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The role of self-efficacy and emotional stability in the relationship between climate anxiety and well-being in young adults

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Abstract

Introduction and Objective. In recent years there has been an increase in public interest in the dangers posed by the deteriorating state of our planet. Climate change has caused climate anxiety among the population which also affects their mental state. The study investigates the relationship between emotional stability, self-efficacy, and climate anxiety in relation to psychological well-being (PWB). It explores the mediating effect of environmental activism attitudes between environmental value and climate anxiety.

Materials and Method. A survey questionnaire including measures of variables was used to collect quantitative data from a sample of 638 young adults (aged 18–30). The measures included the General Self-Efficacy Scale, Climate Anxiety Scale, Psychological Well-Being Scale, International Personality Item Pool – Big Five Measure-20, and Environmental Activism Scale. A structural equation model with partial least squares (SEM-PLS) approach was used to assess the reliability and validity of the constructs.

Results. This study highlights the predictors of climate anxiety and its negative effect on subjective well-being. The SEM-PLS analysis confirmed that environmental activism and values significantly contribute to climate anxiety. Moreover, self-efficacy mediates the relationship between climate anxiety and PWB.

Conclusions. This article presents the antecedents and outcomes of climate anxiety, pointing out the importance of various personality and environmental factors for an individual's psychological well-being. Furthermore, the findings of the study demonstrate that high self-efficacy can significantly alleviate symptoms of climate anxiety and its meaning effect on psychological well-being.

Key words

self-efficacy, psychological well-being, emotional stability, climate anxiety

INTRODUCTION

The WHO indicates that climate change directly contributes to humanitarian crises (e.g., heatwaves, wildfires, floods, tropical storms, and hurricanes), with 3.6 billion people already living in areas highly vulnerable to climate change [1]. Climate change is the greatest threat to human health. Its effects are already harming health through air pollution, diseases, extreme weather events, forced displacement, food insecurity, and pressure on mental health.

Climate change constitutes a significant global challenge, exerting adverse effects on both environmental systems and mental health, particularly among younger populations who are expected to bear its long-term consequences more profoundly [2, 3]. Natural disasters can lead to post-traumatic stress disorder (PTSD), anxiety, and depression, and there is growing concern over climate anxiety, even among those not directly affected [2]. This anxiety is especially prevalent among young adults [4, 5], who are more engaged in environmental issues and future planning [3]. Many are actively pushing for change, advocating for sustainable practices and policies.

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Climate change impacts vary across regions, with less industrialized areas being particularly vulnerable [6]. Rural households often experience the most severe effects, such as droughts, floods, and storms. Adaptation is crucial for mitigating these risks, and since most land is privately owned, residents can play a key role in adaptation efforts, such as flood-proofing homes or enhancing water absorption on their property [7].

Climate anxiety has detrimental effects on psychological well-being [4, 8]; however, the influence of personal factors, particularly climate self-efficacy – defined as the belief in one's ability to handle climate-related challenges – has not been thoroughly investigated [2]. The aim of the study is to explore the interrelations between emotional stability, climate anxiety, self-efficacy, and psychological well-being among young adults.

Climate anxiety. Climate anxiety is a stressful response to climate change that can impact overall well-being [9]. It is often linked to an awareness of one's responsibility for the environment and tends to be more common among individuals who are particularly concerned about environmental issues [9, 10]. Furthermore, a pro-ecological attitude and a strong concern for the environment are closely associated with experiencing climate anxiety [11].

Environmental values are key factors shaping attitudes and behaviours, with values influencing how people evaluate and act on environmental issues [4]. Pro-environmental actions can be viewed in the context of the value-belief-norm (VBN) theory [5], which describes a sequence from values to environmental actions. Self-transcendence values, which prioritize the interests of others and the environment, are typically positively linked to pro-environmental beliefs and behaviours [12]. Our hypothesis is as follows (Figure 1):

H1. *A strong environmental value is associated with a higher level of environmental activism attitude.* Previous research has shown that people with stronger pro-environmental values showed higher levels of climate anxiety [10]. In addition, climate change anxiety is partly rooted in biospheric values, which reflect a deep concern for nature and the environment [13]. Therefore, we hypothesize that:

H2. *A strong environmental value is associated with a higher level of climate anxiety.* Other reports indicate that a pro-environmental attitude – concern for the environment is associated with greater climate anxiety [11], and pro-environmental intentions turned out to be the strongest correlate of climate anxiety [14]. We postulate that:

H3. *Environmental Activism Attitude is positively correlated with Climate Anxiety.*

H4. *Environmental Activism Attitude mediates the Environmental Value – Climate Anxiety link*. Perceived self-efficacy is crucial for managing the psychological impacts of climate change [15], as it represents an individual's confidence in their capability to tackle challenges and attain objectives. Anxiety frequently stems from a perceived lack of control [16], suggesting that a higher sense of self-efficacy could be associated with reduced climate anxiety. Innocenti et al. [17] identified an inverse relationship between climate anxiety and general self-efficacy, revealing that symptoms of anxiety tend to diminish one's self-efficacy. Thus, it can be hypothesized that:

H5. *Climate anxiety is negatively correlated with perceived general self-efficacy.*

Psychological well-being. Psychological well-being encompasses such aspects as personal growth, sense of fulfillment, and contributions to society, whereas subjective well-being emphasizes life satisfaction and the experience of positive emotions [18]. PWB emphasizes the ability to cope with stress, work productively, and strive for self-fulfillment [18]. Climate change and planetary health are recognized as major challenges to well-being, making the improvement of well-being increasingly important in today's stressful world [19].

