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Narratives of environmental misinformation and public perception of climate change

Narrativas de desinformación ambiental y percepción pública del cambio climático

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Abstract
Environmental disinformation poses a critical challenge in the digital age, distorting perceptions of climate change, eroding trust in science, and weakening public commitment to sustainability. The objective is to conduct an integrative analysis of recent scientific output (2020-2025) on environmental misinformation and public perception of climate change, with an emphasis on dominant narratives, digital platforms, the social effects involved, and proposed mitigation strategies. An integrative review was conducted based on the PRISMA 2020 criteria and the methodology of Whittemore and Knafl (2005), using searches in Scopus, Web of Science, SciELO, and Redalyc. From a total of 335 records, 41 theoretical and empirical studies were selected. The findings identify three recurring narratives: denialist, delayist, and conspiratorial, which circulate on social media through highly emotive multimodal formats. These narratives generate effects such as skepticism, polarization, and climate cynicism, reducing pro-environmental attitudes. Mitigation strategies, focused on critical literacy and information verification, show partial effectiveness. As a main contribution, a structured typology of narratives and an integrative conceptual model are proposed that not only strengthen theoretical analysis but also offer practical guidance for the formulation of more effective public policies and communication strategies against climate misinformation.

Keywords
Disinformation, climate, networks, perception, media, opinion, governance, sustainability.

Resumen
La desinformación ambiental constituye un desafío crítico en la era digital, al distorsionar la percepción del cambio climático, erosionar la confianza en la ciencia y debilitar el compromiso ciudadano con la sostenibilidad. Este estudio analiza de forma integrativa la producción científica reciente (2020-2025) sobre desinformación ambiental y percepción pública del cambio climático, con énfasis en las narrativas dominantes, las plataformas digitales, los efectos sociales implicados y las estrategias de mitigación propuestas. Se llevó a cabo una revisión integrativa basada en los criterios PRISMA 2020 y en la metodología de Whittemore y Knafl (2005), a partir de búsquedas en Scopus, Web of Science, SciELO y Redalyc. De un total de 335 registros se seleccionaron 41 estudios teóricos y empíricos. Los hallazgos identifican tres narrativas recurrentes: negacionista, retardista y conspirativa, que circulan en redes sociales mediante formatos multimodales de alta carga afectiva. Estas narrativas generan efectos como escepticismo, polarización y cinismo climático, reduciendo la disposición proambiental. Las estrategias de mitigación, centradas en la alfabetización crítica y la verificación informativa, muestran eficacia parcial. Como aporte principal, se propone una tipología estructurada de narrativas y un modelo conceptual integrador que no solo fortalece el análisis teórico, sino que también ofrece orientaciones prácticas para la formulación de políticas públicas y estrategias comunicativas más eficaces frente a la desinformación climática.

Palabras clave
Desinformación, clima, redes, percepción, medios, opinión, gobernanza, sostenibilidad.

Introduction

Climate change is a fundamental problem of the 21st century, not only because of its environmental repercussions, but also because of its social, economic, and political implications. Although there is broad scientific consensus on its anthropogenic origin, public perception of the phenomenon remains uneven and fragmented, influenced by simultaneous informational, ideological, and emotional factors (Ko *et al.,* 2024; Sultana *et al*., 2024; IPCC, 2023). Against this backdrop, environmental misinformation has gained prominence as a major challenge to advancing concrete and sustained climate action.

Unlike spontaneous ignorance, which responds to a genuine lack of information, misinformation involves the intentional and systematic circulation of distorted or false content whose purpose is to induce skepticism, generate confusion, or promote inaction (Tomassi *et al.,* 2025; van der Linden *et al.,* 2021). This phenomenon can be understood using the *Gateway (mis)Belief Model*, which argues that repeated exposure to inaccurate information undermines the perception of scientific consensus and, by extension, weakens support for evidence-based public policies (Logemann *et al.*, 2025). In contemporary digital ecosystems, this dynamic is intensified, as amplification algorithms and the very architecture of social networks favor the rapid spread of emotional and decontextualized messages (Cardoso *et al.,* 2025; Storani *et al.,* 2025).

Several studies show that narratives such as denialism, delayism, and conspiracy theories not only weaken trust in science but also alter environmental emotions and reduce citizen engagement with sustainability-oriented policies (Vivion *et al.,* 2024; Freiling and Matthes, 2023). The growing politicization of climate science accentuates these effects, as many people consume and share information that aligns with their ideological frameworks, reinforcing polarization and skepticism toward scientific sources (Ophir *et al.,* 2024). However, attempts to counteract this phenomenon remain scarce and, in general, concentrated in contexts in the Global North, with little evidence of their impact over time (Essien *et al*., 2025; UNDP, 2025). In contrast, recent research in less represented regions, such as Latin America, reveals dynamics. Spektor *et al.* (2023) identify that although most Latin American citizens recognize the existence of climate change, varying levels of trust in science and risk perception persist, highlighting the need for contextualized approaches. Along the same lines, Gómez-Casillas and Gómez (2023) show

that the use of social media in these contexts can have a positive impact on the development of climate awareness, reinforcing the importance of adopting situated and comparative approaches.

In this sense, it is necessary to explore how narratives of misinformation arise and are articulated in digital environments, what social consequences they produce, and what forms different strategies that are attempting to adopt to respond to this problem. To do so, this article uses integrative review, a useful review technique for articulating both theoretical and empirical contributions without being subject to overly partial perspectives or excessively sectorized views (Whittemore and Knafl, 2005; Torraco, 2005).

From this approach, the study aims to provide an integrative analysis of recent scientific output (2020-2025) on environmental disinformation and public perception of climate change, with an emphasis on narratives, digital platforms, social effects, and mitigation strategies. In addition, it proposes an explanatory typology and a conceptual model that can guide both future research and the formulation of more effective public policies in the face of the advance of climate misinformation.

