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# The psychological impact of climate change: exploring the link between media induced indirect trauma and climate anxiety

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**ABSTRACT**

As global awareness of climate change increases, its psychological effects particularly those arising from indirect exposure through the media are becoming an increasing source of concern. The aim of the study was to determine the relationship between climate anxiety and indirect trauma caused by media exposure to climate change events. A descriptive cross-sectional study was conducted with 580 nursing students from various universities in the Mediterranean Region of Türkiye. Data were collected via an online survey between December 2024 and January 2025. The study utilized the 'Scale for Indirect Trauma Caused by Media Exposure to Disasters (SITMED)' and the "Climate Change Anxiety Scale (CCAS)", both of which have been validated for the Turkish population. Data analysis was performed using SPSS 26.0. The mean total score of SITMED was $2.85 \pm 0.77$, and for the mean total score of the CCAS $1.75 \pm 0.72$. A moderate positive correlation was found between media exposure to climate change events and climate change anxiety ($r = .396$, $p = 0.000$). Additionally, SITMED scores explained 15.7% of the variance in climate anxiety levels ($R^2 = 0.157$, $p < 0.05$), indicating that media exposure plays a role in shaping climate anxiety but is not the sole determinant. In the fight against climate change, it is essential to consider its mental effects and to develop comprehensive strategies for increasing individuals' mental resilience. It is recommended that solution-oriented content be presented instead of crisis-focused narratives in the media. It is recommended to integrate courses on planetary health, environmental health, and climate change should be integrated into the nursing curriculum. In this way, future nurses will be equipped to evaluate and address the effects of climate change in patient care.

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**KEYWORDS**
Climate change; climate anxiety; indirect trauma; media exposure; psychological impact; environmental psychology; climate crisis

## Introduction

Climate change is one of the greatest environmental threats to humanity, significantly affecting individuals' and communities' mental health (Gifford & Gifford, 2016;

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Shareeff et al., 2024). Climate change has direct effects, such as extreme weather events (hurricanes, floods, wildfires), and indirect effects, including food and water insecurity, displacement, cultural losses, and mental health challenges (Ediz & Yanik, 2023). While the unmet mental health needs of people around the world are increasing, the capacity of climate change to directly or indirectly affect mental well-being creates a distinct burden on the mental health of societies (Ediz & Yanik, 2023; Pihkala, 2018). Climate change-related psychological disorders encompass depression, anxiety, PTSD, substance use disorder, feelings of helplessness and fatalism, difficulties in social relationships, loss of identity, hopelessness about the future, and an increased risk of suicide (Cunsolo et al., 2020). These effects reveal the complexity of individuals' emotional responses to climate change. Studies reveal more clearly that emotional responses to climate change are multifaceted and shaped by many factors (Hickman et al., 2021; Sri et al., 2023).

Direct exposure to climate change includes firsthand experiences of extreme events such as floods, hurricanes, wildfires, and prolonged droughts. These events can lead to various mental health issues, including PTSD, depression, anxiety, increased suicide rates, and higher hospitalization rates for mental health conditions (Cianconi et al., 2020; Salvador et al., 2023; Sri et al., 2023). Indirect exposure, on the other hand, occurs through perceiving, observing, or thinking about climate change without direct experience. This can happen by consuming climate-related media or noticing environmental and social changes linked to climate change (Burke et al., 2018; Doherty & Clayton, 2011; Gifford & Gifford, 2016; Noelke et al., 2016). Indeed, there is growing public awareness that rising global temperatures threaten the planet and human health (Horton et al., 2014). People experience climate change-related disasters and environmental stressors indirectly, often through the media (Clayton et al., 2017; Doherty & Clayton, 2011). For example, one study showed that exposure to a 1.5°C global warming report increased climate anxiety in a Norwegian sample (Ogunbode et al., 2020). Furthermore, other studies in a Northern European context show that young people, a group often at the forefront of climate change concern and anxiety (Sanson et al., 2019), are exposed to climate change information primarily through the media (Flöttum et al., 2016). Recent data suggest that vicarious exposure to climate change events can elicit intense negative emotions such as melancholy, guilt, sadness, anger, fear, anxiety, hopelessness, and indirect trauma, potentially leading to mental disorders (Clayton, 2020; Stanley et al., 2021).

As the potential impacts of climate change on mental health are more widely recognized, climate change awareness and related anxiety are on the rise (Clayton, 2020). Climate change anxiety is more prevalent among individuals who take environmental issues more seriously (Clayton & Karazsia, 2020). As advocates for the health and safety of individuals and communities, nurses have vital roles to play in addressing climate change and its consequences for human health and all life on earth (Ediz & Uzun, 2025a). The American Nurses Association (ANA) recognizes climate change as an urgent health crisis and emphasizes the need for nurses to raise awareness of the human and environmental health nexus (American Nurses Association, 2024). Nurses not only have a critical role in patient care but also assume important roles at every stage of global problems as trusted transmitters of health information (Ediz & Uzun, 2025b; Eren & Yıldız, 2024). Therefore, in order for future nurses to lead planetary health initiatives,

they must first feel ready to do so. In addition, more research should be conducted on how climate change is perceived by nursing students or how it affects them emotionally.

