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Climate Change Perceptions among Urban Youth in Delhi-NCR: High Awareness, Personal Vulnerability, and Demand for Systemic Action

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Abstract

Climate change has emerged as a critical global challenge with significant local impacts in urban areas. Effective mitigation of climate change requires both heightened awareness and decisive action from the public. This study examines the perceptions of young people regarding climate change, alongside their beliefs and behaviors related to its mitigation. Responses were collected from over 500 students in Delhi through an online survey. The findings indicate a high level of awareness and concern, reflected in pro-environmental behaviors such as energy conservation and the use of public transportation, although engagement in formal activism, including membership in environmental organizations, was limited. More than 90% of respondents considered climate change to be personally important, with 78.7% expressing feelings of worry and outrage. Nearly half (47.2%) reported experiencing personal health effects attributed to environmental issues and showed strong support for renewable energy sources such as solar and wind power, government subsidies, and enhanced leadership from both government and business sectors. These results depict a highly engaged yet frustrated youth demographic that perceives climate change as an immediate personal threat and calls for systemic action. The implications of these findings are significant for policy development, media strategies, and youth mobilization efforts in urban India.

Keywords: climate perception, youth, survey, environmental attitudes

Introduction

Climate change represents one of the most pressing existential threats to humanity, with disproportionate impacts on vulnerable populations, including youth in rapidly urbanizing regions of the Global South (IPCC, 2022). India, as one of the world's most climate-vulnerable nations, faces escalating risks from extreme weather events, heatwaves, floods, and severe air pollution, particularly in urban centres like the Delhi, National Capital Region (NCR) (Yale Program on Climate Change Communication, 2025). Delhi-NCR consistently ranks among the most polluted urban areas globally, with air quality often exceeding hazardous levels, directly affecting public health and exacerbating perceptions of climate urgency (IQAir, 2025) ^[1].

Youth, who will bear the long-term consequences of current inaction, are increasingly recognized as key stakeholders in climate discourse (Hickman *et al.*, 2021) ^[5]. Globally, surveys indicate high levels of climate anxiety and concern among young people, with many reporting emotional distress and demands for stronger policy responses (Hickman *et al.*, 2021) ^[5]. In India, recent studies reveal elevated awareness and worry, with 94% of youth feeling directly impacted by climate disruptions and 91% expressing concern about global warming (Down To Earth, 2024; Yale Program on Climate Change Communication, 2023). Urban Indian youth, exposed to visible local impacts like smog and heat, often exhibit stronger perceptions of personal vulnerability compared to rural counterparts (Thaker *et al.*, 2024) ^[11]. Despite growing evidence of youth engagement, gaps persist in understanding region-specific perceptions, particularly in highly polluted megacities like Delhi-NCR, where air pollution is frequently conflated with broader climate change (Yale Program on Climate Change Communication, 2025). Existing research highlights high general awareness but limited depth on attribution of responsibility, media influence, behavioral barriers, and policy preferences among urban educated youth (CEEW, 2023; UNICEF, 2023).

This study addresses these gaps by examining climate change perceptions among 515 urban youth (predominantly female university students aged 18–25) in Delhi-NCR through an online survey. The objectives are to assess levels of awareness, concern, emotional responses, media trust, pro-environmental behaviours, and demands for systemic action. By focusing on this demographic—highly educated yet outraged and calling for government and business leadership—the research contributes to understanding how lived experiences of pollution shape climate perceptions and informs strategies for youth mobilization in India's climate response.

Research Gap

While global research on youth climate perceptions has expanded significantly in recent years (Hickman *et al.*, 2021; UNICEF, 2021) ^[5], studies specific to India remain limited in scope and depth. National-level surveys, such as *Climate Change in the Indian Mind* (Leiserowitz *et al.*, 2023, 2025) ^[8, 9], provide valuable broad insights but often aggregate responses across diverse demographics and regions, masking variations between urban and rural youth or between educational levels (Marlon *et al.*, 2024) ^[10]. Regional studies in India tend to focus on rural communities or specific vulnerabilities (e.g., coastal or agricultural populations), with comparatively less attention to urban megacity youth who experience acute local manifestations of environmental degradation, such as severe air pollution in Delhi-NCR (Thaker *et al.*, 2024; CEEW, 2023) ^[8].

