

Climate Change Awareness among University Students: Exploring the Correlation of Awareness with Media Exposure and Demographic Differences

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ABSTRACT

This study examines climate change awareness among students of Tripura University and explores how media exposure and demographic characteristics shape their understanding. Using a descriptive survey design, data were collected from 567 students through a structured questionnaire and analysed with descriptive statistics, chi-square tests, and regression techniques. The findings show that students possess high general awareness of climate change but perceive its risks at a moderate level. They strongly associate climate change with large-scale environmental impacts, while health-related consequences receive comparatively weaker recognition. Media exposure emerges as a significant correlate—frequent use of the internet and daily newspaper reading are both associated with higher awareness and a greater perception of the seriousness of climate-induced disasters. Awareness varies across academic streams and place of residence, with science and urban students showing higher awareness levels, whereas gender, age, income, and medium of instruction show no significant differences. The results indicate that structural access to information and curricular exposure shape understanding more than socio-demographic factors. The study underscores the need for credible climate communication, curriculum integration, and enhanced media literacy to deepen students' grasp of climate risks and strengthen future climate-responsive behaviour.

Keywords: Climate change awareness, University students, Media exposure, Risk perception, Demographic differences, Tripura

INTRODUCTION

Climate change is one of the most critical global challenges today, with scientific assessments warning that continued greenhouse gas emissions will intensify extreme weather events, sea-level rise, ecological disruption, food insecurity, and large-scale displacement (IPCC, 2021). Although it affects all nations, its causes and impacts are unevenly distributed: developed countries are historically responsible for most carbon emissions, while developing countries face greater risks due to resource dependence, limited adaptive capacity, and climate-sensitive economies (IPCC, 2022a). Despite strong scientific consensus, public understanding

remains inconsistent worldwide. Visible impacts—floods, droughts, cloudbursts, landslides, vector-borne disease expansion, and sea-level rise—have increased, yet climate literacy remains low. The growing frequency of cyclones, heat anomalies, and erratic rainfall underscores the urgent need for greater awareness, mitigation, and adaptation (Leiserowitz & Thaker, 2012).

India is among the world's most climate-vulnerable countries, facing extreme rainfall, floods, erratic monsoons, droughts, coastal inundation, and ecosystem degradation (IPCC, 2022a; Bhalerao et al., 2022; Borah et al., 2024). Vulnerability differs across regions: the Northeastern and Himalayan states face glacial melt, landslides, and flooding, while central and western India experience prolonged drought and desertification (Roy et al., 2021; Ravindranath et al., 2011). Climate change is also projected to reduce agricultural productivity and alter water availability, affecting millions in climate-sensitive sectors (Sam et al., 2020; Banerjee, 2015). Within this context, the Northeastern states—especially Tripura—show heightened sensitivity due to fragile ecosystems and resource-dependent livelihoods. Tripura's 864-kilometre border with Bangladesh further exposes it to potential cross-border environmental displacement driven by sea-level rise, salinisation, flooding, and erosion in coastal Bangladesh (Dasgupta, 2007; Cruz et al., 2007). The state has also absorbed past migration linked to political conflict, and future climate-induced movement may intensify socio-economic pressures (Leiserowitz & Thaker, 2012; Gupta, 2005). These factors make Tripura an important site for examining climate risk awareness.

In a highly mediated world, media play a central role in shaping public understanding of social, political, and environmental issues. Climate change is no exception. Traditional and digital media are primary sources through which people learn about scientific findings, environmental changes, and natural disasters (Nelkin, 1987; Wilson, 1995). As agenda-setters, they influence public attitudes and behavioural responses (Leiserowitz, 2007). However, media representations are often inconsistent. News outlets may sensationalise events, emphasise extremes, or frame climate change through political or commercial biases (Billett, 2010). These tendencies contribute to confusion and incomplete understanding, and a substantial share of the Indian public remains misinformed or underinformed about climate causes and impacts (Leiserowitz & Thaker, 2012). Studies in India also show that young people rely heavily on media, especially internet sources, for climate-related information (Neelima, 2018). Evaluating how people interpret such media portrayals is therefore crucial for assessing climate communication quality.

