



An Empirical Analysis of the Nexus Between Climate Change Anxiety and Sustainable Consumption Patterns among Turkish Individuals

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Abstract: An augmenting body of research is elucidating the psychological impacts of climate change, revealing a potential positive linkage between climate change anxiety and sustainable consumption through constructive concern. This investigation seeks to discern the presence and magnitude of a statistically significant relationship between climate change anxiety and patterns of sustainable consumption behaviour. The research employs a convenience sampling method, acquiring data through a causal study, whereby 455 valid survey responses were collected from 12th May to 12th June 2023. The interactive survey, formulated via Google Forms, was disseminated across Turkey. Analytical procedures were performed utilising SPSS and LISREL software, incorporating exploratory factor analysis (EFA) and structural equation modelling (SEM) to interpret the data. Findings reveal a statistically significant relationship, within a 95% confidence interval, between climate change anxiety and sustainable consumption behaviour. A surge in climate change anxiety correlates with heightened environmental sensitivity, augmented saving tendencies, and an escalation in reusability inclinations. Conversely, it is associated with a decline in superfluous purchasing behaviour. It can be concluded that enhanced climate change anxiety among participants concomitantly amplifies their proclivity towards sustainable consumption's sub-dimensions, such as environmental sensitivity, frugality, and reusability, while discretionary purchasing behaviours witness no augmentation. Certain limitations permeate the study: out of 487 respondents, 32 were omitted from analysis, suggesting the necessity for larger sample sizes in subsequent studies. Amplifying climate change awareness and endorsing sustainable consumption behaviour is pivotal to fostering a more sustainable world. Findings from the SEM imply that elevating environmental sensitivity could burgeon awareness regarding climate change. Given the pressing nature of the climate crisis, the current study postulates that climate change anxiety could serve as a catalyst for inducing sustainable consumption behaviour and underscores the imperative for further intricate research within this domain.

Keywords: Climate change; Climate change anxiety; Sustainable consumption; Consumer behaviour; Environmental sensitivity; Saving; Reusability; Structural equation modelling (SEM)

1 Introduction

The critical challenge of global climate change, pervading the discourse of 21st-century societal and environmental debates, is primarily attributable to the imprudent resource consumption by human populations. Historically, consumption by humans was initially driven by an intrinsic need to fulfill basic survival necessities. However, this dynamic witnessed a paradigm shift, morphing into what is contemporarily recognised as a "consumer society." The evolution into a consumer society is deeply entrenched in the roots of industrialisation. The establishment of factories during the industrial revolution precipitated an elevation in goods production and worker populations, thereby providing income-earning workers with the means to exceed their fundamental consumption needs within markets. Consequently, consumption adopted an augmented significance, transcending mere survival necessities. The proliferation in product quantity and diversity, stemming from industrialisation, facilitated the progression of capitalism. Furthermore, significant alterations in consumption habits have been instigated by technological advancements and the globalisation phenomenon. Digital technologies and the internet afford consumers expedited access to product identification and procurement, whilst globalisation has broadened the range of accessible products

and services. Consequently, heightened consumption convenience has diverted societal consumption habits towards ephemeral products amidst this rapid-consumption societal structure. A crucial, oft-neglected issue within this consumption-centric society is environmental sustainability, as expired, unused, and discarded items, inherently becoming waste, are returned to the environment. Continuous excessive consumption threatens the ecological balance, a destabilisation culminating in numerous environmental calamities.

Evidently, global climate change emerges as a pivotal, globally consequential, human-induced environmental issue that is widely deliberated. Thus, the focus of this investigation pivots upon examining global climate change through the lens of sustainable consumption. A scrutiny of existing literature reveals an abundance of studies scrutinising the relationship, or its absence, between environmental attitudes and pro-environmental consumer behaviours [1–3]. Yet, a comprehensive exploration into the domain of climate change anxiety remains conspicuously absent, particularly concerning its impact on consumer behaviour and its relation with sustainable consumption's sub-dimensions. One ambition of the present study seeks to bridge this extant gap within the literature. Employed as a data collection tool within the causal research model was a structured survey, with data analysed utilising SPSS and LISREL software packages. Furthermore, this study aspires to amplify awareness regarding these issues and illuminate paths for subsequent research within this field.

