical Psychiatry 2025;28: 113-122



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Health anxiety is a condition characterized by excessive worry and preoccupation with the belief that one has a serious illness, despite a lack of medical evidence (9). Although there are various models of health anxiety, the cognitive-behavioral model is claimed to be the most comprehensive model (10). According to this model, individuals who experience health anxiety may see even seemingly innocuous bodily sensations or other health-related information as dangerous. A vicious loop of emotional distress, dysfunctional imagery, illness-related ideas, and physiological arousal are produced by these perceptions (11). Health-related cognitions play an important role in the degree of health threat experienced (12). Metacognitive beliefs, defined as the beliefs that individuals have about their cognitions, can further influence these cognitions and potentially lead to a cycle in which negative health-related thoughts are sustained and intensified (13). The metacognitive model offers a different explanation of health anxiety from cognitive models. According to the metacognitive model, health anxiety is caused by long-term and repetitive negative thoughts about illness, i.e. worry/rumination, rather than dysfunctional beliefs and anxiety sensitivity (14).

While health anxiety is defined as excessive worry about one's own health, eco-anxiety refers to worry about ecological health. As far as we are aware, no research has been done to examine the connection between health anxiety and eco-anxiety in the literature. The aim of this study is to examine whether there is a relationship between eco-anxiety and health anxiety. We hypothesize that personal health concerns and environmental health concerns are likely to overlap, that individuals with higher levels of health concerns will report higher levels of eco-anxiety, and that examining eco-anxiety through the lens of health concerns, health cognitions and metacognitive beliefs will contribute to the literature.

METHODS

This study was conducted in accordance with the ethical standards of the institutional research committee and the principles of the Declaration of Helsinki and was approved by the Ethics

Committee (22.11.2023/15). The study was designed as a single-group cross-sectional study. The study was conducted with medical school students at different grade levels. After ethics committee approval, permission from the dean's office of the medical school was obtained for the study. The questionnaires were administered to the participants face-to-face and were based on volunteerism. The questionnaires were administered outside of class hours.

Individuals with any known acute or chronic medical disease (metabolic, genetic, neurological, autoimmune, allergic, etc.) were excluded. Although known psychiatric illness was not an exclusion criterion, participants who were already taking psychiatric medication were excluded.

The population of our study consisted of medical faculty students ($N = 1280$). The sample size was calculated as 296 individuals with a 5% significance level and power $1-\beta = 0.95$ (95%). In order to increase the power of the study, 367 people were included in the study. (A total of 404 people participated in the study, 25 participants were excluded due to medical illness and 12 participants were excluded due to current psychiatric medication use). Students aged between 18 and 25 years were included in the study and a similar number of students from each grade were included in the study.

Written informed consent was obtained from all participants.

Participants who gave written informed consent completed the Sociodemographic data form, Hogg Eco-Anxiety Scale (HEAS-13), The Health Anxiety Inventory, Health Cognitions Questionnaire and Metacognitions about Health Questionnaire (MCQ-HA).

Sociodemographic Data Form: It is a form created by the researchers and includes questions about the participants' age, gender, smoking, history of psychiatric disorder, history of medical illness, history of migration, feelings about climate change, and some questions about climate change. In this form, participants can mark more than one emotion they feel about climate change. They also answered

yes/no to questions about climate change. This form was filled in by the participants.

HEAS-13: HEAS-13 was developed to measure anxiety in line with symptoms related to environmental crises. This scale consists of 13 items. The scale includes 4 sub-dimensions: emotional symptoms, rumination, behavioral symptoms and personal impact anxiety. The minimum score obtained from the scale is 0 and the maximum score is 39. An increase in the total score of the scale indicates that the individual's eco-anxiety levels are high. The Turkish validity and reliability study of the HEAS-13 scale was conducted by Uzun et al. (15).