University students are an important group for climate change research because they are at a formative intellectual stage, have high media exposure (Barrera-Verdugo & Villarroel-Villarroel, 2022; Vorderer, Kromer & Schneider, 2016), and will shape future societal responses. Tripura University—the state's only Central University—offers a relevant setting, with students from diverse disciplines and rural–urban backgrounds, making it a microcosm of the region. Despite Tripura's well-known ecological vulnerability, research on climate change awareness among its university students is limited. Given the state's environmental sensitivity and its proximity to Bangladesh, assessing students' awareness and perceptions is both timely and necessary.

In this backdrop, the present study examines climate change awareness, perceived impacts, media consumption patterns, and demographic variations among students of Tripura University. It aims to generate empirical insights into students' understanding of climate change, thereby strengthening climate communication, improving environmental education, and informing policy in environmentally vulnerable regions such as Northeast India.

REVIEW OF LITERATURE

Climate change is understood as the long-term alteration in climatic conditions that can be identified through changes in averages or variability persisting over extended periods. These alterations may arise from both natural processes and human-driven anthropogenic changes (IPCC, 2022b). International frameworks emphasise the significant influence of anthropogenic emissions, distinguishing human-caused disruptions from natural climate variability (UNFCCC, 1992). Within this conceptual landscape, climate change awareness can be understood as the extent to which individuals recognise its causes, perceive its consequences, and appreciate its relevance for everyday life. Existing literature states awareness as a multidimensional construct that includes factual understanding, recognition of current and future risks, and familiarity with mitigation strategies (Halady & Rao, 2010; Brechin & Bhandari, 2011). It is closely linked to climate literacy (IPCC, 2022b) and to risk perception, which reflects subjective judgements about climate threats and is shaped by psychological filters, cultural orientations, identity-based cues, and lived experiences with extreme weather (Weber, 2010; Wolf & Moser, 2011).

Globally, research shows that climate change awareness is highest in regions such as North America, Europe, and Japan, while large sections of populations in Asia and Africa remain unfamiliar with the term. Education consistently emerges as the strongest predictor of awareness worldwide, although perceptions of risk vary by region. This variance driven by belief in human causation in some contexts and by direct experience of warming in others (Lee et al., 2015). In the United States, public familiarity with climate change is widespread, yet concern and acceptance of anthropogenic causes are deeply polarised along ideological lines, with political divisions widening since the 1990s (Egan & Mullin, 2017). In the United Kingdom, awareness has remained high for decades, but climate change often ranks lower than economic or personal concerns (Pidgeon, 2012).

Media exposure plays a critical role in shaping these patterns. Short-term spikes in public attention often follow political speeches, celebrity interventions, extreme weather events, or documentary releases. But interest typically declines as media cycles shift (Mavrodieva et al., 2019). The effects of media also vary by type. In Japan, increases in newspaper coverage correlate with heightened concern, though only temporarily (Sampei & Aoyagi-Usui, 2009). In Germany, public television news tends to increase problem awareness, while print magazines may reduce perceived urgency (Arlt, Hoppe & Wolling, 2011). Social media accelerates information dissemination and enables participatory communication, but it also facilitates misinformation and echo chambers. This reinforces the existing beliefs rather than broadening understanding (Shah, 2024). Long-term U.S. data shows that elite political cues, rather than scientific information or extreme events, are the strongest drivers of shifts in

public concern (Brulle, Carmichael & Jenkins, 2012). This underscores the importance of political context and media framing in shaping climate opinions.

In India, studies present a more uneven picture. National surveys find that although many people recognise environmental changes, a notable portion cannot clearly define climate change or global warming. Indians often interpreting the issue through localised experiences such as pollution, heat, or monsoon variability. Perceived risk varies by vulnerability and social orientation. Individuals who are exposed to floods or droughts, or those holding egalitarian values, show higher concern, whereas urban residents and socially active community members sometimes report lower perceived risk (Thaker et al., 2020). Experiential awareness is particularly strong among climate-sensitive livelihoods. In urban areas, recognition of climate change is high and often attributed to human activity, yet institutional knowledge of global frameworks remains low (Pandve et al., 2011). Rural communities in Odisha similarly display strong experiential awareness, while lacking clarity about underlying causes and often interpreting changes as natural cycles (Sam et al., 2020).