2 Literature Review

2.1 Climate Change Anxiety

Defined within the Framework Convention on Climate Change, climate change encapsulates alterations in the climatic system, attributed to both natural factors and anthropogenic activities [4]. Detrimental impacts of climate change, penetrating myriad regions across the globe, have elicited considerable apprehension within the scientific community [5]. Manifestations such as elevating temperatures, glacier melting, dwindling water resources, forest fires, floods, species extinctions, desertification, droughts, storms, tornadoes, erosion, infectious diseases, and shifts in climatic zones not only induce physical detriments but also foster mental distress in human populations [5–7].

Particularly, threats posed by climate change to the availability of sufficient food, clean drinking water, pristine air, and secure housing have been recognized as conduits to mental health complications [8]. A study orchestrated by the American Psychological Association delineated an array of psychological disorders correlated with climate change, including depression, anxiety, post-traumatic stress disorder, substance abuse, complications in social relationships, and identity loss [9].

Several terminologies have been crafted to articulate the emotional and psychological ramifications experienced by individuals in response to environmental degradation and climate change. Such terminologies encompass solastalgia [10], environmental distress [11], eco-anxiety [12], climate change distress [13] ecological grief [14], ecological stress [15], pre-traumatic stress disorder [16], and climate change anxiety [17]. Amongst these, climate change anxiety is regarded as the most comprehensive.

Within the literature, certain definitions of climate change anxiety have been widely acknowledged. The American Psychological Association, in its report, elucidated the term as a “chronic fear of environmental doom” [9]. Alternatively, it has been depicted as a pervasive, existential, or ecological fear anticipating the collapse of life's ecological foundations [18, 19]. Furthermore, climate change anxiety has been identified as negative emotional, cognitive, and behavioural responses evoked by climate change apprehensions [20, 21]. These reactions can be manifested as insomnia, appetite loss, and panic attacks [17]. Given the pervasive influence of climate change on nearly all life aspects, its psychological repercussions may simultaneously be overt and significant, as well as nebulous and elusive [22].

Table 1. Investigations pertaining to the psychological consequences of climate change

Author	Topic
[23]	Solastalgia and Anxiety Pertaining to Environmental Shifts
[24]	Stress Induced by Climatic Variations
[25]	Familiarity-Linked Ecological Anxiety
[26]	Bidirectional Health Impacts of Climate Change: Physical and Psychological Facets
[27]	Solastalgia and Psychological Disturbances
[28]	Anxiety Correlated with Climatic Transformations
[29]	Gender-Specific Emotional Responses to Climate-Induced Threats
[15]	The Interplay Between Depressive Symptoms and Eco-friendly Behaviours
[20]	Anxiety Amongst Individuals Indirectly Affected by Climate Change
[17]	Perturbation Concerning Climatic Alterations
[30]	Reproductive Hesitancy Attributed to Climatic Concerns
[31]	Anxiety and Concern in the Context of Climate Change
[22]	Anxiety Stemming from Ecological Crises
[21]	The Nexus Between Climate Change Anxiety and Mental Health

Table 1 elucidates studies regarding the psychological impacts of climate change.

As a result of unplanned development and imprudent consumption habits by human populations, notable ecological damage has been documented in disparate global regions [32]. Such damage bears repercussions, including non-linear climate alterations and pervasive pollution [33]. Resulting concerns and heightened awareness originating from these deleterious effects have propelled the inception of the term “sustainable development,” aiming to mitigate adverse impacts upon nature. Sustainability, a concept intricately woven into dialogues across economic, political, and scientific domains for an extensive duration, is further elucidated in the subsequent section, with a concentrated focus on the underpinnings of sustainability and sustainable consumption.

2.2 Sustainability and Sustainable Consumption: An Intricate Nexus

Over the last three decades, sustainability has been thrust into the limelight, shaping both international literature and the development policies of nations. This concept, enmeshed with environmental, sociocultural, and economic dimensions [34], recognises the imperative of healthy ecosystems and environments for the perseverance of humans and other organisms, thereby forming a foundational pillar for sustainable development [35].