Low emotional stability, often referred to as neuroticism, is associated with elevated levels of depression, anxiety, and hostility [20], and correlates with heightened negative emotional states. Research shows that emotional stability is a key predictor of psychological well-being [21]. Low emotional stability (high neuroticism) makes individuals more vulnerable to distress and negative emotions. Thus, we hypothesize that:

H6. *Emotional stability is positively correlated with perceived psychological well-being.* The connection between personality traits and self-efficacy has been thoroughly investigated within the field of psychology [22]. The results consistently demonstrate that Generalized Self-Efficacy (GSE) is positively associated with extraversion, conscientiousness, emotional stability, and openness. Previous research has indicated that beliefs in coping self-efficacy can serve as mediators for the impact of personality on behaviour [23]. Based on this, we propose the following:

H7. *Emotional Stability is positively correlated with perceived general self-efficacy.* Self-efficacy is defined as the confidence in one's ability to accomplish specific tasks [24]. Research indicates that higher levels of self-efficacy are associated with enhanced well-being, particularly in relation to self-perception and overall life satisfaction [22]. Thus, we hypothesize:

H8. *General self-efficacy is positively correlated with psychological well-being.* Self-efficacy is linked to personality factors and subjective well-being, although this relationship is underexplored. Strobel et al. [22] discovered that individuals with greater emotional stability tended to report higher levels of life satisfaction, which could be partially attributed to their increased self-efficacy. Based on these results, we hypothesize:

H9. *General self-efficacy mediates the emotional stability-psychological well-being link.* Climate anxiety is often seen as unpleasant and debilitating, with individuals reporting physical and psychological symptoms that may require therapy [2]. Climate anxiety negatively impacts psychological well-being, and is linked to poorer mental health, including depressive symptoms [8, 9]. Based on this, we hypothesize that:

H10. *Climate anxiety is negatively correlated with perceived psychological well-being.* Despite the well-documented impact of climate anxiety on mental well-being, research on factors that may buffer or mitigate this effect remains limited. Cognitive science theories suggest an alternative, more positive feedback loop involving self-efficacy, hope, well-being, and adaptation efforts [15]. Even small-scale adaptive actions have been shown to reduce climate anxiety to levels that are more conducive to pro-active coping and improved well-being. Such actions may also strengthen self-efficacy – a key factor known to foster adaptive behaviours and effective risk management [25]. Self-efficacy thus plays a critical mediating role in the relationship between climate anxiety and mental health. Based on this, we hypothesize:

H11. *General self-efficacy mediates the climate anxiety – psychological well-being link.*

MATERIALS AND METHOD

Measures. The survey items in this study were selected based on valid and reliable measures, and used Polish adaptations of tools with good psychometric indices (Tab. 2). The results for all scales were calculated as the mean of the items comprising each respective scale or scale dimension.

Table 1. Definition of the key constructs used in this research

Construct	Source	Definition
Emotional Stability (ES)	Personality theory, Big Five Factor Markers [20]	Level of excitability and emotional balance, emotional resilience and frustration tolerance
General Self-Efficacy (GSE)	Self-efficacy theory [24]	Belief of a person in his/her ability to organize and execute certain behaviours that are necessary in order to produce given attainments.
Psychological well-being (PWB)	Psychological Well-Being [18]	A positive and realistic attitude towards oneself, acceptance of own advantages and disadvantages associated with optimal functioning and mental health
Environmental value (EV)	Environmental Psychology [4]	Psychological tendency expressed by evaluating beliefs about the environment with some degree of favourability or unfavourability.
Environmental activism attitude (EAA)	Environmental psychology, Environmental attitudes (EA) [4]	Personal readiness to actively support or become involved in organized action for environmental protection.
Climate Anxiety (CA)	[9]	Climate anxiety refers to persistent, difficult-to-control apprehensiveness and worry about climate change.

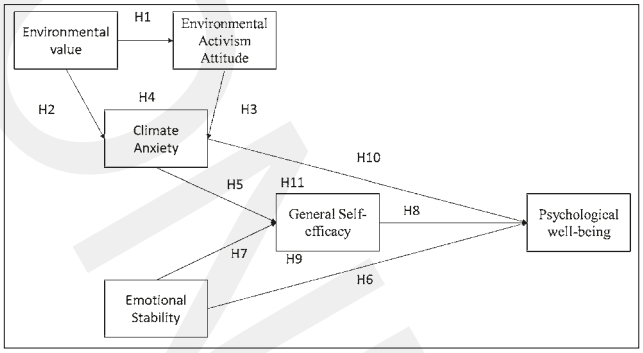

Figure. 1. Research model and hypotheses

Personality. The IPIP-BFM-20 scale [26] was used, consisting of 20 items assigned to 5 personality dimensions: Extraversion (α = 0.81), Agreeableness (α = 0.66), Conscientiousness (α = 0.78), Emotional Stability (α = 0.77), and Intellect (α = 0.70). Due to the aim of the article, further analyses focused on the dimension of Emotional Stability.