In Northeast India, ecological sensitivity and recurrent hydrological disasters heighten public exposure to climate impacts. Media plays a particularly influential role in this region. Newspapers, television, radio, and social media serve as key channels through which people learn about climate-related issues such as deforestation, floods, and environmental degradation (Borah et al., 2024). Studies consistently reveal strong experiential awareness—tribal farmers across all eight Northeastern states widely report rising temperatures, untimely rains, and uneven rainfall distribution. Majority of these farmers believe that climate change is human-driven (Bhalerao et al., 2022). Broader vulnerability assessments highlight increasing exposure to extreme events, shifting seasonal patterns, and declining agricultural stability, all of which shape public perception even in the absence of formal scientific knowledge (Ravindranath et al., 2011; Roy et al., 2021). In Majuli Island, residents link crop losses, changing disease patterns, and migration pressures to changing climatic conditions, demonstrating high place-based awareness (Das, 2016).

Students and youth represent another important group within awareness research. Studies in the western Himalayan region show moderate to high awareness among school students, with clear differences across gender, schooling level, and urban–rural background (Zeeshan et al., 2021). In Tripura, studies by Upadhyaya (2014a, 2014b, 2023) show consistently high levels of climate-change awareness among students, though with important variations across educational stages. Earlier work with postgraduate and school students found high familiarity but uneven depth of scientific knowledge, with many feelings insufficiently informed; awareness also differed by gender and schooling level, and television, teachers, and newspapers were the primary initial sources of information.

Across studies, demographic patterns consistently influence awareness. Education is the strongest predictor worldwide (Lee et al., 2015), nationally (Thaker et al., 2020), and regionally (Zeeshan et al., 2021). Gender differences appear frequently, though not uniformly. Urban populations often show higher conceptual knowledge, while rural and tribal communities rely primarily on experiential cues (Banerjee, 2015; Sam et al., 2020; Bhalerao et al., 2022). Media exposure is another critical factor, but its effect depends on depth,

framing, and credibility (Sampei& Aoyagi-Usui, 2009; Happer& Philo, 2016; Shah, 2024). Indian evidence shows similar dynamics—mass media strongly influence public perceptions of climate change, both by informing risks and by shaping behavioural orientations (Neelima & Reddy, 2014).

Despite the breadth of research, gaps remain in understanding how university students in Northeast India, and Tripura in particular, interpret climate information. Existing studies show high awareness but also uneven depth of knowledge, limited insight into how media influences student perceptions, and little examination of how experiential and conceptual understanding interact in a region marked by high vulnerability. These gaps justify a focused investigation into climate change awareness among university students in Tripura and the role of media in shaping that awareness.

RESEARCH OBJECTIVES

1. To assess the climate change awareness among university students.
2. To analyse students' perceptions of major climate-related impacts and associated risks.
3. To analyse how different levels of media exposure are associated with students' climate change awareness.
4. To explore students' views on the accuracy and portrayal of climate change in mass media.
5. To determine how demographic characteristics differentially relate to climate change awareness.

METHODOLOGY

Study Design

This study employed a descriptive survey design to examine climate change awareness, perceptions of climate-related impacts, media exposure patterns, and demographic differences among students of Tripura University. The approach was exploratory in nature. The study intended to generate empirical insights into students' understanding of environmental degradation and climate change.

Study Location

The study was conducted at Tripura University, the only Central University in the state of Tripura, located in Northeast India. Tripura is geographically small, shares an extensive international border with Bangladesh. The state is considered environmentally sensitive due to its climate-dependent sectors and ecological vulnerability. Tripura University serves as the primary hub for higher education in the state and attracts students from diverse academic and socio-economic backgrounds.

Participants and Sampling

Approximately 2,800 students were enrolled at the university during the study period. A convenience sampling technique was used to recruit participants, considering feasibility and accessibility. Around 30% of the student population was approached, and questionnaires were

distributed to students who provided verbal consent and were available during free periods in their classrooms. A total of 567 completed questionnaires were retained for analysis after excluding incomplete or invalid responses.

Data Collection Instrument

Data were collected using a structured questionnaire that included items on demographic characteristics (age, gender, academic discipline, place of residence, and family income), climate change awareness and perceptions (awareness of climate change, perceived causes, perceived impacts, and perceived seriousness), and media-related variables (frequency of exposure to different media such as the internet, newspapers, and television, along with students' views on the accuracy and portrayal of climate change information in mass media). The instrument was adapted from established questionnaires used in earlier climate perception studies by Leiserowitz and Thaker (2012), Rao (2011), Leiserowitz et al. (2011), and Leiserowitz et al. (2008).