One of the pivotal publications of the 20th century, the Brundtland Report—or “Our Common Future”—proffers principles and guidelines tethered to sustainability. Published by the United Nations in 1987 and christened after Gro Harlem Brundtland, the then Prime Minister of Norway and Chairperson of the World Commission on Environment and Development (WCED), the report provides a definition of sustainability that seeks to meet the needs of the present without jeopardizing the ability of future generations to meet their own [36]. It asserts that the adoption of sustainability objectives is a common interest that traverses all nations [37, 38].

Concurrently, the concept of sustainable consumption has evolved within the framework of the sustainability paradigm, which envelops both sustainable production and consumption activities. Often, these activities are amalgamated under the concept of sustainable consumption [39]. Sustainable consumption first emerged within Agenda 21 during the United Nations World Summit in Rio, 1992, a conference intended to operationalise the Brundtland report and cast light upon environmental issues. The United Nations defines sustainable consumption as the act of fulfilling basic consumer needs and enhancing their quality of life, whilst curtailing the use of natural resources and toxic materials, thereby safeguarding the needs of future generations [40].

In the fourth Section of the conference report, titled “Changing Consumption Patterns,” various action plans pertaining to global, national, and local sustainability are elaborated upon [41]. This section underscores the imperative of modulating excessive resource demand, emanating from unsustainable lifestyles in affluent societies, and reallocating resources to satisfy the basic needs of impoverished regions, which is achieved by curtailing excessive resource use in industrialized countries. Two decades post the Rio conference in 1992, the United Nations Conference on Sustainable Development, colloquially known as Rio+20, was convened from June 20-22, 2012, in Rio de Janeiro. A roadmap document was subsequently disseminated. With the Millennium Development Goals as its foundation, the United Nations Sustainable Development Goals, comprising 17 goals and 169 targets, were ratified on September 27, 2015, in New York [42]. Valid until 2030, these goals prioritize environmental issues, such as sustainable cities, climate change, drought resilience, and biodiversity preservation, thereby sculpting a new global development framework [43]. Embraced by 193 UN member states, including Turkey, these 17 goals are delineated in Figure 1 below.



Figure 1. Global goals for sustainable development (<https://sdgs.un.org/goals>)

2.3 Interplay Between Climate Change Anxiety and Sustainable Consumption: A Pivotal Connection

Scientific data substantiating the disturbance in nature's balance have been prolifically presented in contemporary times. The damages—spanning economic, social, and ecological domains—emanating from climate change, have been identified as a positive function of human-induced greenhouse gas emissions and the vulnerabilities of social and ecological systems to the perturbations of climate change [44]. A relationship has been established between the escalation of greenhouse gas emissions discharged into the atmosphere, the augmenting vulnerabilities of social and ecological systems to climate change, and a subsequent increase in the damages and losses induced by climate change. A focal point within academic circles has been the exploration of methods to promote the diminution of carbon emissions [45]. Moreover, the relationship between environmental regulation and carbon dioxide emissions has been extensively examined [46–48].

The posited solution to the prevailing dilemma is bifurcated: either the greenhouse gas emissions engendering climate change are mitigated to levels commensurate with natural cycles, or the fragility of social and ecological systems against climate change is diminished [49]. It has been suggested that an individual's apprehensions regarding climate change can act as a catalyst for sustainable behaviours [50, 51]. Sustainable consumption, in its essence, has the capability to curtail resource consumption, address resource scarcity and climate change, and also reduce carbon emissions and raw material use [52].

In a 32-country study led by Ogunbode et al. [53], it was concluded that climate change anxiety serves as a paramount driver behind individual sustainable behaviours. Moreover, a pronounced relationship was established between heightened climate concern and a surge in sustainable consumer behaviours, such as energy conservation, second-hand purchasing, borrowing, renting, and revaluing [54]. The Sainsbury's Future of Food Report in 2019 elucidated that consumers are increasingly prioritising the planet in their purchasing decisions, resulting in a 65% annual increase in the sales of plant-based products within the supermarket chain [55]. Furthermore, a global survey executed by Ipsos in 2021 encompassing 23,055 participants, aged between 16 and 74 across 29 countries, revealed that approximately 56% of respondents had altered their consumer behaviour in recent years owing to climate change concerns [56]. A closer scrutiny of the data revealed that 17% of participants reported significant alterations in their consumption habits, 39% made several changes, and 31% declared no changes in their consumption.