Moreover, existing Indian youth-focused research (e.g., UNICEF & IUCN, 2024; DownToEarth, 2024) primarily documents high levels of awareness and concern but offers limited exploration of underlying factors such as media influence, trust in information sources, emotional responses (beyond anxiety), perceived personal health impacts, barriers to action, and specific policy preferences (CEEW, 2023). The interplay between lived experience of pollution, outrage, and demand for systemic (government and business) intervention—particularly among educated urban female youth—remains underexplored (Leiserowitz *et al.*, 2025) ^[8]. This gap is significant because Delhi-NCR youth represent a highly educated, digitally connected demographic with potential to influence policy and public discourse, yet their nuanced perceptions and readiness for mobilization are not well understood.

Research Objectives

The primary objective of this study is to comprehensively examine climate change perceptions among urban educated youth in Delhi-NCR, with a focus on translating high concern into actionable insights for policy and engagement.

Specific objectives are

1. To assess levels of climate change awareness, belief in human causation, perceived importance, and sense of urgency (including whether impacts are seen as already occurring in India).
2. To explore emotional responses (e.g., outrage, hope, fear, guilt) and perceptions of personal vulnerability, including self-reported health impacts.

By addressing these objectives, the study aims to provide evidence-based recommendations for leveraging youth concern to accelerate climate action in urban India.

Methodology

Research Design

This study employed a cross-sectional survey design to explore climate change perceptions among urban youth in Delhi-NCR. The survey was conducted in 2024, during which a structured online questionnaire was developed based on established instruments from global and Indian climate opinion surveys (Leiserowitz *et al.*, 2023; Hickman *et al.*, 2021) ^[5, 10], adapted to the local context with items addressing media influence, emotional responses, personal health impacts, pro-environmental behaviours, and policy preferences. The questionnaire included multiple-choice, Likert-scale (e.g., 5-point agreement/disagreement), and multiple-selection questions to capture both quantitative data and nuanced preferences.

Participants and Sampling

The target population was youth residing in the Delhi National Capital Region (Delhi, Gurugram, Faridabad, and Ghaziabad). A non-probability purposive sampling method combined with snowball sampling was used to reach the specific subgroup of interest: educated urban youth likely to be concerned about or exposed to climate and environmental issues (e.g., university students and young professionals active on digital platforms). Purposive sampling was chosen to ensure the sample aligned with the study's focus on this demographic, which is often underrepresented in broader national surveys yet critical for understanding urban climate perceptions (Corner *et al.*, 2015; Leiserowitz *et al.*, 2025) ^[3, 8]. The survey link was initially distributed through targeted channels such as university networks, environmental interest groups on social media, and online communities in Delhi-NCR. Snowball sampling was encouraged by asking respondents to share the link with peers meeting the criteria. No formal sample size calculation was performed due to the exploratory nature of the study and constraints of convenience-based online distribution. Instead, data collection continued until a robust sample of over 500 complete responses was achieved, providing sufficient breadth for descriptive analysis and thematic insights (similar to sample sizes in comparable youth perception studies; e.g., Hickman *et al.*, 2021) ^[5]. A total of 515 complete responses were obtained. The sample was predominantly female (62.7%), students (79.4%), and pursuing or holding bachelor's degrees (76.5%), with ages primarily in the late teens to mid-20s. This demographic profile aligns with educated urban youth commonly reached through digital channels.

Instrument

The questionnaire was hosted on Google Forms and consisted of approximately 40 items covering:

- Demographics (age, gender, education, occupation, location).
- Climate awareness and attribution.
- Concern, emotions, and perceived impacts.
- Media consumption and trust.
- Pro-environmental behaviors and barriers.
- Policy preferences and responsibility attribution.