Data Collection Procedure

The survey was administered between October 2019 and January 2020. Questionnaires were distributed in person across various departments after obtaining verbal consent from participants. Respondents completed the questionnaire anonymously during their free time. Completed forms were collected immediately to ensure data integrity.

Data Analysis

All responses were coded and entered into SPSS 17.0 for statistical analysis. Descriptive statistics were used to summarise overall climate change awareness, perceptions of climate-related impacts, and patterns of media exposure. Statistical tools such as regression analysis, t-test, and factor analysis were used to evaluate the questions and hypotheses stated in this study.

RESULT AND DISCUSSION

The survey results show that students recognise a range of environmental and health consequences associated with climate change. Although the strength of these perceptions varies across issues. Their responses point to an overall awareness of major climate-related impacts, alongside how news media portray environmental problems.

Table 1 presents students' perceptions of different climate-related impacts on a five-point scale. Overall, students demonstrated a reasonable ability to associate climate change with a range of environmental and health consequences. Mean values across items ranged from approximately 3.16 to 3.75, indicating moderate recognition of risks. Students most strongly associated climate change with major environmental outcomes such as melting ice caps, sea-level rise, species extinction, drought, drinking-water scarcity, and increased extreme events (means between 3.54 and 3.75). Perceptions of health-related consequences were also salient, with many students anticipating a rise in vector-borne diseases such as malaria and dengue in response to climate variability (mean = 3.32; SD = 0.957). Students also recognized the

possibility of food scarcity and unpredictable monsoons as outcomes of environmental degradation (means around 3.36–3.54).

Table 1: Mean perceptions of the impacts of climate change and environmental degradation

Perceptions of impacts of climate change and environmental degradation	Mean	SD
Environmental degradation will result in rampant climate change that may cause the melting of ice caps, sea level rise, and consequently 3.75 0.691 10 10 32 38 7 environmental refugee problem may happen due to forced migration and displacement of a large section of the population from the coastal areas	3.75	0.691
Environmental degradation will cause ill health, e.g., skin diseases and breathing problems, and aggravate disease incidence	3.53	0.775
Environmental degradation will increase incidences of famines, and food scarcity will happen due to climate change	3.36	0.842
Environmental degradation will bring about unpredictable monsoons/deficit rainfall	3.54	0.841
Extinction of species, drought/ desertification and shortage of drinking water	3.58	0.880
Increase in environmental disasters like floods, cyclones and cloudbursts	3.57	0.835
Rise in vector-borne diseases (e.g. malaria, dengue, filaria, typhoid) and spread to newer places	3.32	0.957
Television and news media greatly exaggerate the facts of environmental degradation and make the problems of climate change sound worse than they are	3.16	1.094

Students' evaluations of news media were also captured in *Table 1*. The mean score of 3.16 (SD = 1.094) indicates that many students believe television and news media tend to exaggerate the seriousness of climate change.

Table 2 describes the existence of a significant association found by way of regression analysis between the level of use of mass media and the level of perception of the seriousness of the occurrence of natural disasters on account of global heating and climate crisis. A regression index is constructed to measure the level of perception of seriousness about the occurrence of natural disasters in the aftermath of the climate crisis. The index is branched into two categories: (i) Low Level of Seriousness (below the median score), and (ii) High Level of Seriousness (above the median score). The proportion of the high level of seriousness elevates with the high utilization of mass media. It was found that about 42.2 percent of students are "heavy users" of mass media, in comparison with 30.3 percent belonging to the "occasional users" of mass media outlets.

Table 2: Level of usage of print media and understanding of the seriousness of the occurrence of natural disasters in the wake of climate crisis

Level of use of mass media	Level of seriousness of occurrence of environmental disasters in the wake of climate change
Occasional users	30.3 %
Heavy users	42.2 %

Table 3 presents the relationship between awareness of environmental degradation and climate change and various demographic characteristics. The overall awareness levels were high across the sample, but several significant differences emerged.

Students from the Science stream exhibited significantly higher awareness (92.6%) compared to those from Arts and Commerce (82%) ($\chi^2 = 13.08$, $\phi = 0.15$). This difference likely reflects greater exposure to scientific content within their academic curriculum. Urban students (90%) reported higher awareness than rural students (83.1%) ($\chi^2 = 5.71$, $\phi = 0.10$). This may be linked to differential access to information, internet connectivity, and media exposure.