In the literature review, only a limited number of studies examining how nursing students in Türkiye perceive climate change and the emotional problems they experience in relation to climate change were identified. However, no study investigating the relationship between indirect trauma and climate anxiety in the context of climate change was found. In order to address these gaps in the literature, we aimed to investigate the relationship between indirect trauma caused by exposure to climate change events through the media and climate anxiety. This study has the following 3 objectives:

(1) To evaluate nursing students' levels of indirect trauma caused by exposure to climate change events through the media.
(2) To explain the relationship between climate anxiety and indirect trauma caused by exposure of nursing students to climate change events through the media and to clarify the terminology on this issue.
(3) Scoping and making recommendations for future research areas.

## Methods

### *Design and participants*

This descriptive cross-sectional study was conducted with nursing students in Türkiye's Mediterranean Region, which is more vulnerable to rising temperatures and climate-related health risks. The total population used for the sample size calculation consisted of 6264 nursing students enrolled in undergraduate nursing programs across eight provinces in the Mediterranean Region. The sample size was calculated using a known population sampling formula, with a 95% confidence interval, 0.05 margin of error, and 20% response rate, resulting in a required sample of 363 students. However, the study was completed with 580 participants to enhance statistical power.

### *Data collection*

The research data were collected in line with the principle of volunteerism with an e-survey prepared through Google Form. The link to the e-survey was shared on various social media platforms and forums of the universities where nursing students were invited to participate in the study. Before starting the e-survey, the invited students viewed a message containing information about the aims of the study, that it would take approximately 15 minutes to complete the survey, that answering the questions was optional, that they could leave the e-survey at any time, and that all personal information would be kept confidential even for the researchers. Participants had to click 'I agree to participate' to start the e-survey or 'Decline participation' to leave. As part of the screening procedure, the e-survey included an initial question asking whether the participant had ever been directly exposed to a disaster. If the answer was 'yes', the survey automatically terminated and the respondent was excluded from the study, as direct exposure did not meet the inclusion criteria. This automated screening ensured a transparent and consistent application of the

exclusion criteria. Informed consent for participation was obtained by continuing with the e-survey after the initial briefing. Responses to the e-survey were limited to one response. Research data were collected between December 2024 and January 2025. Survey results were collected directly from participants and stored securely on the principal investigator's laptop for five years, in accordance with confidentiality guidelines.

### Inclusion criteria

- To be a nursing student,
- Not being directly exposed to any climate change-related disaster and having been exposed/witnessed to climate change events only through the media,
- Individuals who volunteered to participate in the study and signed the informed consent form
- Individuals who correctly completed the data collection form.

### Exclusion criteria

- Individuals who do not have the ability to read and write Turkish.
- People directly exposed to a climate change-related event,
- People whose family members, friends or acquaintances are directly affected by climate change-related event, even if they are not directly affected themselves
- Persons who are part of a rescue team at the scene of a climate change-related incident or who are members of one of the rescue-related professions and are directly involved in the work at the scene (e.g. medical care personnel, nurses, psychologists, emergency personnel, firefighters, police officers, volunteers, etc.).
- People living in the area of a climate change-related event, providing direct assistance to victims, or experiencing suffering together.
- Individuals who refused to participate in the study or did not sign the informed consent form
- Individuals who completed the data collection tools incompletely or incorrectly were identified.

In the study, a "Introductory Information Form" prepared by the researchers based on the relevant literature review, the "Indirect Trauma Scale of Exposure to Disasters through the Media" and the Climate Change Anxiety Scale, whose Turkish validity and reliability study was conducted, were used as data collection tools

### Data collection forms

#### Descriptive information form

The form has a total of 11 questions and consists of two parts. The first part consists of 5 questions questioning the socio-demographic characteristics of the participants (gender, age, class, presence of chronic physical illness and presence of chronic mental disorder), and the second part consists of 6 questions questioning how the participants are exposed to climate change events through the media (the

platform they follow the daily news, the platform where they see the news about climate change the most, the time spent daily on news about climate change, believing in the accuracy of news about climate change, believing in the accuracy of disasters associated with climate change (flood, fire, etc.) and the behaviors they exhibit due to climate change news) and the behaviors they exhibit due to climate change news.