The Health Anxiety Inventory: This scale was developed to assess the level of health anxiety of individuals (16). The Health Anxiety Inventory is a self-report Likert-type scale consisting of 18 items. A high score on the scale indicates a high level of health anxiety in the individual. This scale has high-reliability coefficients. The long form of the scale includes sub-dimensions such as belief that he/she has a disease, seeking reassurance about his/her disease, anxiety about the negative consequences of the disease, belief that he/she is prone to disease, hypersensitivity to bodily sensations and fear. The Turkish validity and reliability study of the Health Anxiety Inventory was conducted by Aydemir et al. in 2013 (17).

Health Cognitions Questionnaire: This scale assesses dysfunctional beliefs associated with individuals' health anxiety. The scale consists of 4 factors "difficulty coping with illness", "medical services inadequacy", "perceived likelihood of illness" and "awfulness of illness". Scale items are scored on a 5-point scale. High scores obtained from the scale reflect dysfunctional beliefs about health. The internal consistency coefficients (Cronbach's alpha) of the factors were found to be between .72-.90 in the group without a physical diagnosis and between .75-.91 in the group with a physical diagnosis. Yilmaz et al. carried out the validity and reliability investigation in Turkey in 2018 (18).

MCQ-HA: Bailey and Wells developed the scale to assess metacognitive beliefs related to health anxiety (13). MCQ-HA consists of 14 items. The scale

has 3 sub-dimensions: beliefs about prejudiced thinking, belief that thoughts can cause disease and belief that thoughts are uncontrollable. The scores to be obtained from the scale vary between 14 and 56, and the increase in the scores obtained indicates an increase in dysfunctional metacognitive beliefs related to health anxiety. The internal consistency coefficient of the scale was found to be .90 for the whole scale, .83 for beliefs related to prejudiced thinking, .78 for the belief that thoughts can cause illness, and .81 for the belief that thoughts are uncontrollable.

Statistical Analysis

Descriptive statistics were used to determine means, frequencies, and percentages. Independent t-test was used to compare the scores of eco-anxiety, health anxiety, health-related cognitions and health-related metacognitions scales between the groups (between genders, migration history, smoking, and presence of psychiatric disorders) for normally distributed data and Mann Whitney U test was used for non-normally distributed data. The Pearson correlation test was used to evaluate the relationship between clinical scales. Factors predicting eco-anxiety levels in the whole group were determined by multiple regression analysis. All the assumptions of regression, which include residual normality, homogeneity of residual variances, residual independence, and collinearity, were evaluated and confirmed through standard probability plots, residuals versus predicted values plots and variance inflation factor ($VIF < 5$ as acceptable values). The model's outliers were eliminated. Based on the assessments, all assumptions are met. Dubin-Watson value of Model-1 was 1.894 and Dubin-Watson value of Model-2 was 1.905. SPSS 23.0 (SPSS Inc. IL, Chicago, USA) program was used for statistical analysis, and $p < 0.05$ was considered statistically significant.

RESULTS

A total of 367 participants, 185 (50.4%) males and 182 (49.6%) females, were included in the study. It was found that 83.4% of the participants did not have a history of migration and 16.6% had a history of migration. It was determined that 7.1% of the

Table 1. The relationship between eco-anxiety and other variables

		Eco-Anxiety	p
Sex	Male	9.98 – 7.44	0.002
	Female	12.43 – 7.14	
Migration story	Yes	10.47 – 7.47	0.407
	No	11.33 – 7.40	
Presence of psychiatric disorders	Yes	12.0 (1.0-39.0)**	0.259**
	No	11 (0.0-37.0)	
Cigarette use	Yes	11.77 – 7.57	0.574

** Mann Whitney U test

participants had a history of psychiatric disorders. While 12.3% of the participants in the study stated that they smoked, 87.7% stated that they did not smoke.

While eco-anxiety scores in females were found to be 12.43 ± 7.14 , in men it was 9.98 ± 7.44 , and the total eco-anxiety score in females was found to be significantly higher than in men ($p = 0.002$). There was no difference in eco-anxiety levels about migration history and smoking variables. Although not statistically significant, eco-anxiety levels were found to be higher in participants with psychiatric illness than in participants without psychiatric illness (Table 1).