Psychological well-being. A shortened version of the PWBS scale [18] in the Polish adaptation by Karaś and Cieciuch [27] was used. It consists of 18 items measuring 6 dimensions of psychological well-being: Self-Acceptance (α = 0.74), Positive Relations with Others (α = 0.55), Autonomy (α = 0.54), Environmental Mastery (α = 0.56), Purpose in Life (α = 0.46), and Personal Growth (α = 0.62). Due to reliability analyses, only the Self-Acceptance subscale was used in further analyses.

Climate Anxiety. The Polish version of the Climate Anxiety Scale [28], consisting of 13 items (α = 0.94), was used.

General Self-efficacy. The Generalized Self-Efficacy Scale (GSES) [29], consisting of 10 items (α = 0.89), was used.

Environmental value significance. The measurement was based on a question used in the study by Piwowar-Sulej and Kołodziej [30], with a modification to assess the subjective significance of the issue for the individual.

Environmental activism attitude. A shortened version of the Environmental Movement Activism scale [4], consisting of 2 items (α = 0.69), was used. Based on the results of the SEM-PLS model analysis, one item was excluded. The questionnaire included 4 questions designed to gather socio-demographic information, including age, gender, place of residence, and income, which were positioned at the end of the survey. A pilot test was conducted to identify any potential weaknesses in the survey instrument (Tab. 2).

Participants. The study was conducted through an online survey using LimeSurvey® from February – April 2024. Participants were recruited through Polish digital social networks and the personal networks of the authors using the snowball sampling method, which encouraged participants to share the survey. Only completed questionnaires were taken into We consideration. In addition, this article focuses on young adults; therefore, those aged 18–30 were qualified for analysis. As a result, the sample comprised 638 valid responses (n = 638): 470 women and 168 men. Elementary education accounted for 8.5% of the respondents, vocational education accounted for 2.7%, and secondary education – 15.5% of the respondents. Students accounted for 53.3% of the respondent: those with higher education – 20.1%; 32% of the survey participants were rural residents, 27.2% were residents of cities with populations up to 100,000, and 19% lived in cities with over half a million inhabitants. A total of 62.2% of respondents stated that environmental issues are important to them, while only 15.6% indicated that they are not interested in environmental matters. Nearly a quarter of respondents (25.2%) had personally experienced a climate disaster in their lifetime.

DATA ANALYSIS

Descriptive statistics. Averages on the ES scale ranged from 2.09 (ES2) – 2.70 (ES4). For the GSE scale, averages ranged from 2.80 (GSE7) – 3, 17 (GSE6). For PWB, averages ranged from 3.70 (PWB3) – 4.04 (PWB2); mean for EV – 4.68. In contrast, the mean for EAA was 1.88. For the CA scale, the means ranged from 1.31 (CAS13) – 1.96 (CAS1). The results indicate that SD values varied between 0.61 (GSE9) and 1.39 (PWB3) (Tab. 3).

Model assessment. The research model was analyzed using SEM-PLS (structural equation modelling with partial least squares). The results showed no collinearity issues, with VIF values below 3.6. PLS confirmed standardized loadings exceeding 0.7 for psychological well-being. In contrast, item ES4 had loadings of 0.683, GSE2 0.555, and CAS1 0.653. Table 3 highlights the constructs' reliability and validity, with reliability values ranging from 0.742 – 0.942. Both Cronbach's Alpha and Rho_A exceeded the recommended thresholds.

Table 2. The survey questionnaire's constructs and their corresponding items and response coding