### *Scale for indirect trauma caused by media exposure to Disasters (SITMED)*

SITMED, measures the indirect traumatic impact of events that individuals do not directly experience but are exposed to through the media (television, social media, internet, newspapers, etc.), including large-scale social events that are either natural (disasters) or non-natural (wars, terrorism, mass violence, migration crises). In our study, it was chosen to assess indirect trauma caused by war-related news, as it captures psychological, behavioral, physical, and emotional responses (Choi et al., 2021; Ediz & Dinçer, 2024). The Turkish validity and reliability study of the scale developed by Choi et al. (2021) and originally named "Scale for Indirect Trauma caused by Media Exposure to Social disaster (SITMES)" was conducted by Ediz and Dinçer (2024). The SITMED scale consists of a total of 17 items and 3 sub-dimensions ("Psychological, Behavioral and Physical Reactions to Disasters", "Spiritual Resentment due to Disasters" and "Feeling that Disasters Threaten Life") used for adults aged 18–65. 'Psychological, Behavioral and Physical Reactions to Disasters' sub-dimension consists of 8 items, 'Spiritual Resentment due to Disasters' sub-dimension consists of 5 items and 'Feeling that Disasters Threaten Life' sub-dimension consists of 4 items. There are no reverse items and cut-off points in the scale. The average item score is used in the calculation of the scale. The lowest score obtained from each item of the scale is 1 and the highest score is 5. As the average item score increases, the level of indirect trauma caused by exposure to disasters through the media also increases. The original Cronbach's Alpha value of the scale was reported as 0.870. In this study, the overall Cronbach's Alpha value of the scale was calculated as 0.926. The Cronbach's Alpha values for the sub-dimensions were found to be 0.89 for 'Psychological, Behavioral, and Physical Reactions to Disasters', 0.88 for 'Spiritual Resentment due to Disasters', and 0.89 for 'Feeling that Disasters Threaten Life' (Choi et al., 2021; Ediz & Dinçer, 2024).

### *Climate change anxiety scale (CCAS)*

The Turkish validity and reliability study of the scale developed by Clayton and Karazsia (2020) was conducted by Cebeci et al. (2022). The scale consists of a total of 13 questions and is a five-point Likert scale (1; Never to 5; Almost always). The scale has two sub-dimensions: Cognitive Impairment (items 1–8) and Functional Impairment (items 9–13). There are no reverse scored items in the scale and the scale score is calculated by summing all items and dividing by the total number of items. An increase in the score indicates a high level of climate change anxiety. In the original validity and reliability study, the Cronbach's alpha internal consistency coefficient was reported as 0.947. In the present study, the Cronbach's alpha coefficient was calculated as 0.955. The Cronbach's alpha values for the sub-dimensions were 0.927 for the 'Cognitive Impairment' subscale and 0.902 for the 'Functional Impairment' subscale (Clayton & Karazsia, 2020; Cebeci et al., 2022).

### Data analysis

The research data were analyzed using the Statistical Package for the Social Sciences (SPSS) 26.0 analysis program. In the study, statistical significance value was accepted as $p < 0.05$. The conformity of the data to normal distribution was determined by Shapiro-Wilk, Kolmogorow Smirnov tests and Skewness and Kurtosis values. In the analysis of the data, descriptive statistical values such as number, percentage, arithmetic mean and standard deviation were calculated. Independent Samples t-Test and ANOVA values were calculated for group comparisons.

### Ethical considerations

This research was approved by the X University Scientific Research and Publication Ethics Committee (dated: 25 December 2024, numbered: 2024/233:1) Informed consent was obtained from the individuals participating in the study by e-survey. The study was conducted in accordance with the Declaration of Helsinki and the ethical standards of the National Research Committee.

## Results

### Sociodemographic characteristics of participants

When the socio-demographic characteristics of the nursing students who participated in the study were examined, it was determined that 79.0% were female, 59.4% were between the ages of 20–22 years and 30.7% were 2nd year students. About 94.7% of the students reported not having a chronic physical disease and 98.1% reported not having a chronic mental disorder. About 86.7% of the students reported that they follow daily news via the internet, 59.3% reported that they mostly see news about climate change on Instagram, and 54.8% reported that they spend 1–30 min a day on news about climate change. It was determined that 89.0% of the students who participated in the study partially believed in the accuracy of the news about climate change and 66.2% partially believed in the accuracy of disasters (flood, fire, etc.) associated with climate change (Table 1).

### Students' behaviors due to the news about climate change

When the behaviors of the students who participated in the study due to the news about climate change were examined, it was found that 56.2% changed their consumption habits to reduce their carbon footprint, 52.0% investigated the causes of climate change, 33.1% did not take any action, 17.2% shared posts on social media to draw attention to climate change, 6.2% avoided watching news about climate change, and 5.0% participated in actions for climate change (Table 2).