Questions were primarily closed-ended for ease of analysis, with validated scales drawn from prior studies where applicable (e.g., emotional response items adapted from Hickman *et al.*, 2021) ^[5]; policy support items informed by

Leiserowitz *et al.*, 2025)^[8]. The instrument was pre-tested with a small pilot group (n=15) for clarity and timing.

Procedure

The survey link was shared anonymously through digital channels, with an introductory statement explaining the study's purpose, voluntary nature, and confidentiality. Informed consent was obtained via a mandatory agreement checkbox before proceeding. No personal identifiers were collected, ensuring anonymity. Data collection adhered to ethical guidelines for online survey research (British Psychological Society, 2021). The survey remained open until the target sample size was achieved.

Data Analysis

Responses were exported from Google Forms to Microsoft Excel and Google Sheets for cleaning and analysis. Descriptive statistics (frequencies, percentages, means where applicable) were calculated to summarize responses. Multiple-selection items were analyzed as percentages of respondents selecting each option. Data visualization (bar charts, pie charts) was generated using Google Forms summaries and supplemented with custom charts for thematic grouping. No inferential statistics were applied due to the non-probability sampling and exploratory nature of the study (Leiserowitz *et al.*, 2023)^[9].

Limitations

The purposive and snowball sampling methods, combined with digital distribution, may introduce self-selection bias, potentially overrepresenting educated, digitally active youth with higher environmental interest. The gender imbalance (62.7% female) and focus on Delhi-NCR limit generalizability to broader Indian youth populations.

Results

Participant Characteristics

The survey yielded 515 complete responses from youth in Delhi-NCR. All respondents resided in the region (Delhi, Gurugram, Faridabad, Ghaziabad). The sample was predominantly female (n = 323, 62.7%), with males comprising 37.5% (n = 193) and no third gender identifications. Occupationally, 79.4% (n = 409) were students. Educationally, 76.5% (n = 394) were at the bachelor's level, 15.3% (n = 79) at master's, and 9.9% (n = 51) at high school. Ages were primarily late teens to mid-20s, consistent with the student-heavy sample (see Table 1).

Table 1: Demographic Characteristics of Respondents (N = 515)

Characteristic	Category	n	%
Gender	Female	323	62.7
	Male	193	37.5
	Third Gender	0	0.0
Education	High School	51	9.9
	Bachelor's	394	76.5
	Master's	79	15.3
	Doctorate/Other	13	2.5
Occupation	Student	409	79.4
	Employed/Other	106	20.6

Climate Awareness and Perceived Importance

Respondents demonstrated exceptionally high awareness. 91.8% believed the world's climate is changing, with only minimal uncertainty or denial. Climate change/pollution was selected as the most challenging global issue over the next 25 years by 85.4% (multiple selections allowed), far surpassing poverty (40.8%) or unemployment (39.4%). Personally, 97.2% rated climate change as important (62.1% very important, 35.1% fairly important) (see Figure 1).

Regarding causation, 88% attributed climate change at least partly to human activity (56.3% partly natural and human, 31.7% completely human). Air pollution was the top environmental concern (91.3%), followed by river/sea pollution (79.2%) and deforestation (58.4%).

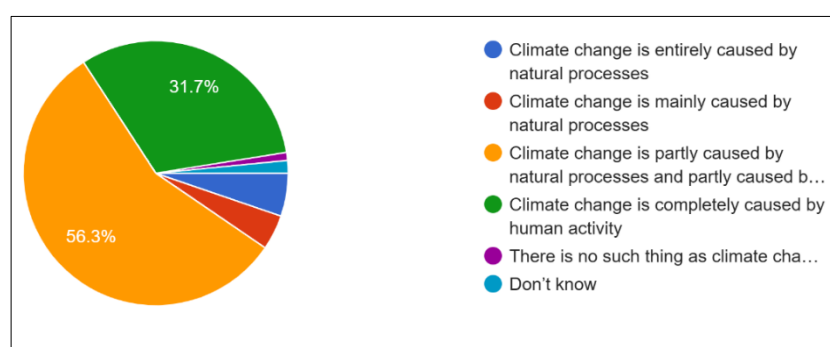


Fig 1: Perceptions of the Causes of Climate Change Among Respondents (N = 515)