		Items	Response Coding
Emotional Stability [26]	ES1	I am relaxed most of the time. *[Zwykle jestem zrelaksowany/a.]*	1=Very Inaccurate; 2=Moderately Inaccurate; 3=Neither Accurate Nor Inaccurate; 4=Moderately Accurate; 5=Very Accurate
	ES2	Get upset easily.* *[Często martwię się czymś.*]*	
	ES3	Seldom feel blue. *[Rzadko czuję się przygnębiony/a.]*	
	ES4	Have frequent mood swings.* *[Często miewam huśtawki nastrojów.*]*	
General Self-Efficacy [29]	GSE1	I can always manage to solve difficult problems if I try hard enough. *[Zawsze jestem w stanie rozwiązać trudne problemy, jeśli tylko wystarczająco się postaram.]*	1 = no, 2 = rather not, 3 = rather yes, 4 = yes
	GSE2	If someone opposes me, I can find the means and ways to get what I want. *[Nawet gdy ktoś mi się sprzeciwia, jestem w stanie znaleźć sposób na osiągnięcie tego czego chcę.]*	
	GSE3	It is easy for me to stick to my aims and accomplish my goals. *[Z łatwością potrafię trzymać się swoich celów i je osiągać.]*	
	GSE4	I am confident that I could deal efficiently with unexpected events. *[Jestem przekonany, że skutecznie poradziłbym sobie z nieoczekiwanymi wydarzeniami.]*	
	GSE5	Thanks to my resourcefulness, I know how to handle unforeseen situations. *[Dzięki swojej pomysłowości i zaradności wiem, jak poradzić sobie z nieprzewidzianymi sytuacjami.]*	
	GSE6	I can solve most problems if I invest the necessary effort. *[Jestem w stanie rozwiązać większość problemów, jeśli tylko włożę w to odpowiednio dużo wysiłku.]*	
	GSE7	I can remain calm when facing difficulties because I can rely on my coping abilities. *[Kiedy zmagam się z przeciwnościami, jestem w stanie zachować spokój, gdy mogę polegać na swoich umiejętnościach radzenia sobie.]*	
	GSE8	When I am confronted with a problem, I can usually find several solutions. *[Kiedy zmagam się z jakimś problemem, to zazwyczaj jestem w stanie znaleźć kilka sposobów jego rozwiązania.]*	
	GSE9	If I am in trouble, I can usually think of a solution. *[Gdy mam kłopoty, to zazwyczaj jestem w stanie wymyślić sposób, jak z nich wyjść.]*	
	GSE10	I can usually handle whatever comes my way. *[Zazwyczaj jestem w stanie poradzić sobie z tym, co mnie spotyka.]*	
Psychological well-being [27]	PWB1	When I look at the story of my life, I am pleased with how things have turned out so far. *[Kiedy patrzę na historię swojego życia, jestem zadowolony z tego, jak się ono potoczyło.]*	1 = strongly disagree; 2 = disagree; 3 = I rather disagree; 4 = I rather agree; 5 = I agree; 6 = strongly agree
	PWB2	I like most parts of my personality. *[Lubię większość cech mojego charakteru.]*	
	PWB3	In many ways I feel disappointed about my achievements in life.* *[Czuję się rozczarowany/a swoimi osiągnięciami w wielu dziedzinach życia.*]*	
Environmental value significane [30]	EV1	How important are environmental issues (ecology/climate) to you? [W jakim stopniu są dla Ciebie ważne kwestie związane ze środowiskiem (ekologia/klimat)?]	1 = completely unimportant; 2 = not important; 3 = rather unimportant; 4 = neither important nor unimportant; 5 = rather important; 6 = important; 7 = very important
Environmental activism attitude [4]	EAA1	I would like to join and actively participate in an environmentalist group. *[Chciałbym dołączyć i aktywnie uczestniczyć w grupie ekologów.]*	1 =I disagree; 2=I rather disagree; 3=I rather agree; 4 = I agree
Climate Anxiety [9;28]	CAS1	Thinking about climate change makes it difficult for me to concentrate. *[Myślenie o zmianie klimatu sprawia, że trudno mi się skoncentrować.]*	1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = almost always
	CAS2	Thinking about climate change makes it difficult for me to sleep. *[Myślenie o zmianie klimatu sprawia mi trudności ze snem.]*	
	CAS3	I have nightmares about climate change. *[Mam koszmary senne o zmianie klimatu.]*	
	CAS4	I find myself crying because of climate change. *[Zdarza mi się płakać z powodu zmiany klimatu.]*	
	CAS5	I think, 'Why can't I handle climate change better?' *[Myślę: „dlaczego nie potrafię sobie lepiej radzić ze zmianą klimatu?"]*	
	CAS6	I go away by myself and think about why I feel this way about climate change *[Dystansuję się i myślę o tym, dlaczego odczuwam zmianę klimatu w taki sposób.]*	
	CAS7	I write down my thoughts about climate change and analyze them. *[Zapisuję moje myśli związane ze zmianą klimatu i analizuję je.]*	
	CAS8	I think, 'Why do I react to climate change this way?' *[Myślę: „dlaczego tak reaguję na zmianę klimatu?"]*	
	CAS9	My concerns about climate change make it hard for me to have fun with my family or friends. *[Moje obawy dotyczące zmiany klimatu powodują, że trudno mi dobrze się bawić z moją rodziną lub przyjaciółmi.]*	
	CAS10	I have problems balancing my concerns about sustainability with the needs of my family. *[Mam problemy z utrzymaniem równowagi pomiędzy obawami o ekologiczny rozwój a potrzebami mojej rodziny.]*	
	CAS11	My concerns about climate change interfere with my ability to get work or school assignments done. *[Moje obawy dotyczące zmiany klimatu negatywnie wpływają na moją zdolność do wykonywania zadań zawodowych lub szkolnych.]*	
	CAS12	My concerns about climate change undermine my ability to work to my potential. *[Moje obawy dotyczące zmian klimatycznych osłabiają moją zdolność do pracy na miarę mojego potencjału.]*	
	CAS13	My friends say I think about climate change too much. *[Moi przyjaciele mówią, że za dużo myślę o zmianie klimatu.]*	

Table 3. Descriptive statistics along with construct reliability and validity evaluation