### The relationship between some characteristics of the students and the scale for indirect trauma caused by media exposure to Disasters (SITMED)

The mean total score of the students participating in the study was 2.85 ± 0.77. The mean scores of the sub-dimensions of SITMED were calculated as 'Psychological, Behavioral

**Table 1.** Socio-demographic characteristics of students.

| Feature | N (580) | (%) |
|---|---|---|
| **Gender** | | |
| Woman | 458 | 79.0 |
| Male | 122 | 21.0 |
| **Age** | | |
| 17–19 years old | 128 | 22.1 |
| 20–22 years old | 345 | 59.4 |
| 23–25 years old | 93 | 16.1 |
| 26 years and older | 14 | 2.4 |
| **Classroom** | | |
| Class 1 | 129 | 22.2 |
| Class 2 | 178 | 30.7 |
| Class 3 | 134 | 23.1 |
| Class 4 | 139 | 24.0 |
| **Presence of Chronic Physical Illness** | | |
| Yes | 31 | 5.3 |
| No | 549 | 94.7 |
| **Presence of Chronic Mental Disorder** | | |
| Yes | 11 | 1.9 |
| No | 569 | 98.1 |
| **The Platform Where They Follow Daily News** | | |
| I do not follow | 33 | 5.7 |
| Television | 34 | 5.9 |
| Internet | 503 | 86.7 |
| Other (Newspaper, Radio) | 10 | 1.7 |
| **News about Climate Change The Platform They See Most** | | |
| Instagram | 344 | 59.3 |
| Twitter (X) | 135 | 23.3 |
| Television | 41 | 7.1 |
| Other (Facebook, WhatsApp, Telegram) | 60 | 10.3 |
| **Climate Change News Time Spent Per Day** | | |
| I don't waste any time | 108 | 18.6 |
| 1–30 minutes | 318 | 54.8 |
| 31–60 minutes | 124 | 21.4 |
| More than 60 minutes | 30 | 5.2 |
| **News on Climate Change Believing the Truth** | | |
| Fully Believe | 43 | 7.4 |
| Partially Believe | 516 | 89.0 |
| I Never Believe | 21 | 3.6 |
| **Disasters Associated with Climate Change (Flood, fire, etc.) Believing the Truth** | | |
| Fully Believe | 175 | 30.2 |
| Partially Believe | 384 | 66.2 |
| I Never Believe | 21 | 3.6 |

**Table 2.** Students' behaviors due to news on climate change.

| Behavior | N (580)* | (%) |
|---|---|---|
| Participate in actions to address climate change | 29 | 5.0 |
| Changing consumption habits to reduce carbon footprint | 326 | 56.2 |
| Posting on social media to draw attention to climate change | 100 | 17.2 |
| Avoiding watching news about climate change | 39 | 6.2 |
| Researching the causes of climate change | 322 | 52.0 |
| I don't want to take any action | 192 | 33.1 |

*Multiple options were marked and percentages were calculated over "n".

and Physical Reactions to Events' 2.35 ± 0.79, 'Spiritual Resentment Due to Events' 3.37 ± 0.96 and 'The Sense that Events Threaten Life' 3.20 ± 0.94 (Table 3).

According to the research data, it was determined that there was no statistically significant relationship between the variables of age, grade, presence of chronic physical and mental illness, the platform where students follow daily news, the platform where they see climate change news the most, and the daily time spent on news about climate change and the mean scores of the SITMED scale ($p > 0.05$). In the study, it was determined that there was a statistically significant relationship between the variables of gender, believing in the accuracy of news about climate change and believing in the accuracy of disasters associated with climate change, changing consumption habits to reduce carbon footprint, sharing posts on social media to draw attention to climate change and researching the causes of climate change and the mean scores of the sub-dimensions and/or total scores of the SITMED scale ($p < 0.05$, Table 3).

### *The relationship between some characteristics of the students and the climate change anxiety scale (CCAS)*

The total score of the Climate Change Anxiety Scale of the students participating in the study was determined as 1.75 ± 0.72. The mean scores of CCAS sub-dimensions were calculated as 'Cognitive Impairment' 1.78 ± 0.73 and 'Functional Impairment' 1.70 ± 0.76 (Table 4).

According to the research data, no significant relationship was found between climate change anxiety and gender, age, presence of chronic physical or mental illness, or belief in the accuracy of climate-related news and climate-related disasters ($p > 0.05$). However, CCAS scores varied significantly across several factors, including class level, the platform used to follow daily news, time spent on climate-related news, taking action on climate change, adopting behaviors to reduce carbon footprint, posting about climate change on social media, avoiding climate change news, and researching its causes ($p < 0.05$, Table 4).

Overall, climate change anxiety was higher among 3rd-year students than 4th-year students, and among those who followed daily news on the internet rather than newspapers or radio. Anxiety levels were also higher in students who spent more than 60 min per day on climate change news compared with those who spent no time.

Moreover, students who took action on climate change, changed their consumption habits to reduce their carbon footprint, shared climate-related posts on social media, avoided climate change news, or researched its causes experienced higher anxiety than those who did not.