The Ethical Consumer Markets Report in 2021 from the United Kingdom signals an amplifying demand for ethical and sustainable products amongst consumers [57]. This report indicated that ethical consumer spending surged to 122 billion Euros by the culmination of 2020, witnessing notable growth in low-carbon home and lifestyle expenditures. Another study conducted in the United Kingdom revealed that, while global warming concerns are associated with clinical anxiety, they are also robustly related to sustainability actions [25]. Parallel findings have been discovered in Australia, New Zealand, and Germany, establishing a positive relationship between climate change anxiety and sustainability attitudes [58, 59]. In summation, a critical role in sustainable consumption behaviours is played by consumers' apprehension regarding the deleterious effects of climate change. The perception of risks associated with climate change contributes substantively to the augmentation of sustainable consumer behaviour [60].

3 Methodology

3.1 Objectives and Research Design

A meticulous exploration aimed at elucidating the relationship between climate change anxiety and sustainable consumption behaviour was executed. A structured questionnaire was utilised as an instrument for data acquisition in this causal research model. Notably, the investigation was anchored on a population comprising consumers accessible through online and face-to-face survey modalities.

3.2 Sampling and Data Collection

Data was amassed from a diverse cohort of 487 individuals, leveraging a random sampling method, during a period extending from May 12 to June 12, 2023, utilising Google Forms as a platform for an interactive online survey form. However, an analytical exclusion was applied to 32 responses, attributed to illegibility and incompleteness, culminating in a final analytic sample of 455 respondents. A preliminary survey was administered to a subset of 50 individuals, and subsequent to affirming the clarity and comprehensibility of the survey questions, full-scale deployment of the surveys was initiated. The instrument was bifurcated into two sections: the initial focusing on climate change anxiety and sustainable consumption behaviour, and the latter encapsulating demographic queries.

3.3 Instrumentation

In the primary section, the "Climate Change Anxiety Scale," encompassing 13 statements and developed by study [17], and translated into Turkish by study [61], was amalgamated with the "Sustainable Consumption Behaviour Scale," which consists of 17 statements and was crafted by study [62]. A 5-point Likert scale, ranging from 1 ("Never") to 5 ("Always"), was employed for the statements in the scales. It was discerned that skewness and kurtosis values for all dimensions within the research fell within the accepted ± 1.5 range, indicative of a normal distribution [63].

3.4 Validity and Reliability

Cronbach's Alpha coefficient was scrutinised to ascertain the reliability of the scales, and SPSS and LISREL were utilised for subsequent data analysis. The robustness of a measurement is considerably enhanced by its validity, which pertains to the precision with which a scale gauges its intended metric, and its generalisability and suitability to the target demographic [64].

3.5 Factor Analysis

Employed extensively within social sciences for scale development and adaptation studies, factor analysis endeavours to reduce observed variables to a more manageable number of fundamental dimensions, thereby facilitating comprehension and interpretation of intervariable relationships [65, 66]. EFA was conducted with the intent to ascertain whether the factors derived through factor analysis are representative of the theoretical construct and to compress the number of correlated observed variables into a smaller number of independent new variables by leveraging data derived from the covariance or correlation matrix [65].

3.6 SEM

SEM, amalgamating multivariate statistical techniques, is utilised within social sciences to validate theoretical hypotheses developed from numerical data [67]. Recognised for its efficacy in delineating, estimating, and testing linear relationships between theoretically-associated variables, SEM has proven instrumental in resolving issues related to the formulation of theoretical structures [68, 69].

4 Results

In this section of the study, findings obtained from the analysis of data collected through the questionnaire are presented, along with tables, explanations, and interpretations based on these findings. Table 2 displays the participants' demographic characteristics.

Displayed in Table 2, a breakdown of the demographic characteristics of the participants was articulated. It was revealed that females constituted 61.8% of the participants, and university graduates made up 55.6%. A significant portion, 64% identified as single, and 37.1% were categorised as students. Further, 34.9% of respondents reported a monthly average income of 2,500 TL or less, whilst 50.8% disclosed this as their monthly family average income. Notably, 46.2% of the participants were unemployed, with a majority residing in the Marmara region.