	Construct	Items	Mean	Deviation	Loadings	Alpha	Rho_A	CR	AVE	1	2	3	4	5	6	7
1	Emotional Stability		10.06	3.41		0.774	0.789	0.854	0.596	**0.772**	*0.407*	*0.608*	*0.146*	*0.074*	*0.153*	*0.043*
		ES1	2.66	1.05	0.770											
		ES2	2.09	1.08	0.802											
		ES3	2.62	1.08	0.824											
		ES4	2.70	1.21	0.683											
2	General Self-Efficacy		26.49	4.44		0.891	0.898	0.911	0.508	*0.407*	**0.712**	*0.669*	*0.070*	*0.123*	*0.226*	*0.039*
		GSE1	3.09	0.65	0.745											
		GSE2	2.86	0.66	0.555											
		GSE3	2.85	0.73	0.670											
		GSE4	2.86	0.72	0.721											
		GSE5	2.89	0.74	0.780											
		GSE6	3.17	0.68	0.737											
		GSE7	2.80	0.77	0.692											
		GSE8	2.92	0.67	0.681											
		GSE9	3.08	0.61	0.752											
		GSE10	3.14	0.66	0.766											
3	Psychological well-being		11.62	3.16		0.742	0.746	0.852	0.658	*0.608*	*0.669*	**0.811**	*0.031*	*0.069*	*0.263*	*0.075*
		PWB1	3.89	1.27	0.818											
		PWB2	4.04	1.23	0.814											
		PWB3	3.70	1.39	0.802											
4	Environmental value	EV1	4.68	1.29	1.000					*0.146*	*0.070*	*0.629*	**1.000**	*0.377*	*0.166*	*0.152*
5	Environmental activism attitude	EAA1	1.88	0.83	1.000					*0.074*	*0.123*	*0.069*	*0.377*	**1.000**	*0.426*	*0.127*
6	Climate Anxiety		19.58	8.63		0.942	0.944	0.949	0.592	*0.153*	*0.226*	*0.263*	*0.166*	*0.426*	**0.769**	*0.069*
		CAS1	1.96	0.99	0.653											
		CAS2	1.54	0.88	0.786											
		CAS3	1.37	0.78	0.788											
		CAS4	1.41	0.86	0.728											
		CAS5	1.62	0.95	0.769											
		CAS6	1.68	0.97	0.767											
		CAS7	1.32	0.75	0.718											
		CAS8	1.54	0.90	0.786											
		CAS9	1.48	0.87	0.825											
		CAS10	1.60	0.94	0.731											
		CAS11	1.38	0.79	0.850											
		CAS12	1.38	0.82	0.850											
		CAS13	1.31	0.74	0.725											

The AVE square root value (shown in bold in the table) according to the Fornell-Larcker criterion was higher than the corresponding values in the same column. HTMT values (shown in italic format) were less than 1 [20]; thus, discriminant validity was assessed

The constructs' average variance extracted (AVE) values exceeded 0.5, confirming convergent validity. Correlations among latent variables were below the square root of AVE, meeting Fornell and Larcker's criterion, and confirming discriminant validity. Additionally, heterotrait-monotrait (HTMT) ratios were below 1 [31].

A boot-strapping procedure with 500 samples and the no-sign-changes option was used to test the hypotheses. Table 4 presents the standardized beta coefficients, bias-corrected confidence intervals, t-values, and their statistical significance (p).

RESULTS

The study found that the environmental value construct significantly predicted environmental activism attitude (H1: $\beta = 0.377$, $t = 10.182$; $p < 0.001$), but not climate anxiety (H2: $\beta = 0.008$, $t = 0.170$; $p = 0.865$). As anticipated, the results showed that EAA significantly predicted climate anxiety (H3: $\beta = 0.414$, $t = 9.698$; $p < 0.001$). These findings suggest that the level of climate anxiety depends not so much on the importance of the climate for the individual, but on the adoption of attitudes and behaviours towards the environment. The results suggest that EAA

Table 4. Examination of the study hypotheses.

Path Coefficient		Original Sample (O)	Confidence Intervals Bias Corrected	t-value	p	Decision
H1	Environmental Value – > Environmental Activism Attitude	0.377	[0.303, 0.450]	10.182	0.000	*Supported****
H2	Environmental Value – > Climate Anxiety	0.008	[-0.081, 0.094]	0.170	0.865	*No*
H3	Environmental Activism Attitude – > Climate Anxiety	0.414	[0.326, 0.497]	9.698	0.000	*Supported****
H5	Climate Anxiety – > General Self-Efficacy	-0.175	[-0.268, -0.084]	3.775	0.000	*Supported****
H6	Emotional Stability – > Psychological Well-Being	0.306	[0.249, 0.368]	9.808	0.000	*Supported****
H7	Emotional Stability – > General Self-Efficacy	0.334	[0.260, 0.412]	8.721	0.000	*Supported****
H8	General Self-Efficacy – > Psychological Well-Being	0.430	[0.371, 0.487]	13.303	0.000	*Supported****
H10	Climate Anxiety – > Psychological Well-Being	-0.098	[-0.155, -0.045]	3.417	0.001	*Supported***

*** $p < 0.001$; ** $p < 0.01$

Table 5. Mediation analysis of indirect hypothesized relationships

Causal path		Direct Effect	Indirect Effect	t-value	p	Total Effects	Confidence Intervals	t-value	p	Interpretation
		Original sample (O)	Original sample (O)				Bias Corrected			
H4	Environmental value - > Climate Anxiety (H2)	0.008		0.170	0.865	0.164	[0.075. 0.251]	3.604	0.000	Total Mediation. Supported***
	Environmental value - > Environmental activism attitude - > Climate anxiety		0.156	6.956	0.000					
H9	Emotional stability- > Psychological well-being (H6)	0.306		9.808	0.000	0.450	[0.388, 0.518]	13.815	0.000	Partial Mediation. Supported***
	Emotional stability - > General self-efficacy - > Psychological well-being		0.144	7.155	0.000					
H11	Climate anxiety - > Psychological well-being (H10)	-0.098		3.417	0.001	-0.174	[-0.177, -0.245]	4.986	0.000	Partial Mediation. Supported***
	Climate anxiety - > General self-efficacy - > Psychological well-being	-0.075		3.733	0.000					

*** $p < 0.001$.

acts as a mediator between EV and CA (H4: t = 3.604; $p < 0.001$).