### *Correlation and simple linear regression analyses According to the total scores of SITMED and CCAS*

It was determined that there was a positive and moderately significant relationship between the SITMED scores of nursing students and their CCAS scores ($r = .396$, $p = 0.000$) (Table 5). A simple linear regression model based participants mean scores yielded significant results (F: 107.428; $p$: 0.000). It was determined that SITMED explained 15.7% of the variance in the mean score of CCAS ($p < 0.05$, Table 5).

**Table 3.** The relationship between some characteristics of the students and the scale for indirect trauma caused by media exposure to Disasters (SITMED).

| Feature | N (580) | Psychological, Behavioral and Physical Reactions to Events ($\overline{X}\pm SS$) | Spiritual Resentment Due to Events The Sense that ($\overline{X}\pm SS$) | Events Threaten Life ($\overline{X}\pm SS$) | SITMED ($\overline{X}\pm SS$) |
|---|---|---|---|---|---|
| $\overline{X} \pm SS$ | | 2.35 ± 0.79 | 3.37 ± 0.96 | 3.20 ± 0.94 | 2.85 ± 0.77 |
| **Gender** | | | | | |
| Woman | 458 | 2.41 ± 0.77 | 3.47 ± 0.91 | 3.29 ± 0.89 | 2.93 ± 0.72 |
| Male | 122 | 2.14 ± 0.85 | 2.97 ± 1.05 | 2.85 ± 1.02 | 2.55 ± 0.85 |
| **Testing and Significance** | | $t$=3.303,$p$=0.001 | $t$=4.853,$p$=0.000 | $t$=4.602,$p$=0.000 | $t$=4.437,$p$=0.000 |
| **News on Climate Change Believing the Truth** | | | | | |
| Fully Believe[a] | 43 | 2.33 ± 0.96 | 3.36 ±1.08 | 3.12 ± 1.11 | 2.82 ± 0.92 |
| Partially Believe[b] | 516 | 2.37 ± 0.76 | 3.40 ± 0.92 | 3.23 ± 0.90 | 2.88 ± 0.73 |
| I Never Believe[c] | 21 | 1.92 ± 0.97 | 2.53 ±1.37 | 2.63 ± 1.23 | 2.27 ± 1.02 |
| **Testing and Significance** | | F=3.256,$p$=0.039 | F=8.409,$p$=0.000 | F=4.280,$p$=0.014 | F=6.445p=0.002 |
| | | **Difference; b > c** | **Difference; a, b > c** | **Difference; b > c** | **Difference;a, b> c** |
| **Disasters Associated with Climate Change (Flood, fire, etc.) Believing the Truth** | | | | | |
| Fully Believe[a] | 175 | 2.41 ± 0.80 | 3.59 ± 0.85 | 3.60 ± 1.01 | 2.99 ± 0.70 |
| Partially Believe[b] | 384 | 2.34 ± 0.79 | 3.27 ± 0.99 | 3.53 ± 0.96 | 2.79 ± 0.78 |
| I Never Believe[c] | 21 | 2.21 ± 0.82 | 3.20 ±1.06 | 3.48 ± 0.82 | 2.68 ± 0.81 |
| **Testingand Significance** | | F=0.879,$p$=0.416 | F=7.117,$p$=0.001 | F=6.642,$p$=0.001 | F=4.587,$p$=0.011 |
| | | | **Difference; a > b** | **Difference; a > b** | **Difference; a > b** |
| **Changing consumption habits to reduce carbon footprint** | | | | | |
| Yes | 326 | 2.45 ± 0.77 | 3.53 ± 0.87 | 3.36 ± 0.89 | 2.99 ± 0.72 |
| No | 254 | 2.22 ± 0.80 | 3.15 ± 1.03 | 2.98±0.95 | 3.67 ± 0.78 |
| **Testingand Significance** | | $t$=3.512, $p$=0.000 | $t$=4.750, $p$=0.000 | $t$=4.922, $p$=0.000 | $t$=4.861, $p$=0.000 |
| **Posting on social media to draw attention to climate change** | | | | | |
| Yes | 100 | 2.59 ± 0.78 | 3.51 ± 1.06 | 3.29 ± 1.10 | 3.02 ± 0.84 |
| No | 480 | 2.30 ± 0.78 | 3.34 ± 0.94 | 3.188±0.90 | 2.81±0.75 |
| **Testingand Significance** | | $t$=3.280, $p$=0.001 | $t$=1.519, $p$=0.131 | $t$=1.088, $p$=0.077 | $t$=2.325, $p$=0.022 |
| **Researching the causes of climate change** | | | | | |
| Yes | 322 | 2.49 ± 0.76 | 3.52 ± 0.93 | 3.37 ± 0.92 | 3.00 ± 0.74 |
| No | 258 | 2.18 ± 0.80 | 3.17 ± 0.97 | 2.98 ± 0.92 | 2.66 ± 0.76 |
| **Testingand Significance** | | $t$=4.652, $p$=0.000 | $t$=4.419, $p$=0.000 | $t$=5.098, $p$=0.000 | $t$=5.394, $p$=0.000 |

t= Indipendent-Samples t Test, F= ANOVA, $p$= statistical significance level, $p$<0.05According to the results of the multiple comparison test (posthoc-test: Tukey), different letters indicated by alphabetical superscripts (a,b,c) indicate.
that there is a significant difference between the scale scores.