To evaluate the reliability of items within the Climate Change Anxiety and Sustainable Consumption Behaviour scales, an EFA was conducted on pertinent items utilising SPSS software. This was followed by the employment of SEM to scrutinise the impacts of Climate Change Anxiety on four sub-dimensions of Sustainable Consumption Behaviour: Environmental Sensitivity (CD), Unnecessary Purchasing (IDSA), Savings (T), and Reusability (YK). The findings pertaining to the EFA for Climate Change Anxiety are depicted in Table 3. The Cronbach's Alpha reliability coefficient for the scale items was computed to be 0.920, suggesting a commendable level of reliability for the utilised scale.

Indication is found in Table 3 that Climate Change Anxiety is embodied by a solitary factor, explaining a total variance of 51.796%. Within this factor, variable IDA6 emerges as notably influential, boasting a loading of 0.800. Pursuing further exploration, the results pertaining to the EFA of Sustainable Consumption Behaviour are disclosed in Table 4, wherein the Cronbach's Alpha value for the encompassing items of the Sustainable Consumption Behaviour scale is ascertained to be 0.813, signalling the scale's reliability.

The findings of the Exploratory Factor Analysis (EFA) for Sustainable Consumption Behavior are presented in Table 4.

Table 4 elucidates that sustainable consumption behaviour is comprised of 17 items, partitioned into 4 factors: Environmental Sensitivity (5 items), Non-Essential Purchasing (5 items), Savings (3 items), and Reusability (3 items). The EFA results reveal these four factors to account for 65.9% of the total variance. Examining factor loadings, variable ST16 surfaces as the most paramount within Environmental Sensitivity, brandishing a loading of 0.810; within Non-Essential Purchasing, it is variable ST22 with a loading of 0.826; within Savings, variables ST25 and ST26 both exhibit a loading of 0.844, and within Reusability, it is variable ST29 with a loading of 0.744. Eigenvalues, variance explanation ratios, and Cronbach's Alpha values for each factor are also manifested within Table 4.

Upon inspection of Figure 2, the variable "IDA6. Solitary reflection on emotional responses to climate change" emerges as notably influential on Climate Change Anxiety, with a coefficient of 0.78. Regarding Environmental Sensitivity (CD), variables "ST16. Acquisition of products from environmentally responsible companies" and "ST17. Preference for items with biodegradable packaging" both demonstrate a coefficient of 0.85. Within the domain of Savings (T), the variable "ST25. Selection of electronic devices with lower electrical consumption" reveals a coefficient of 0.89. Pertaining to Reusability, "ST28. Reevaluation rather than disposal of product packaging" is prevalent with a coefficient of 0.74.

Table 2. Participant demographic characteristics: Frequencies and percentages

Variable	Level	F	%
Gender	Female	281	61.8
	Male	174	38.2
Age	21 years and under	120	26.4
	Between 22 and 25 years old	90	19.8
	Between 26 and 30 years old	51	11.2
	Between the ages of 31 – 40	114	25.1
	Between the ages of 41 – 50	53	11.6
	51 years and older	27	5.9
Educational Level	Primary education	7	1.5
	High school	45	9.9
	Associate degree	72	15.8
	Bachelor's degree	253	55.6
	Graduate	78	17.1
Marital Status	Single	291	64.0
	Married	164	36.0
Employment	Student	169	37.1
	Officer	79	17.4
	Employee	44	9.7
	Housewife	24	5.3
	Retired	15	3.3
	Small/medium trade self-employment (buying-selling, grocery store, tradesman, ...)	19	4.2
	Large-scale trade (export-import, factory owner, ...)	9	2.0
	Academician	38	8.4
	Other	58	12.7
Monthly Personal Average Income	2.500TL and below	159	34.9
	2.501TL – 6.000TL	32	7.0
	6.001TL – 10000TL	39	8.6
	10.001TL – 15.000TL	68	14.9
	15.001TL – 20.000TL	64	14.1
	20.001TL and above	93	20.4
Monthly Family Average Income	6.000TL and below	28	6.2
	6.001TL – 10000TL	55	12.1
	10.001TL – 15.000TL	70	15.4
	15.001TL – 20.000TL	71	15.6
	20.001TL and above	231	50.8
Working Status	I am not working	210	46.2
	I work in the private sector	140	30.8
	I work in the public sector	105	23.1
Growth Geographic Region	Mediterranean	85	18.7
	Eastern and Southeastern Anatolia	29	6.4
	Aegean	92	20.2
	Central Anatolia	46	10.1
	Black Sea	19	4.2
	Marmara	184	40.4