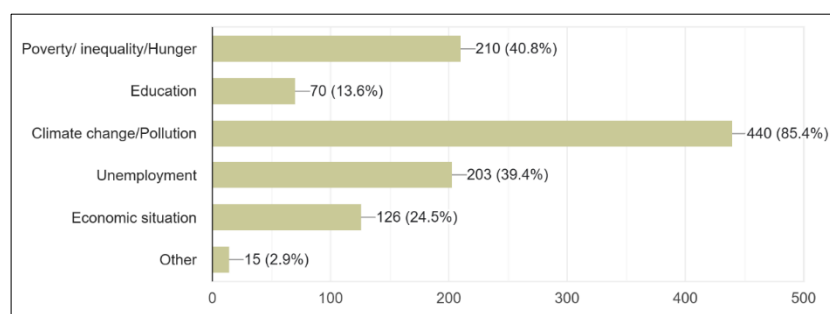


Fig 2: Perceived Most Challenging Global Issues Over the Next 25 Years Among Respondents (N = 515)

Concern, Emotions, and Perceived Impacts: Worry levels were high: 78.7% were worried or extremely worried (50.5% worried, 28.2% extremely worried). Outrage was the dominant emotion (66.7%), exceeding hope (10.5%), guilt (11.4%), and fear (11.4%). Respondents perceived strong

personal and national vulnerability: 84.3% disagreed that climate change would not affect people like them, 85.3% believed India is already feeling effects, and 47.2% reported personal health impacts from environmental issues. Over half (52.5%) anticipated negative effects for India.

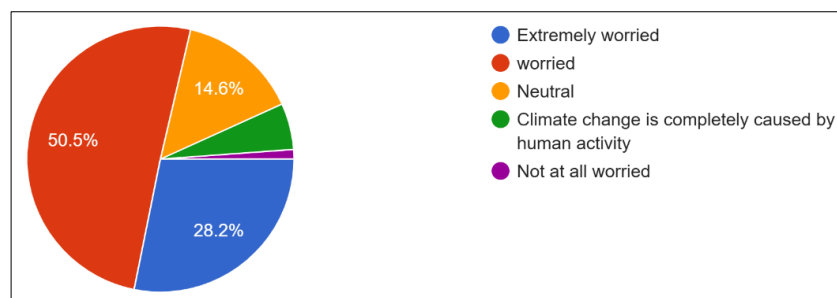


Fig 3: Level of Concern About Climate Change Among Respondents (N = 515)

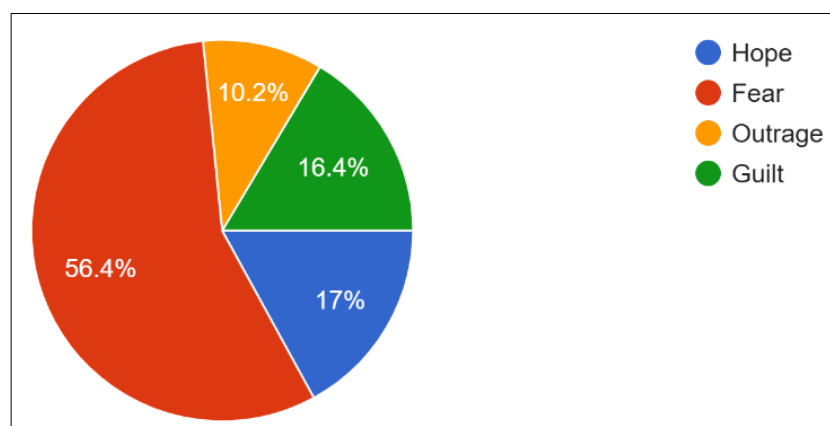


Fig 4: Emotional Responses to Climate and Environment-Related Issues Among Respondents (N = 511)

Media Exposure and Trust

92.5% engaged with climate news at least sometimes, primarily via social media (78.7%) and TV (63.6%). Scientists (56.7%) and environmental NGOs (47.0%) were most trusted sources, while media (19.6%) and government (9.3%) ranked lower. Newspaper coverage was viewed as negative/problem-oriented by many, with 59.2% dissatisfied and 64.8% calling for more coverage. Desired improvements emphasized solution-based (58.6%), analytical (53.7%), and in-depth (48.8%) reporting.