Climate anxiety is negatively associated with general self-efficacy (H5: β = -0.175, t = 3.775; $p < 0.001$). Other researchers have reported a link between these variables [17], and fear messages related to climate change should only be used when presenting feasible coping responses to provide a positively perceived sense of self-efficacy.

The results showed that emotional stability significantly predicted PWB (H6: β = 0.306, t = 9.808; $p < 0.001$). As previous research has shown, emotional stability may be one of the most important personality factors in predicting well-being, and also positively and significantly affected GSE (H7: β = 0.334, t = 8.721; $p < 0.001$). This aligns with previous studies, where emotional stability was found to be correlated with and a precursor to perceived self-efficacy [32].

The strongest link was found between self-efficacy and psychological well-being (H8: β = 0.430, t = 13.303; $p < 0.001$). Similar findings have been reported in other studies [22] which demonstrated that cognitive beliefs predict individual levels of PWB. In adults, a higher level of self-efficacy correlates with well-being, and especially with the cognitive components of well-being, i.e. beliefs about self and life [22]. The results highlight the mediating role of GSE in the relationship between ES and PWB (H9: t = 13.815; $p < 0.001$).

The study found that climate anxiety among young adults affects their psychological well-being (H10: β = -0.098, t = 3.417; $p < 0.01$). This finding is consistent with other studies, including those that utilized the CA and PWB constructs [2]. The study also confirmed that GSE mediates the relationship between climate anxiety and PWB (H11: t = 4.986; $p < 0.01$).

Table 5 highlights the mediated relationships between emotional stability and psychological well-being, climate anxiety and psychological well-being, and the link between environmental value and climate anxiety. Table 6 presents a summary of the indirect effects of the other constructs in the research model.

Figure 2 shows the outer loadings, direct effects, and the coefficient of determination (R^2) values of the factors. Psychological well-being exhibited the highest explanatory power in this research model (where $R^2 = 0.405$; with GES's $f^2 = 0.263$, ES's $f2 = 0.138$, and CA's $f^2 = 0.016$). The findings indicate that climate anxiety had the second-largest coefficient (i.e. $R^2 = 0.174$). This construct was affected by EAA ($f^2 = 0.178$). The results revealed coefficients for general self-efficacy ($R^2 = 0.155$) and for EAA ($R^2 = 0.142$). General self-efficacy was affected by climate anxiety ($f^2 = 0.036$) and emotional stability ($f^2 = 0.131$). EAA was affected by EV ($f^2 = 0.166$).

DISCUSSION

Theoretical implications. Climate change is a reality that contributes to deteriorating mental health, with climate anxiety becoming a prominent issue in recent years [2]. As a stressor, climate change poses a real threat, making concern a

Table 6. Indirect effects in this research model

Causal path	Specific indirect effect Original Sample (O)	t-value	*p*	Total indirect effect	Confidence Intervals	t-value	*p*
				Original Sample (O)	Bias corrected		
Climate Anxiety - > General Self-Efficacy -> Psychological Well-Being	-0.075	3.733	0.000	-0.075	[-0.117, -0.037]	3.733	0.000
Environmental Value - > Environmental Activism Attitude - > Climate Anxiety	0.156	6.956	0.000	0.156	[0.115, 0.200]	6.956	0.000
Environmental Value - > Climate Anxiety -> General Self-Efficacy	-0.001	0.158	0.874	-0.029	[-0.051, -0.011]	2.833	0.005
Environmental Value - > Environmental Activism Attitude - > Climate Anxiety - > General Self-Efficacy	-0.027	3.401	0.001				
Environmental Value - > Climate Anxiety -> General Self-Efficacy - > Psychological Well-Being	-0.001	0.158	0.874		[-0.045, -0.014]	3.420	0.001
Environmental Value - > Environmental Activism Attitude - > Climate Anxiety - > General Self-Efficacy - > Psychological Well-Being	-0.012	3.326	0.001				
Environmental Value - > Climate Anxiety -> Psychological Well-Being	-0.001	0.162	0.872				
Environmental Value - > Environmental Activism Attitude - > Climate Anxiety - > Psychological Well-Being	-0.015	3.054	0.002				
Environmental Activism Attitude - > Climate Anxiety - > General Self-Efficacy	-0.073	3.514	0.000	-0.073	[-0.118, -0.034]	3.514	0.000
Environmental Activism Attitude - > Climate Anxiety - > Psychological Well-Being	-0.041	3.204	0.001	-0.072	[-0.107, -0.045]	4.409	0.000
Environmental Activism Attitude - > Climate Anxiety - > General Self-Efficacy - > Psychological Well-Being	-0.031	3.431	0.001	-0.072			
Emotional Stability - > General Self-Efficacy - > Psychological Well-Being	0.144	7.155	0.000	0.144	[0.108, 0.185]	7.155	0.000

*** p < 0.00

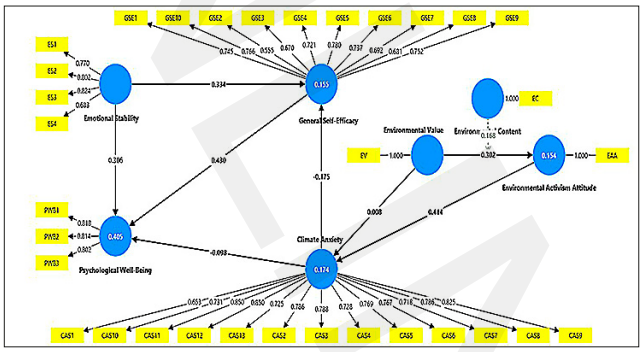

Figure 2. Results from SEM-PLS algorithm.

rational response. While much research focuses on the causes and effects of climate anxiety, there is limited empirical work on its origins. Recent studies offer mixed results, but they help deepen our understanding of this issue [14].