While Climate Change Anxiety was found to lack a statistically significant impact on Excessive Purchasing Behavior, “ST22. Procurement of new products despite possessing similar items” emerges as the paramount variable influencing Excessive Purchasing Behavior, evidencing a coefficient of 0.79. In a sub-dimensional evaluation of the model, a unit increase in Climate Change Anxiety is associated with enhancements of 0.52, 0.25, and 0.42 units in Environmental Sensitivity, Savings, and Reusability respectively.

During the statistical evaluation of the model illustrated in Figure 2, various criteria merit consideration. The chi-square value, acquired by division by degrees of freedom, represents one such criterion. In this instance, the obtained value ($X^2/df = 1.99$) falls below the critical threshold of 3. Subsequent criteria are delineated in Table 5, indicating an adherence to acceptable statistical boundaries.

H₁: Escalation in climate change anxiety correlates with an augmentation in individuals' environmental sensitivity.

H₂: Amplification of climate change anxiety is associated with an increase in individuals' non-essential purchasing behavior.

Table 3. EFA results for the climate change anxiety scale and corresponding Cronbach's Alpha values

Factor/Items	Factor Loadings	Eigenvalue	Variance Explanation Ratio	α
IDA Climate Change Anxiety				
IDA1. Contemplation of climate change obstructs my concentration.	0.616	6.734	51.796	0.920
IDA2. Consideration of climate change disrupts my sleep.	0.768			
IDA3. Nightmares are induced by thoughts of climate change.	0.693			
IDA4. Emotional distress, evidenced by crying, is elicited by thoughts of climate change.	0.682			
IDA5. Self-questioning arises: "Why is my handling of climate change thoughts not more effective?"	0.671			
IDA6. Isolation is sought to ponder the emotional response to climate change.	0.800			
IDA7. Thoughts regarding climate change are documented and analysed.	0.647			
IDA8. Self-reflection occurs: "Why is my reaction to climate change of this nature?"	0.740			
IDA9. Enjoyable interactions with family and friends are hampered by climate change concerns.	0.748			
IDA10. Struggles arise in balancing sustainability concerns with family needs.	0.682			
IDA11. Work or school assignment completion is hindered by climate change concerns.	0.753			
IDA12. Potential work output is diminished by anxieties related to climate change.	0.779			
IDA13. Observations from friends indicate an excessive preoccupation with climate change.	0.752			