Pro-Environmental Behaviors and Barriers

Respondents reported widespread adoption of low-cost behaviors: turning off lights (71.6%), using public transport (64.1%), conserving water (57.4%), and recycling (53.5%). Only 20.6% were members of environmental organizations. Willingness to invest financially was conditional, with 66.2% requiring government subsidies.

Policy Preferences and Responsibility

Solar power was preferred as the best energy source (58.1%). Supported policies included subsidizing green technologies (36.8%) and taxing fossil fuels (31.3%). Strong agreement emerged for greater government leadership and business accountability.

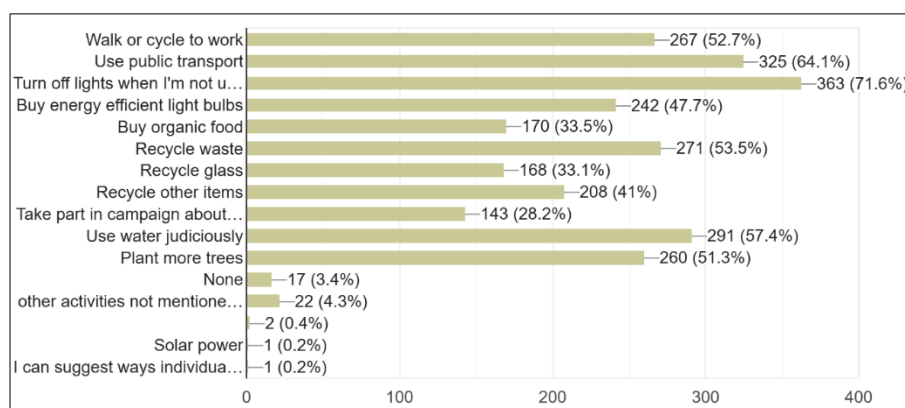


Fig 5: Climate-Friendly Behaviours Practiced by Respondents at the Personal Level (N = 507)

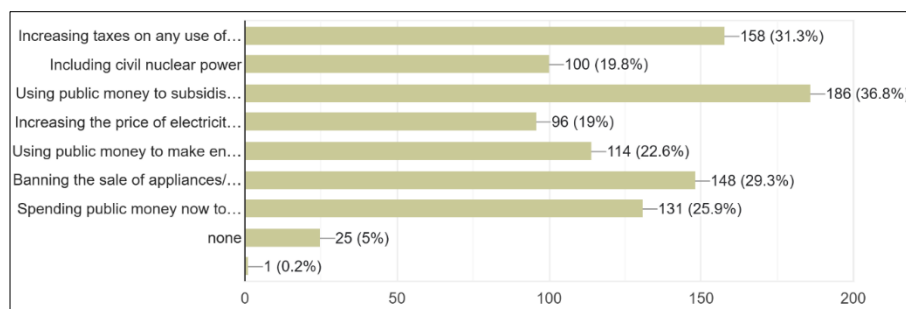


Fig 6: Self-Reported Individual Actions Toward Climate Change Mitigation (N = 507)

Discussion

The findings from this survey of 515 urban youth in Delhi-NCR reveal a demographic characterized by exceptionally high climate change awareness, concern, and perceived personal vulnerability, yet constrained by barriers to action and dissatisfaction with systemic responses. These results align with and extend existing literature on youth climate perceptions, particularly in the Indian and global contexts, while highlighting unique urban dynamics.