This study highlights the predictors of climate anxiety and its impact on subjective well-being. The SEM-PLS analysis confirmed that environmental activism and values significantly contribute to climate anxiety. In line with previous studies, individuals who have a strong commitment to environmental concerns and participate in pro-ecological behaviours often report elevated levels of climate anxiety. This phenomenon is associated with their awareness of climate-related risks. According to emotion appraisal theories, anxiety arises from the interpretation of these perceived threats [16]. The current study also underscores the negative effect of climate anxiety on psychological well-being, confirming that it can reduce overall mental functioning [9]. Importantly, the findings of the current study indicate that self-efficacy serves as a mediator in the relationship between climate anxiety, and overall well-being. Higher self-efficacy can mitigate the impact of climate anxiety on well-being, as feelings of control help reduce anxiety, which is often fueled by a sense of helplessness [16].

Additionally, the study demonstrates the role of emotional stability in promoting self-efficacy and well-being. Emotional stability is linked to higher self-efficacy, which in turn correlates with better psychological well-being [21]. Research by Strobel et al. [22] also found that self-efficacy could buffer the negative impact of neuroticism (the opposite of emotional stability) on life satisfaction.

In conclusion, this study suggests that climate anxiety affects well-being, but high levels of self-efficacy can lessen this impact. Emotional stability also plays a crucial role in supporting both self-efficacy and overall well-being.

Practical implications. When it comes to climate change, no single coping response can fully alleviate climate anxiety [2], making it crucial to address how to manage it. Simply adopting an environmental activism stance can even increase climate anxiety. To safeguard wellness and enhance psychological well-being, it is crucial to identify and promote factors that can alleviate the adverse effects of climate anxiety. Research suggests that self-efficacy has a key impact in this process – higher levels of self-efficacy may help mitigate the impact of climate anxiety on well-being. Environmental self-efficacy, in particular, influences pro-environmental behaviour; therefore, promoting positive beliefs about self-efficacy, both in general and environmental contexts, can enhance well-being and encourage pro-environmental actions, such as through targeted media messages. Strengthening self-efficacy, may be an effective strategy for boosting psychological well-being and helping people cope with climate anxiety.

CONCLUSIONS

Psychological well-being is a key indicator of health and self-perception, making it crucial to identify its determinants. This study links psychological well-being to perceived

climate anxiety, showing that environmental values and activism influence climate anxiety. Emotional stability and self-efficacy are recognized as key predictors of well-being, with self-efficacy acting as a mediator in the relationship between climate anxiety and well-being. These findings add to the literature on the effects of climate anxiety on well-being and indicate that various psychological factors shape perceived well-being through distinct mechanisms Further investigation is needed to fully understand the complex relationship between climate perceptions and well-being.

Limitations of the study and future research directions. While this study contributes to the understanding of climate anxiety and well-being, it has several limitations, 3 in particular:

1) The findings are based on a sample of young Polish individuals, which may limit their broader applicability. To strengthen the generalizability of the results, future research should include greater and more heterogeneous samples, encompassing participants from various countries, cultures, and age groups, individuals with greater occupational diversity, and those living in regions with pronounced climate fluctuations. This would provide a more comprehensive understanding of how climate anxiety affects well-being across different contexts.
2) SEM-PLS was used to validate the research model; other methodologies and techniques could provide additional insights into the relationships and climate factors affecting well-being.
3) Future studies could investigate the moderating effects of demographic factors such as age, gender, and income, and as the topic of climate anxiety evolves, future research may examine its relationship with social media use or in the geo-political context.