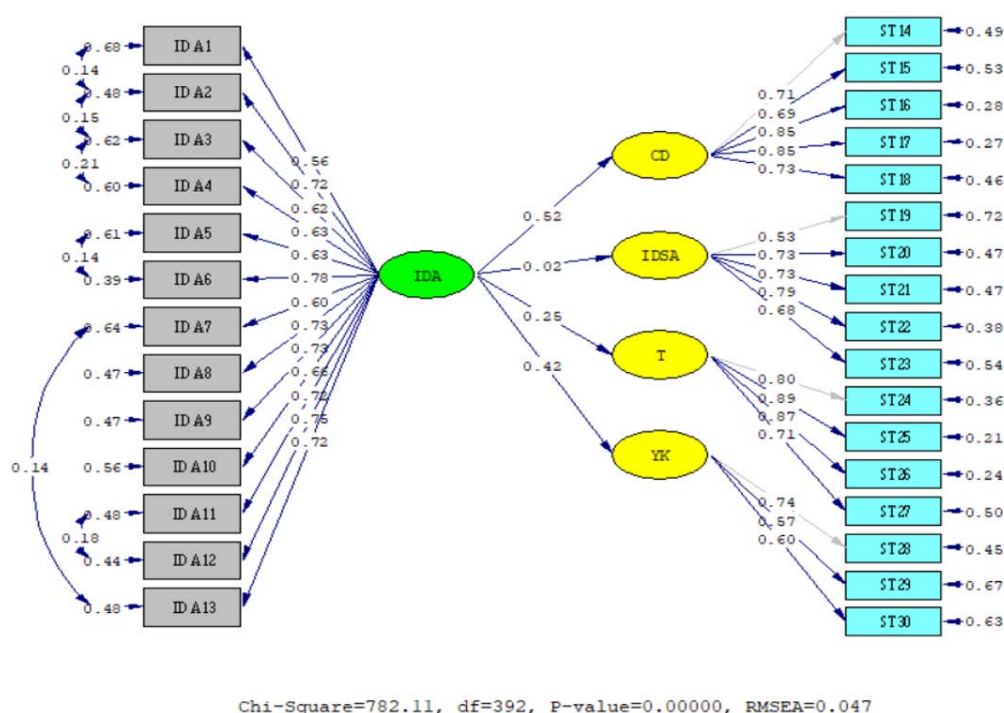


Figure 2. SEM results pertaining to sub-dimensions of climate change anxiety and sustainable consumption behaviour

Table 4. Results of EFA for sustainable consumption behaviour and Cronbach's Alpha values

Factor/Items	Factor Loadings	Eigenvalue	Variance Explanation	α Ratio
(CD) Environmental Sensitivity				
ST14. Environmentally gentle cleaning products, such as detergents and shampoos, are purchased.	0.776	5.745	33.791	0.875
ST15. Attire constructed of natural materials is selected.	0.732			
ST16. Products are obtained from companies that uphold environmental responsibility.	0.810			
ST17. Items featuring biodegradable packaging are chosen.	0.798			
ST18. Efforts are made to dissuade family members and friends from acquiring products detrimental to the environment.	0.762			
(IDSA) Unneeded Consumption				
ST19. Technological devices, such as mobile phones, are replaced with new iterations despite the absence of necessity.	0.631	2.803	16.485	0.816
ST20. New clothing is purchased even in the absence of need.	0.790			
ST21. Products not initially intended or listed are acquired during shopping.	0.791			
ST22. A new product is obtained even in the presence of a similar extant item.	0.826			
ST23. Food and beverage items are occasionally bought without a pressing need.	0.742			
(T) Saving				
ST24. Appliances designed for energy conservation are selected.	0.836	1.603	9.428	0.889
ST25. Electronic devices, identified for their lower electricity consumption relative to alternatives, are purchased.	0.844			
ST26. Attention is given to electrical consumption levels when acquiring electronic products.	0.844			
ST27. Energy-saving bulbs are utilised at home.	0.724			
(YK) Reusability				
ST28. Packaging materials, such as cardboard, tin, and glass, are re-evaluated and repurposed instead of being discarded.	0.689	1.053	6.196	0.670
ST29. Mildly used items, including DVDs and books, are rented or borrowed as required.	0.744			
ST30. Previously used papers and materials for note-taking are repurposed.	0.675			

Table 5. Appropriate value ranges for goodness-of-fit indices utilized in SEM

Fitness Criterion	Perfect Fitness	Acceptable Fitness	Model
RMSEA	$0 < \text{RMSEA} < 0.05$	$0.05 \leq \text{RMSEA} \leq 0.10$	0.047
NFI	$0.95 \leq \text{NFI} \leq 1$	$0.90 < \text{NFI} \leq 0.95$	0.96
NNFI	$0.97 \leq \text{NNFI} \leq 1$	$0.95 \leq \text{NNFI} \leq 0.97$	0.98
CFI	$0.97 \leq \text{CFI} \leq 1$	$0.95 \leq \text{CFI} \leq 0.97$	0.98
SRMR	$0 \leq \text{SRMR} < 0.05$	$0.05 \leq \text{SRMR} \leq 0.10$	0.055
GFI	$0.95 \leq \text{GFI} \leq 1$	$0.90 \leq \text{GFI} \leq 0.95$	0.90
AGFI	$0.90 \leq \text{AGFI} \leq 1$	$0.85 \leq \text{AGFI} \leq 0.90$	0.88

Note: RMSEA: Root Mean Square Error of Approximation; NFI: Normed Fit Index; NNFI: Non-Normed Fit Index; CFI: Comparative Fit Index, SRMR: Standardized Root Mean Square Residual, GFI: Goodness of Fit Index, AGFI: Adjusted Goodness of Fit Index. Source: Formulated from Schermelleh et al., Hooper and Mullen, and Schumacker and Lomax.