**Table 4.** The relationship between some characteristics of students and climate change anxiety scale (CCAS).

| Feature | N (580) | Cognitive Impairment ($\bar{X} \pm$ SS) | Functional Impairment ($\bar{X} \pm$ SS) | CCAS ($\bar{X} \pm$ SS) |
|---|---|---|---|---|
| $\bar{X} \pm SS$ | | 1.78 ± 0.73 | 1.70 ± 0.76 | 1.75 ± 0.72 |
| **Classroom** | | | | |
| Class 1 | 129 | 1.80 ± 0.71 | 1.71 ± 0.73 | 1.76 ± 0.69 |
| Class 2 | 178 | 1.75 ± 0.73 | 1.69 ± 0.76 | 1.73 ± 0.72 |
| Class 3 | 134 | 1.93 ± 0.78 | 1.86 ± 0.81 | 1.90±0.77 |
| Class 4 | 139 | 1.67 ± 0.70 | 1.56 ± 0.72 | 1.63 ± 0.69 |
| **Testing and Significance** | | F=2.867,*p*=0.036 **Difference; c> d** | F=3.514,*p*=0.015 **Difference; c > d** | F=3.300,*p*=0.020 **Difference; c> d** |
| **The Platform Where They Follow Daily News** | | | | |
| I do not follow[a] | 33 | 1.67 ± 0.84 | 1.61 ± 0.90 | 1.65 ± 0.84 |
| Television[b] | 34 | 1.73 ± 0.74 | 1.67 ± 0.76 | 1.77 ± 0.72 |
| Internet [c] | 503 | 1.86 ± 0.72 | 1.89 ± 0.74 | 1.83 ± 0.71 |
| Other (Newspaper, Radio)[d] | 10 | 1.50 ± 0.73 | 1.36 ± 0.83 | 1.44 ± 0.73 |
| **Testing and Significance** | | F=3.511,*p*=0.015 **Difference; c> d** | F=2.742,*p*=0.043 **Difference; c > d** | F=3.359, *p*=0.019 **Difference; c> d** |
| **Climate Change News Time Spent Per Day** | | | | |
| I don't waste any time[a] | 108 | 1.65 ± 0.75 | 1.59 ± 0.77 | 1.63 ± 0.73 |
| 1–30 minutes[b] | 318 | 1.76 ± 0.73 | 1.67 ± 0.76 | 1.73±0.71 |
| 31–60 minutes[c] | 124 | 1.87 ± 0.71 | 1.82 ± 0.76 | 1.85 ± 0.71 |
| More than 60 minutes[d] | 30 | 2.15 ± 0.73 | 2.00 ± 0.70 | 2.09 ± 0.68 |
| **Testing and Significance** | | F=04.240,*p*=0.006 **Difference; d> a, b** | F=3.531,*p*=0.015 **Difference; d> a** | F=4.148,*p*=0.006 **Difference; d> a** |
| **Participate in actions to address climate change** | | | | |
| Yes | 29 | 2.34 ± 0.70 | 2.28±0.81 | 2.32± 0.68 |
| No | 551 | 1.76 ± 0.72 | 1.67 ± 0.75 | 1.72 ± 0.71 |
| **Testing and Significance** | | *t*=4.307, *p*=0.000 | *t*=3.946, *p*=0.000 | *t*=4.519, *p*=0.000 |
| **Changing consumption habits to reduce carbon footprint** | | | | |
| Yes | 326 | 1.88 ± 0.74 | 1.78 ± 0.76 | 1.84 ± 0.72 |
| No | 254 | 1.67 ± 0.71 | 1.61 ± 0.75 | 1.65 ± 0.70 |
| **Testing and Significance** | | *t*=3.397, *p*=0.001 | *t*=2.626, *p*=0.009 | *t*=3.192, *p*=0.001 |
| **Posting on social media to draw attention to climate change** | | | | |
| Yes | 100 | 2.17 ± 0.80 | 2.02 ± 0.81 | 2.11 ± 0.77 |
| No | 480 | 1.70 ± 0.69 | 1.64 ± 0.73 | 1.68 ± 0.69 |
| **Testing and Significance** | | *t*=5.907, *p*=0.000 | *t*=4.355, *p*=0.000 | *t*=5.167, *p*=0.000 |
| **Avoiding watching news about climate change** | | | | |
| Yes | 39 | 2.13 ± 0.94 | 1.93 ± 0.90 | 2.05 ± 0.89 |
| No | 541 | 1.76 ± 0.71 | 1.69 ± 0.75 | 1.73 ± 0.70 |
| **Testing and Significance** | | *t*=3.073, *p*=0.002 | *t*=1.622 *p*=0.112 | *t*=2.690, *p*=0.007 |
| **Researching the causes of climate change** | | | | |
| Yes | 322 | 1.90 ± 0.73 | 1.79 ± 0.77 | 1.86 ± 0.72 |
| No | 258 | 1.63 ± 0.71 | 1.60 ± 0.74 | 1.62 ± 0.70 |
| **Testing and Significance** | | *t*=4.474, *p*=0.000 | *t*=3.012, *p*=0.003 | *t*=4.014, *p*=0.000 |