In this question, in which participants could select more than one option, 69.8% of the participants reported feeling anxiety, 60.2% sadness, 45.0% hopelessness, 33.5% fear, 28.9% guilt, 24.8% anger, 18.0% shame, 13.4% indifference and 11.7% grief (Figure 1).

51.8% of the participants answered yes to the question "I do not know how to cope with my negative feelings about climate change and other global environmental conditions". The total score of eco-anxiety was 13.01 ± 7.38 in the participants who said they did not know how to cope, while the total score was 9.24 ± 6.96 in the participants who said they knew how to cope ($p < 0.001$). 18.0% of the participants answered yes to the question "I often find myself researching about climate change and other global environmental issues in the media". Eco-anxiety level was found to be significantly higher in participants who answered yes ($p < 0.001$). 216 individuals stated that their concerns about global environmental problems increased after the COVID-19 pandemic. Eco-anxiety scores were found to be significantly higher in participants who stated that their anxiety increased after COVID-19 ($p < 0.05$) (Details are shown in Table 2).

Health anxiety scores in women were found to be 19.54 ± 7.93 , health cognitions total score was 61.97 ± 9.94 , and metacognitions about health total score was 26.88 ± 5.91 . Health anxiety scores in men were found to be 16.41 ± 7.53 , health cognitions total score was 59.22 ± 8.84 , and metacognitions about health total score was 26.39 ± 6.73 . Health anxiety was found to be significantly higher in women ($p < 0.001$). Health-related dysfunctional cognition scores were higher in women than in men

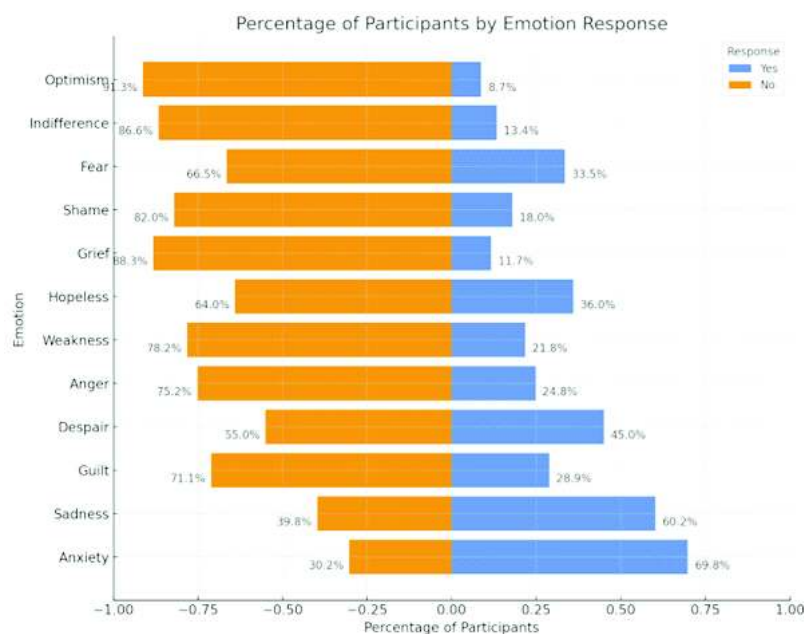
**Figure 1.**

Table 2. Relationship between questions related to Eco-Anxiety and HEAS-13 scores

	HEAS-13 Scores		P*
I feel negative emotions about climate change and other global environmental conditions	Yes (n= 306)	16.52 – 8.12	< 0.001
	No (n=61)	10.04 – 6.73	
I don't know how to deal with the negative feelings I have about climate change and other global environmental conditions	Yes (n = 190)	13.01 – 7.38	< 0.001
	No (n = 177)	9.24 – 6.96	
In my own life I worry that the world is coming to an end and that my generation will see it	Yes (n = 214)	13.06 – 7.12	< 0.001
	No (n = 153)	8.57 – 7.03	
I often find myself doing media research on climate change and other global environmental issues	Yes (n = 66)	16.52 – 8.12	< 0.001
	No (n = 301)	10.04 – 6.73	
I do not have sufficient and reliable information on climate change and other global environmental issues	Yes (n = 262)	11.81 – 6.89	0.020
	No (n = 105)	9.63 – 8.42	
After the Covid 19 pandemic, I became more concerned about climate change and other global environmental issues	Yes (n = 216)	13.73 – 7.01	< 0.001
	No (n = 151)	7.54 – 6.39	