REFERENCES

1. Prüss-Üstün A, Wolf J, Corvalán C, et al. Preventing disease through healthy environments: a global assessment of the burden of disease from environmental risks. World Health Organization. 2016.
2. Clayton S. Climate anxiety: Psychological responses to climate change. J Anxiety Disord. 2020;74:102263. https://doi.org/10.1016/j.janxdis.2020.102263
3. Wallis H, Loy LS. What drives pro-environmental activism of young people? A survey study on the Fridays For Future movement. J Environ Psychol. 2021;74:101581. https://doi.org/10.1016/j.jenvp.2021.101581
4. Milfont TL, Duckitt J. The environmental attitudes inventory: A valid and reliable measure to assess the structure of environmental attitudes. J Environ Psychol. 2010;30(1):80–94. https://doi.org/10.1016/j.jenvp.2009.09.001
5. Stern PC, Dietz T, Abel T, et al. A value-belief-norm theory of support for social movements: The case of environmentalism. Hum Ecol Rev. 1999;81–97.
6. Michetti M, Ghinoi S. Climate-driven vulnerability and risk perception: implications for climate change adaptation in rural Mexico. J Environ Stud Sci. 2020;10(3):290–302.
7. Tompkins EL, Eakin H. Managing private and public adaptation to climate change. Glob Environ Change. 2012;22(1):3–11.
8. Gago T, Sargisson RJ, Milfont TL. A meta-analysis on the relationship between climate anxiety and wellbeing. J Environ Psychol. 2024;102230. https://doi.org/10.1016/j.jenvp.2024.102230
9. Clayton S, Karazsia BT. Development and validation of a measure of climate change anxiety. J Environ Psychol. 2020;69:101434. https://doi.org/10.1016/j.jenvp.2020.101434
10. Searle K, Gow K. Do concerns about climate change lead to distress? Int J Clim Chang Strateg Manag. 2010;2(4):362–379. https://doi.org/10.1108/17568691011089891
11. Qi B, Presseller EK, Cooper GE, et al. Development and validation of an eating-related eco-concern questionnaire. Nutrients. 2022;14(21):4517. https://doi.org/10.3390/nu14214517
12. Bouman T, Steg L, Kiers HA. Measuring values in environmental research: A test of an environmental portrait value questionnaire. Front. Psychol. 2018;9:564.
13. Bouman T, Verschoor M, Albers CJ, et al. When worry about climate change leads to climate action: how values, worry and personal responsibility relate to various climate actions. Glob. Environ. Change. 2020;62:102061. 10.1016/j.gloenvcha.2020.102061
14. Wullenkord MC, Tröger J, Hamann KR, et al. Anxiety and climate change: A validation of the Climate Anxiety Scale in a German-speaking quota sample and an investigation of psychological correlates. Clim Change. 2021;168(3):20. https://doi.org/10.1007/s10584-021-03234-6
15. Heald S. Climate silence, moral disengagement, and self-efficacy: How Albert Bandura's theories inform our climate-change predicament. Environ Sci Policy. 2017;59(6):4–15. https://doi.org/10.1080/00139157.2017.1374792
16. Lazarus RS. Progress on a cognitive-motivational-relational theory of emotion. Am Psychol. 1991;46(8):819–834. https://doi.org/10.1037//0003-066x.46.8.819
17. Innocenti M, Santarelli G, Lombardi GS, et al. How can climate change anxiety induce both pro-environmental behaviours and eco-paralysis? The mediating role of general self-efficacy. Int J Environ Res Public Health. 2023;20(4):3085. https://doi.org/10.3390/ijerph20043085
18. Ryff CD. Psychological well-being revisited: Advances in the science and practice of eudaimonia. Psychother Psychosom. 2013;83(1):10–28. https://doi.org/10.1159/000353263
19. Peci GT, et al. Biodiversity redistribution under climate change: Impacts on ecosystems and human well-being. Science. 2017;355(6332):eaai9214. https://doi.org/10.1126/science.aai9214
20. McCrae RR, Costa Jr PT. Personality, coping, and coping effectiveness in an adult sample. J Pers. 1986;54(2):385–404. https://doi.org/10.1111/j.1467-6494.1986.tb00401.x
21. Li L, Li LMW, Ma J, et al. The relationship between personality traits and well-being via brain functional connectivity. J Happiness Stud. 2023;24(6):2127–2152. https://doi.org/10.1007/s10902-023-00674-y
22. Strobel M, Tumasjan A, Spörrle M. Be yourself, believe in yourself, and be happy: Self-efficacy as a mediator between personality factors and subjective well-being. Scand J Psychol. 2011;52(1):43–48. https://doi.org/10.1111/j.1467–9450.2010.00826.x
23. Caprara GV, Alessandri G, Eisenberg N. Prosociality: the contribution of traits, values, and self-efficacy beliefs. J Pers Soc Psychol. 2012;102(6):1289–1303. https://doi.org/10.1037/a0025626
24. Bandura A. Self-efficacy: Toward a unifying theory of behavioural change. Psychol Rev. 1977;84(2):191–215. https://doi.org/10.1037/0033–295X.84.2.191
25. Mortreux C, Barnett J, Jarillo S, Greenaway KH. Reducing personal climate anxiety is key to adaptation. Nat Clim Change. 2023;13(7):590–590.
26. Henseler J, Ringle CM, Sarstedt M. A new criterion for assessing discriminant validity in variance-based structural equation modeling. J Acad Mark Sci. 2015;43:115–135. https://doi.org/10.1007/s11747-014-0403-8
27. Wu X, Zhang W, Li Y, et al. The influence of big five personality traits on anxiety: The chain mediating effect of general self-efficacy and academic burnout. PLoS ONE. 2024;19(1). https://doi.org/10.1371/journal.pone.0295118
28. Topolewska E, Skimina E, Strus W, et al. The short IPIP-BFM-20 questionnaire for measuring the Big Five. Rocz Psych. 2014;17(2):385–402.
29. Juczyński Z. Narzędzia Pomiaru w Promocji i Psychologii Zdrowia. Warszawa: Pracownia Testów Psychologicznych PTP; 2007.
30. Karaś D, Cieciuch J. Polska adaptacja kwestionariusza dobrostanu (psychological well-being scales) Caroll Ryff. Rocz Psych. 2019;20(4):815–835. https://doi.org/10.18290/rpsych.2017.20.4-4pl
31. Larionow P, Sołtys M, Izdebski P, et al. Climate change anxiety assessment: the psychometric properties of the Polish version of the Climate Anxiety Scale. Front Psychol. 2022;13:870392. https://doi.org/10.3389/fpsyg.2022.870392
32. Piwowar-Sulej K, Kołodziej I. Organizational practices promoting employees' pro-environmental behaviours in a Visegrad Group country: How much does company ownership matter? PloS One, 2022;17(2): e0261547.