t= Indipendent-Samples t Test, F= ANOVA, *p*= statistical significance level, $p<0.05$According to the results of the multiple comparison test (posthoc-test: Tukey), different letters indicated by alphabetical superscripts (a,b,c,d) indicate that there is a significant difference between the scale scores.

**Table 5.** Correlation and simple linear regression analyses according to the total scores of SITMED and CCAS.

| | $\bar{X} \pm SS$ | SITMED (r) | CCAS (r) | B | t | *p* | R | $R^2$ | F | *p* |
|---|---|---|---|---|---|---|---|---|---|---|
| **Constant** | | | | 2.115 | 27.397 | 0.000 | 0.396. | .157 | 107.428 | 0.000 |
| SITMED | 2.85 ± 0.77 | — | 0.396** | | | | | | | |
| CCAS | 1.75 ± 0.72 | 0.396** | — | | 10.365 | 0.000 | | | | |

**Moderate Correlation, r: Pearson Corelation, p: Significant Value.

## Discussion

This study examined the indirect psychological effects of climate change among nursing students and explored the relationship between media-induced indirect trauma and climate anxiety. By focusing specifically on indirect trauma transmitted through media platforms, the study contributes to the growing body of literature emphasizing that the mental health consequences of climate change can emerge not only from direct experiences but also from indirect exposures shaped by digital and informational environments. This finding aligns with the broader evidence indicating that media has become a central pathway through which climate-related stressors affect psychological well-being (Hopwood et al., 2019; van Valkengoed et al., 2022).

In the present study, gender, belief in the accuracy of climate-related news, efforts to reduce carbon footprint, active engagement with climate-related content on social media, and researching the causes of climate change were all significantly associated with SITMED subscale and total scores ($p < 0.05$, Table 3). These findings indicate that students' perceptions, engagement patterns, and environmentally oriented behaviors are closely linked with their levels of climate anxiety and media-induced trauma. Consistent with previous research, women reported higher levels of climate anxiety, suggesting heightened emotional sensitivity toward environmental threats (Alexa et al., 2022; Mohamed et al., 2024). Media exposure may partly explain this gendered sensitivity, as women tend to engage more deeply with emotionally charged information, particularly on issues perceived as threatening to community and future well-being.

The study further demonstrates that students' media habits such as frequency of accessing climate news, time spent on news platforms, sharing climate-related content, engaging in climate action, and modifying personal behaviors to reduce environmental impact are significantly associated with higher climate anxiety levels (Table 4). These findings reinforce emerging evidence that media plays a dual psychological role. On the one hand, frequent exposure to alarming or catastrophic climate narratives may elevate fear, uncertainty, and anxiety (Alexa et al., 2022; Asgarizadeh et al., 2023). On the other hand, exposure can simultaneously motivate constructive behavioral responses by increasing environmental awareness, adaptive concern, and perceived responsibility (Maduneme, 2024; Shantz, 2024). The contradictory nature of media-induced emotional responses suggests that climate anxiety may function both as a distressing experience and as a catalyst for climate protective behaviors particularly among health-related student populations.

In addition, some students may avoid climate news as a coping mechanism, which can temporarily reduce distress by limiting exposure to threatening information (Barbosa &

Roberto, 2024). Conversely, students who actively research the causes of climate change often report higher anxiety, likely because gaining deeper insight into the severity of climate-related risks amplifies concern about future threats (Alexa et al., 2022). These findings collectively suggest that climate anxiety among nursing students is shaped not only by media exposure but also by individual coping tendencies, emotional processing styles, and engagement behaviors.

Regression analysis revealed that media-based disaster exposure predicted 15.7% of the variance in climate anxiety scores. This association supports the hypothesis that experiencing climate related events indirectly through media can intensify emotional reactions and contribute to heightened climate anxiety. The literature similarly indicates that indirect trauma transmitted through media especially in younger populations can significantly influence psychological responses to climate change (Maduneme, 2024; Rodríguez Quiroga et al., 2024). Media coverage often emphasizes the destructive and uncontrollable aspects of climate events, which may reinforce feelings of grief, helplessness, and ecological loss (Santhosh et al., 2024). Although the cross-sectional nature of this study does not permit conclusions about causality, the observed predictive relationship highlights the importance of understanding how climate information is communicated and how individuals process such information.