* Independent T-Test (Abbreviations : HEAS-13; Hogg Eco-Anxiety Scale)

(p = 0.006). There was no significant difference between the groups in terms of dysfunctional metacognitive beliefs related to health anxiety (p = 0.464).

The scores of beliefs that thoughts can cause illness were 12.04 ± 3.54 in men and 13.20 ± 3.59 in women and were significantly higher in women than in men (p = 0.002). In men, beliefs about biased thinking scores were 8.43 ± 3.10 and beliefs

women than in men (p < 0.001).

A significant positive correlation was found between the total scores of the eco-anxiety scale and health anxiety, health cognitions and metacognitions about health scales (p < 0.001)(Table 3).

There was a significant positive correlation between eco-anxiety level and health anxiety, difficulty coping with illness, perceived likelihood of ill-

Table 3. Correlation between eco-anxiety scores and total scores of health anxiety, health cognitions and metacognitions about health

HEAS-13 Scores	Total Scores For Health Anxiety		Total Scores For MCQ-HA	Total Score For Health Cognitions
	R	P		
	0.462	< 0.001	0.335	0.277
			< 0.001	< 0.001

r= Pearson's correlation coefficient

(Abbreviations : HEAS-13; Hogg Eco-Anxiety Scale, MCQ-HA; Metacognitions about Health Questionnaire)

that thoughts are uncontrollable scores were 5.90 ± 2.07 . In women, beliefs about biased thinking and beliefs that thoughts are uncontrollable scores were 7.89 ± 2.74 and 5.77 ± 1.82 , respectively, and no significant difference was found between the groups (p = 0.083 and 0.535, respectively).

Difficulty coping with illness scores were 21.58 ± 5.30 in men and 22.70 ± 5.75 in women (p= 0.054). Medical services inadequacy scores were 12.26 ± 2.41 in men and 12.28 ± 3.05 in women (p= 0.968). Perceived likelihood of illness subscale was 12.30 ± 2.63 in men and 12.62 ± 2.68 in women (p= 0.245). Awfulness of illness was 14.35 ± 2.97 in women and 13.07 ± 3.07 in men and was significantly higher in

ness, beliefs that thoughts can cause illness, beliefs about biased thinking, and beliefs that thoughts are uncontrollable (p < 0.05). Details are shown in Table 4.

Multiple regression analysis was performed for the factors predicting eco-anxiety levels in all participants and two models were created. In Model 1, which included age, gender, migration history, presence of psychiatric disorder, health anxiety total score, health cognitions total score and metacognitions about health total score, it was found that presence of psychiatric disorder, maladaptive metacognitions about health and health

Table 4. Correlation between HEAS-13 scores and health anxiety, health related cognitions subscale scores and health related metacognition subscale scores

HEAS-13 Scores		HA	DCI	MSI	PLI	AI	BTT	BA	BTTU
		r	p						
		0.462	< 0.001	0.225	0.093	0.256	0.145	0.186	0.263
				< 0.001	0.078	< 0.001	0.006	< 0.001	< 0.001

r= Pearson's correlation coefficient

(Abbreviations : HA: Health Anxiety , DCI; Difficulty Coping With Illness, MSI; Medical Services inadequacy, PLI; Perceived Likelihood Of Illness, AI; Awfulness Of Illness, BTT; Beliefs That Thoughts Can Cause Illness, BA; Beliefs About Biased Thinking, BTTU; Beliefs That Thoughts Are Uncontrollable, HEAS-13; Hogg Eco-Anxiety Scale)