H₃: A surge in climate change anxiety is linked to a growth in individuals' propensities to economise.

H₄: Intensification of climate change anxiety corresponds with a rise in individuals' tendencies towards reusability.

T-statistic values and results derived from the hypothesis testing conducted for the SEM, as illustrated in Figure 2, are elucidated in Table 6.

Table 6 underscores that of the four hypotheses (H₁, H₃, and H₄), three have garnered statistical confirmation, whilst H₂ has been rejected.

Table 6. Standardized estimates and hypotheses for the climate anxiety-consumption model

Hypothesis	Paths	Standardized Parameter Estimates	T Values	Results
H ₁	(IDA) → (CD)	0.52	9.56	Confirmed
H ₂	(IDA) → (IDSA)	0.02	0.46	Not confirmed
H ₃	(IDA) → (T)	0.25	4.85	Confirmed
H ₄	(IDA) → (YK)	0.42	7.12	Confirmed

5 Discussion

The pervasive influence of climate change, marked by escalated incidences of heatwaves, droughts, floods, and other extreme weather events, permeates global environmental and health dialogues, posing substantial threats to physical and mental well-being, particularly within vulnerable demographics such as children, migrants, and impoverished communities. The ensuing psychological and emotional tumult has given rise to numerous concepts, among which is climate change anxiety. Manifestations of this anxiety are discernible in the alteration of consumption behaviours, with a discernible tilt toward more ecologically responsible products and services.

Within the presented study, empirical data obtained from a sample of 455 participants confirm the existence of a positive relationship between climate change anxiety and sustainable consumption behaviour, substantiating the findings of several preceding studies [58, 59]. Substantive increases in environmental sensitivity, reusability attitudes, and saving tendencies—sub-dimensions of sustainable consumption—were observed to correlate with elevated levels of climate change anxiety. Contrarily, no statistically significant correlation was identified between enhanced climate change anxiety and unnecessary purchasing behaviours.

Notably, a correlation between increasing environmental sensitivity and burgeoning awareness about climate change has been suggested by the SEM results. Previous research instances substantiate these findings; for instance, the study [25] identified a strong correlation between climate change-related concerns, clinical anxiety, and sustainable actions, while study [60] revealed that heightened perceptions of climate change risks correlate positively with sustainable consumer behaviour. Literature often positions climate change anxiety as a constructive concern, capable of propelling individuals towards eco-consciousness and contributions to a sustainable future [22, 70, 71].

6 Conclusions

The entwined relationship between climate change anxiety and sustainable consumption behaviour yields insights that could potentially sculpt interventions aimed at augmenting awareness regarding climate change and promulgating sustainable consumption practices. The implication of climate change anxiety as a catalyst for enhanced environmental sensitivity, saving tendencies, and attitudes towards reusability provides a nuanced understanding of the potential positive behavioural outcomes stemming from climate concerns.

It is imperative to note that this study encapsulates responses from 455 participants, following the exclusion of 32 responses from the initial 487, due to various reasons. Despite this sample size limitation, findings derived herein can be perceived as representative of the sample. Subsequent research endeavours could strive to circumvent this limitation by employing a larger sample size, thus enabling the provision of more robust conclusions. The incorporation of additional factors impacting climate change anxiety and sustainable consumption behaviour in future models could further enrich the discourse in this domain.

Moreover, additional responsibilities should be apportioned to families, educational institutions, businesses, and environmental communities to intensify climate change awareness and inculcate sustainable consumption behaviours. This could potentially be achieved through the orchestration of seminars and educational programs within educational institutions and environmental communities.

While this study illuminates several aspects of the climate change anxiety–sustainable consumption behaviour nexus, it is not without its limitations. Future research could further probe into these dynamics, with an enlarged sample size and a broader range of contributing factors, thereby providing a more comprehensive understanding of these phenomena and facilitating the development of efficacious interventions aimed at nurturing a more environmentally cognizant and sustainable society.

Data Availability

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

Conflicts of Interest

The author declares no conflict of interest.

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