Comparison to Literature

The near-unanimous belief that climate change is occurring (91.8%) and human-caused (88%) mirrors global youth trends, where surveys like the *Lancet Planetary Health* study (Hickman *et al.*, 2021) ^[5] reported 59% of young people across 10 countries feeling "very worried" or "extremely worried," with similar attributions to human activity. In India, national surveys such as *Climate Change in the Indian Mind* (Leiserowitz *et al.*, 2023, 2025) ^[8, 9] indicate 94% awareness and 91% concern among youth, but our sample's even higher urgency—85.3% stating India is already feeling effects—may stem from Delhi-NCR's acute pollution exposure, as noted in regional variations (Thaker *et al.*, 2024; Marlon *et al.*, 2024) ^[10, 11]. Unlike rural Indian youth, who often prioritize immediate economic issues (CEEW, 2023), our urban educated sample ranks climate/pollution as the top global challenge (85.4%), reflecting lived experiences of smog and heatwaves (IQAir, 2025) ^[7]. Emotional responses, dominated by outrage (66.7%), diverge from global patterns where fear and anxiety predominate (Hickman *et al.*, 2021) ^[5], potentially due to frustration with government inaction amid visible pollution. Personal health impacts (47.2%) exceed national averages (around 30% in Leiserowitz *et al.*, 2025) ^[8], underscoring urban-specific vulnerabilities. Pro-environmental behaviors are high in everyday actions (e.g., 71.6% turn off lights), consistent with global youth engagement (UNICEF, 2021), but low organizational membership (20.6%) highlights a gap seen in Indian studies (UNICEF & IUCN, 2024), where digital activism outpaces formal involvement. Media distrust and demand for solution-based coverage (58.6%) echo dissatisfaction in Indian surveys (DownToEarth, 2024), while trust in scientists/NGOs (56.7%/47.0%) aligns with global patterns but contrasts with lower media/government trust (19.6%/9.3%). Conditional willingness to invest (66.2% with subsidies) reflects economic barriers common in developing contexts (CEEW, 2023).

Implications

These findings imply that Delhi-NCR youth are a potent force for climate advocacy if barriers like knowledge gaps

and costs are addressed. High outrage and personal relevance could fuel mobilization, but without systemic support, it risks apathy or disengagement. Urban pollution's role in amplifying perceptions suggests tailored interventions for megacities, contributing to India's NDC ambitions under the Paris Agreement.

Recommendations

To effectively harness the high levels of climate awareness, concern, and outrage among urban youth in Delhi-NCR, targeted interventions are essential to bridge the gap between perception and sustained action. Policymakers should prioritize developing and promoting clear, youth-inclusive national and state-level climate plans with visible timelines, subsidies for renewable energy adoption, energy-efficient appliances, and public transport to address cost barriers identified by respondents. Educational institutions and government programs can integrate mandatory climate curricula that emphasize practical, actionable components, such as campus sustainability projects and tree-planting initiatives, while providing guidance on effective individual contributions to overcome knowledge gaps. Media outlets are encouraged to shift toward solution-based, analytical, and in-depth reporting on climate issues, partnering with youth influencers to amplify constructive narratives and counter perceptions of alarmism without solutions. Civil society organizations should create low-barrier digital and local platforms to facilitate youth networking and activism, channelling outrage into organized efforts. Finally, regulatory bodies must enforce stronger pollution norms and transparency for industries, aligning with youth attributions of responsibility and fostering corporate accountability. Implementing these recommendations will empower this engaged demographic, transforming their demand for systemic change into a driving force for India's climate resilience and global commitments.

Conclusion

The youth of Delhi-NCR are not waiting for climate change — they are living it every day through toxic air, scorching heat, and visible environmental degradation. With near-universal awareness, deep personal concern, dominant feelings of outrage, and widespread daily pro-environmental actions, this generation stands ready to be India's most powerful ally in the fight against climate crisis. What they lack is not willingness, but enabling conditions: affordable solutions, trustworthy information, and bold leadership from government, business, and media. By responding decisively to their clear demands, India can transform youth outrage into sustained, collective action and secure a liveable future for the generations who will inherit it.

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