Table 5. Factors Predicting Eco-Anxiety (Model-1)

	B	Std. error	T	p	Confidence interval (95%)	
					Lower	Upper
Age	-0.158	0.187	-0.845	0.399	-0.527	0.210
Sex	0.811	0.728	1.115	0.266	-0.620	2.243
Migration Story	-0.977	0.942	-1.037	0.300	-2.831	0.876
Presence of psychiatric disorders	2.961	1.407	2.104	0.036	0.193	5.728
Health Anxiety	0.344	0.055	6.223	< 0.001	0.236	0.453
Health Cognitions	0.013	0.044	0.305	0.761	-0.072	0.099
MCQ-HA	0.228	0.059	3.875	< 0.001	0.112	0.343

(Abbreviations : MCQ-HA; Metacognitions about Health Questionnaire)

anxiety predicted eco-anxiety ($p < 0.001$, $F = 17.825$, Adjusted R square = 0.248) (Table 5). In Model 2, which included age, gender, migration history, presence of psychiatric disorder, total score of health anxiety, health cognition subscales and metacognitions about health subscales, it was found that the presence of psychiatric disorder, health anxiety, beliefs about biased thinking and beliefs that thoughts are uncontrollable subscales of metacognitive beliefs about health scale predicted eco-anxiety ($p < 0.001$, $F = 11.702$, Adjusted R square = 0.265) (Table 6).

DISCUSSION

Our research reveals a link between eco-concern and health anxiety, health cognitions and health-related metacognitions. The correlation between environmental anxiety and personal health concerns is noteworthy because the confluence of environmental and personal health concerns forms a complex tapestry of modern existential threats, bringing together concerns about the sustainability of our planet and the fragility of human health. The positive correlation between eco-concern, health cognitions and metacognitive beliefs about health points to this intersection. Such a correlation begs

the question: Could it be that as individuals grapple with the projected realities of environmental degradation, their environmental concerns and fears are not only about the ecological future but also linked to individual health concerns? In this framework, exploring the intersections between eco-anxiety, which describes concerns about the deterioration of environmental health, and health anxiety, which describes concerns about the deterioration of individual health, can help us understand the relationship between these two issues.

Some researchers have linked deep existential concerns with eco-anxiety(19). Empirical studies show that people experience existential questions such as guilt and shame about ecological issues. Although more research is needed to integrate existential anxiety and eco-anxiety more deeply, some preliminary research and conceptual reviews suggest that eco-anxiety may have a dimension related to existential questions (20-22). Studies investigating the relationship between health anxiety and existential thinking have also shown a significant negative relationship between these two variables (23). According to a study in this area, health anxiety is connected to both the existence of meaning in life and the pursuit of meaning in life (24). In a study

Table 6. Factors Predicting Eco-Anxiety (Model-2)

	B	Std. error	T	P	Confidence interval (95%)	
					Lower	Upper
Age	-0.205	0.189	-1.086	0.278	-0.576	0.166
Sex	1.281	0.739	1.734	0.084	-0.172	2.735
Migration Story	-0.975	0.939	-1.038	0.300	-2.822	0.872
Presence of psychiatric disorders	3.557	1.404	2.534	0.012	0.796	6.318
Health Anxiety	0.313	0.056	5.599	< 0.001	0.203	0.423
Beliefs That Thoughts Can Cause Illness	-0.33	0.108	-0.306	0.760	-0.245	0.179
Beliefs About Biased Thinking	0.333	0.140	2.384	0.018	0.058	0.607
Beliefs That Thoughts Are Uncontrollable	0.553	0.233	2.370	0.018	0.094	1.011
Difficulty Coping With Illness	0.027	0.075	0.360	0.719	-0.121	0.175
Medical Services Inadequacy	-0.054	0.131	-0.410	0.682	-0.312	0.204
Perceived Likelihood Of Illness	0.263	0.145	1.815	0.070	-0.022	0.548
Awfulness Of Illness	-0.095	0.134	-0.713	0.476	-0.359	0.168