Taken together, these findings underscore the need for holistic intervention strategies that address both informational exposure and emotional coping. Climate anxiety is not independent of individuals' daily habits or their patterns of media consumption; rather, it is rooted in a complex interplay of psychological, behavioral, and environmental factors. For nursing students, future healthcare professionals who will increasingly confront the health consequences of climate change supportive educational and psychosocial frameworks are essential to ensure that climate-related stress does not become maladaptive but instead fosters informed, adaptive, and resilient engagement.

### *Implications for nursing policy*

Addressing the mental health consequences of climate change is essential for strengthening individual and professional resilience among future nurses. The findings of this study particularly the observation that students who frequently follow climate-related information, interact with climate news platforms, and participate in climate action exhibit higher levels of climate anxiety underscore the need for educational strategies that incorporate both cognitive and emotional dimensions of climate awareness. To build this capacity, nursing curricula should systematically integrate content on planetary health, environmental health, and climate change, not only to enhance students' theoretical knowledge but also to support constructive emotional processing. In this context, structured reflective sessions focusing on climate-related emotions, media literacy training to help students critically evaluate climate content, and accessible mental health support services could be incorporated into educational programs. These measures may prevent anxiety from becoming maladaptive and help students transform climate-related distress into informed engagement and resilience.

Embedding such multidimensional approaches into nursing education has the potential to strengthen crisis management skills, promote sustainable health practices, and enhance nurses' readiness to respond to climate-related health challenges at both

individual and community levels. By equipping students with these competencies, nursing programs can contribute meaningfully to public health efforts aimed at mitigating the psychosocial impacts of the climate crisis.

## Limitations

This study has several limitations. First, participation was voluntary, meaning the results represent only the views of students who chose to take part. Because data were collected through self-report questionnaires, the findings may also be influenced by response bias. The study sample included only nursing students from Türkiye's Mediterranean Region, so the results cannot be generalized to all nursing students in Türkiye or other countries. In addition, recruiting participants through social media platforms and university forums may have led to self-selection bias, favoring students who are more digitally engaged or more interested in climate-related issues. As the study used a cross-sectional design, causal relationships cannot be established; therefore, although media exposure was identified as a significant predictor of climate anxiety, the direction of this association cannot be determined. Finally, while the study provides valuable and timely insights, it should be interpreted with caution, as it is one of the first studies to examine the potential indirect mental health impact of climate change-related events transmitted through the media among nursing students.

## Conclusions and recommendations

In conclusion, future nurses are concerned with climate change events and exhibit anxiety related to it. Exposure to climate change information through the media may strengthen the relationship between indirect trauma and climate anxiety and negatively affect individuals' mental health. The findings of this study indicate that media-induced indirect trauma is a significant predictor of climate anxiety among nursing students, highlighting the psychological risks associated with frequent exposure to climate-related content. However, this influence represents only one dimension of a broader, multifactorial phenomenon shaped by personal, behavioral and environmental factors.

To address these challenges, interventions should emphasize improving climate change literacy, strengthening media literacy, and ensuring access to appropriate mental health support. Encouraging solution-focused media content and promoting conscious media use may also contribute to reducing maladaptive forms of anxiety. To further advance understanding in this field, future research should employ longitudinal study designs to examine changes in climate anxiety over time and investigate causal pathways between media exposure, indirect trauma and psychological outcomes. Studies involving students from other health professions and diverse countries would enhance the generalizability of the findings. In addition, intervention-based research evaluating programs that aim to enhance resilience, promote adaptive coping, and strengthen media literacy may provide valuable insights for educational and institutional policy development.

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## Data avaılability statement

Data sets are available from the corresponding author upon reasonable request.

## Ethics approval and consent to participate

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of University X (dated: 25 December 2024, numbered: 2024/233:1). Written informed consent was also obtained from each participant before recruitment into the study. Each participant was informed of his/her right to withdraw from the study at any time without sufering any negative consequences. Names of the participants were not revealed in the study report and all information gathered from the study participants were treated confdentially as special codes were used to represent the responses of each participant.

## Consent to participate declaration

Before starting the e-survey, the invited individuals viewed a message informing them about the aims of the study, that it would take approximately 15 min to complete the survey, that answering the questions was optional, that they could leave the e-survey at any time, and that all personal information would be kept confidential even for the researchers. Participants had to click 'I agree to participate' to start the e-survey or 'Decline participation' to leave. Informed consent to participate was obtained by continuing with the e-survey after the initial briefing. Informed consent was obtained from the individuals participating in the study by e-survey. The study was conducted in accordance with the Declaration of Helsinki and the ethical standards of the National Research Committee.

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