Regular engagement with emerged as an important factor shaping students' climate change awareness. Daily internet use showed a significant association with awareness ($\chi^2 = 14.63$, $\phi = 0.11$), as did daily newspaper reading ($\chi^2 = 29.02$, $\phi = 0.16$). Students who spent more than 15 minutes a day using the internet or reading newspapers consistently reported higher awareness levels than those with lower engagement. This pattern suggests that frequent exposure to digital and print information contributes meaningfully to how students understand and interpret climate-related issues.

Several demographic variables did not show any significant association with climate change awareness, including gender, age, income, medium of instruction, and time spent watching television. The absence of gender differences indicates that male and female students possess comparable levels of awareness, and similar uniformity was observed across age groups and income categories. Likewise, the medium of schooling and daily television exposure did not appear to influence awareness. This suggest that these factors do not meaningfully shape how students understand climate-related issues within this university context.

Table 3: Awareness of climate crisis and loss of environment

Background characteristics		Awareness of environmental degradation and climate change				Inferential statistics	
		(Total N=567)					
		Yes	No	% of respondents who are aware	N	χ^2	Φ
Faculty of study	Science stream	215	17	92.6	232	13.08	0.152
	Arts and Commercestream	275	60	82	335		
Present class of study	Master Degree	488	38	86	526	0.355	0.025
	PhD	37	4	89.6	41		
Age	<=25 years	428	68	86.3	496	0.007	0.004
	> 25 years	61	10	86.6	71		
Caste of the respondent	ST	80	13	86.1	93	0.835	0.038
	SC	76	12	87.3	88		
	OBC	126	24	83.9	150		
	General	206	30	87.5	236		
Income	< Rs. 1,80,000	344	59	85.2	403	1.334	0.049
	>= Rs. 1,80,000	146	18	88.9	164		
Place of residence/birth	Urban	234	26	90	260	5.712	0.1
	Rural	255	52	83.1	307		
Medium of instruction in school days	Vernacular	361	64	85	425	2.426	0.065
	English	128	14	90.2	142		
Environmental studies in school	No	52	8	86.67	60	0	0
	Yes	437	70	86	507		
Spending time on Internet daily	Less than 15 minutes	361	42	89.5	403	14.633	0.161
	More than 15 minutes	127	37	77.44	164		

Spending time on watching TV daily	Less than 15 minutes	431	67	86.5	498	0.633	0.033
	More than 15 minutes	57	12	82.6	69		
Spending time on reading newspapers daily	Less than 15 minutes	392	41	90.5	433	29.017	0.226
	More than 15 minutes	96	38	71.6	134		
Sex of the respondent	Men	186	29	86.5	215	0.057	0.01
	Women	302	50	86	352		

The findings show that students possess a basic understanding of climate change, but middle-range mean scores indicate that perceived risk remains moderate. They recognise large-scale environmental impacts more readily than health-related consequences, suggesting that some risks are not yet fully understood. The moderate belief that news media exaggerate climate problems reflects a critical stance shaped by India's sensational media environment. While such scepticism does not undermine awareness, it may weaken the impact of legitimate warnings, underscoring the need for credible and non-sensationalised communication.

Media use emerges as a key influence: students who frequently use the internet or read newspapers perceive climate-related disasters more seriously, likely due to greater exposure to detailed coverage of floods, heatwaves, and cyclones. Demographic patterns show higher awareness among science and urban students, linked to curricular exposure and stronger access to information, while the lack of differences across gender, age, and income suggests a relatively uniform baseline within the university. Overall, students have foundational knowledge but may underestimate the severity of certain consequences. Strengthening climate communication through curriculum integration, reliable information channels, and context-specific messaging, can deepen understanding and bridge the gap between awareness and urgency.

CONCLUSION

The study shows that students possess high general awareness of climate change but perceive its risks at a moderate level. They clearly recognise major environmental impacts, while health-related consequences are understood less strongly. A notable share believes news media exaggerate climate issues, yet higher media use, especially internet and newspapers, directly increases perceived seriousness of climate-related disasters, making media exposure a key driver of awareness.

Awareness varies significantly by academic stream (highest among science students) and place of residence (higher among urban students), while gender, age, income, and medium of

instruction show no meaningful differences. These findings indicate structural gaps in access to information and curriculum-based exposure.

In practical terms, strengthening credible climate communication, integrating climate content across all disciplines, and improving media literacy can deepen both understanding and risk perception. Future work should examine behavioural responses, the role of social media, and comparative awareness across Northeastern universities.

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