investigating the relationship between death anxiety and health anxiety, death anxiety was found to be an important determinant of health anxiety (25). Pihkala stated that more dialog with themes such as death anxiety and health anxiety would lead to a better understanding of eco-anxiety (3). He also noted that some key elements of anxiety (uncertainty, unpredictability, uncontrollability, anxiety sensitivity) are strongly present in explanations of eco-anxiety (3). Eco-anxiety has been described in other studies in connection with feelings of anxiety, concern about the future and anxiety about a threat characterized by considerable uncertainty and characterized by common symptoms of anxiety (4). Many research have linked health anxiety to anxiety sensitivity, uncontrollability, and intolerance of uncertainty (26, 27).

Studies on health anxiety have revealed a positive relationship between neuroticism, one of the personality traits, and health anxiety (28). A study on eco-anxiety indicated that neuroticism has a significant effect on the level of eco-anxiety and that eco-anxiety is correlated with neuroticism (29). It has been suggested that people with high levels of neuroticism are alert to health threats, see it as a greater danger than it actually is when they encounter symptoms of illness, and exaggerate their physical symptoms (30). Such a situation may also be linked to eco anxiety, although it is difficult to comment in the absence of existing literature. However, given the harmless threats in health anxiety versus the undeniable risks and dangers of the global climate crisis, it is difficult to make predictions in this regard.

In health anxiety, health-related cognitions (difficulty coping with illness, medical services inadequacy, perceived likelihood of illness, awfulness of illness) play an important role in the degree of health threat experienced (12). In our study, difficulty coping with illness and perceived likelihood of illness were positively correlated with ecoanxiety, while medical services inadequacy and awfulness of illness were not correlated with ecoanxiety. This difference in dysfunctional beliefs between health anxiety and climate anxiety may indicate a point at which the nature of individuals' concern about environmental problems diverges from the nature of their concern about personal health. We also

found that while health anxiety and metacognitions about health significantly predicted eco-anxiety, health cognitions were not a significant predictor of eco-anxiety. Although cognitive appraisals have assumed a central role in conceptualizing and treating health anxiety in general, it is important to note that there has recently been a paradigm shift in health anxiety. Studies have suggested that cognitions, as emphasized in cognitive-behavioral theories, cannot be central to psychological disorders. Instead, metacognitions, the organization of thoughts and beliefs about thoughts, are more important (13). The idea of metacognition holds that specific assumptions about uncontrollability and the danger of thinking are what causes psychological distress in general and health anxiety in particular (31). The metacognitive model is concerned with beliefs about preconceived thinking, beliefs that thoughts can cause illness, and beliefs that thoughts are uncontrollable. Studies have shown that the role of metacognitive beliefs in health anxiety is a stronger cross-sectional predictor of health anxiety than dysfunctional cognitions (32). At this point, it is stated that the metacognitive model, which focuses on metacognitive beliefs rather than cognitions, is more valuable in the approach to health anxiety (33). According to the results of the study, a moderately positive relationship was found between beliefs about the uncontrollability of thoughts about illness and health anxiety. This relationship was found to be higher than the relationship between health anxiety and dysfunctional beliefs (31). Melli et al. found that the belief that thoughts are uncontrollable among metacognitive beliefs is the strongest predictor of health anxiety after the physical dimension of anxiety sensitivity (14). Considering the gap in the existing literature, we think that our findings regarding the predictive role of beliefs about biased thinking and beliefs that thoughts are uncontrollable subscales of the metacognitions about health scale on eco-anxiety are important.

This finding implies that the emergence and maintenance of eco-anxiety may be influenced by health anxiety and metacognitive beliefs about health. In addition, it is known that metacognitive model components found in psychopathologies may have an important role in clinical practice (34). The inclusion of metacognitive beliefs, which play a role

in explaining eco-anxiety, in intervention and prevention programs can make a significant contribution to understanding and addressing eco-anxiety in a more integrated manner.

The fact that the presence of psychiatric disorder was found to be one of the factors predicting eco-anxiety in our study suggests that psychiatric disorders may increase sensitivity to external stressors such as environmental anxiety. Although there is a large gap in the literature in this area, the relationship between eco-anxiety and psychopathology has been investigated. Eco-anxiety is associated with depressive symptoms, insomnia, anxiety symptoms and impaired mental health, especially in women and younger generations (2). High eco-anxiety has been associated with impaired mental health (35). Chronic climate distress increases the risk of depression, panic and substance abuse (36). It has been reported that adolescents with persistent climate anxiety have higher depressive symptoms than adolescents with moderate eco-anxiety (37). There are parallels between the patterns observed in our study and these established findings, suggesting that psychiatric disorders may make individuals more susceptible to eco-anxiety. The possible role of potential mechanisms such as emotional reactivity, cognitive distortions, impaired coping strategies, reduced sense of control over environmental outcomes, or a tendency to ruminate on global issues in the relationship between psychopathology and eco-anxiety needs to be explored.

The psychological impacts of ecological changes are unevenly distributed across individuals and societies; it is not surprising that they are more prevalent among the elderly, children and those with health problems and those experiencing some of the impacts of climate change (38, 39). For example, in Tuvalu, a country at serious risk from climate change, 95% of respondents reported experiencing distress due to climate change, and 87% reported that their distress interfered with normal functioning (40). Young people can be particularly vulnerable to the challenges posed by eco-concerns. From early adolescence to late adolescence, most adolescents experience some concerns about climate change (37). In one study, 82% of a sample of 10- and 11-year-old children living in the United States expressed concerns about the environment

that caused them sadness, anger, or fear (41). Of the 10,000 young people surveyed worldwide in 2021, 59% said they were very or extremely concerned about climate change and at least 84% said they were moderately concerned (42). Young people today are growing up with alarming news about climate change and the climate crisis. In general, young people are at higher risk of the psychological effects of climate change and the results of high levels of eco-anxiety in our study with a young population replicate these literature findings.

To discuss the implications of our study for increased concern about global environmental issues in the wake of the COVID-19 pandemic, it is worth remembering the COVID-19 pandemic, where we saw the deep psychological burden of infectious diseases. During this pandemic, people faced crises such as quarantine that took a toll on their mental health, and became even more worried about their future as they compounded negative messages about the climate challenge (43). A wide range of mental symptoms associated with COVID-19 were observed, ranging from anxiety, insomnia, denial, fear and anger (44). Growing concerns about global environmental issues in the wake of major global events such as the COVID pandemic point to an increased sensitization to global crises and their interconnections.

Limitations of the Study

The limitations of this study are that it was conducted with a non-clinical sample and the data were obtained with self-report data collection tools. In addition, the cross-sectional nature of the study and the absence of a control group are other limitations of our study.

Our study points to the intertwined nature of eco-anxiety and health anxiety in an era of increasing global environmental problems. Our findings reinforce this intersection by showing a positive correlation between eco-anxiety and health cognitions and metacognitive beliefs about health. To our knowledge, this is the first study to investigate the relationship between health anxiety and eco-anxiety and its cognitive and metacognitive aspects, and the first to examine eco-anxiety within the cog-

nitive framework used for health anxiety. This integrated perspective opens a window into how concerns about the health of our planet and concerns about our personal health can shape each other. We believe that understanding the interaction between ecological anxiety, health anxiety, health cognitions and health metacognitions is important for the development of targeted interventions and may have potential implications for clinical practice. We believe that testing our findings, which can be considered preliminary findings, in future studies using longitudinal or experimental designs will contribute to the literature. Furthermore, investigating the factors mediating this relationship and examining these relationships in different age groups and cultural contexts may deepen our understanding of the generalizability and developmental aspects of these findings.

****This study was presented as an oral presentation at the 4 th Eastern Pediatrics Congress (September 26-29, 2024).**

Acknowledgements: We would like to thank all participants who participated in our study.

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Disclosure Statement: No potential conflict of interest was reported by the authors.

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