Theoretical framework

Environmental disinformation: conceptual definition and link to public perception

Environmental disinformation is defined as the *intentional* production and circulation of false, misleading, or decontextualized content about environmental phenomena, climate policies, or scientific consensus, with the aim of generating confusion, skepticism, or social inaction (van der Linden *et al.,* 2021; Vivion *et al.,* 2024). Unlike a mere lack of information, this type of disinformation operates strategically in digital media ecosystems, where recommendation algorithms, multimodal formats, and emotional activation amplify its reach and persistence.

In the specific case of climate change, these narratives not only distort available scientific knowledge, but also directly influence public perception of climate risk, trust in science, and citizens' willingness to support mitigation and adaptation policies. Therefore, the analysis of environmental disinformation requires articulating scientific production with its media circu-

lation and the social effects derived from such exposure, a conceptual axis that structures this study.

In recent years, the systematic dissemination of misinformation in the environmental sphere has become a global phenomenon, with direct impacts on climate communication. This practice, based on the deliberate manipulation of content related to ecological processes, public policies, or environmental regulatory frameworks, contributes to eroding the social perception of scientific evidence, hinders the timely adoption of political decisions, and weakens institutional trust, favoring the emergence of discourses that minimize or deny the seriousness of the climate crisis (Christner *et al*., 2024).

From a communication perspective, Vivion *et al.* (2024) argue that environmental disinformation is not limited to the dissemination of false data, but also incorporates discursive strategies aimed at undermining scientific consensus. These strategies rely on multimodal formats, such as pseudoscientific graphics or misleading visualizations that simulate objectivity and technical rigor (Törnberg and Törnberg, 2025). Similarly, Essien *et al.* (2025) argue that this phenomenon is conditioned by digital infrastructures, ideological and economic interests, as well as amplification algorithms that operate according to specific cultural logics, differentially influencing different social groups. In this context, the circulation of disinformation responds to structural dynamics capable of shaping the reception of scientific knowledge, as is the case with the advancement of far-right narratives that present climate policies as ineffective or risky (Nicolosi *et al.,* 2025).

In terms of dissemination channels and formats, various digital platforms such as Twitter/X, Facebook, Instagram, YouTube, and TikTok have taken on a particularly active role in the circulation of this type of content. The work of Storani *et al.* (2025), based on the analysis of more than 20 million posts, shows that, although messages containing disinformation do not always represent the majority, their reach and impact in terms of virality are considerably higher. This trend is intensified in pieces with a strong visual or emotional charge (memes, microvideos, images with text), designed to trigger emotional responses that reinforce already established ideological positions. Once integrated into the digital ecosystem, multimodal messages circulate between platforms with such fluidity that their disarticulation is particularly complex (Micallef *et al.,* 2022).

Digital narratives around climate change not only take on varied formats, but also express ideological interests that, to a greater or lesser ex-

tent, influence both public perception and institutional decisions. Elroy *et al.* (2024), distinguish four discursive frameworks: scientific, anthropogenic, political, and conspiratorial. The latter seeks to delegitimize scientific consensus and undermine mitigation efforts. These narratives, which circulate in highly mediatized digital environments, tend to strain the link between expert knowledge, ideological positioning, and hegemonic discourse. Beling Loose and Carvalho (2023) warn that this symbolic dispute also shapes how the environmental crisis is represented.

The consequences of climate misinformation go beyond the cognitive level, as it structurally affects how the environmental problem is socially configured. Repeated exposure to manipulated or outright false content undermines public trust in science and weakens support for mitigation policies (Essien *et al.,* 2025). In spaces such as TikTok, the emotional circulation of ironic or angry discourse is no coincidence: these resources serve persuasive functions, as indicated by Cardoso *et al*. (2025). At the regional level, Gómez-Casillas and Gómez (2023) emphasize that Latin America requires communication strategies situated within specific cultural frameworks.

For this reason, various strategies are being proposed to counteract climate misinformation in digital environments, with the aim of strengthening information resilience, restoring public trust, and encouraging collective action (Freiling and Matthes, 2023). So much so that Herasimenka *et al*. (2024) propose a comprehensive approach that includes media literacy, algorithmic transparency, effective regulation of digital platforms, and strengthening fact-checking mechanisms. However, the study by Holder *et al.* (2023) warns about the circulation of paid campaigns on Facebook that promote obstructionist discourse, strategically financed to weaken public support for climate policies. Therefore, various challenges remain, such as effectively comparing the performance of different platforms, clearly identifying the institutional actors involved, longitudinally measuring the effectiveness of the strategies implemented, and developing communication responses adapted to the cultural diversity of the affected territories.

Methodology

This study was developed using an integrative literature review approach, which allows for the synthesis of empirical and theoretical research results to

generate a broader and more systematic understanding of a complex phenomenon (Whittemore and Knafl, 2005; Torraco, 2005). This design was chosen because it makes it possible to articulate diverse disciplinary approaches and compare heterogeneous results, an essential characteristic for addressing environmental misinformation from the perspectives of communication, social psychology, and environmental sciences.

Type of study and methodological design

The research corresponds to an integrative review of an exploratory and descriptive nature, applied to the analysis of scientific production published between January 2020 and August 2025 on environmental misinformation and public perception of climate change. The procedure was structured in six phases, adapted from Whittemore and Knafl (2005), Broome (2000), and the PRISMA 2020 guidelines (Page *et al*., 2021):

- Formulation of the problem and delimitation of the thematic areas.
- Definition of inclusion and exclusion criteria.
- Systematic search of academic databases.
- Critical evaluation and quality validation of studies.
- Extraction and coding of data using an analytical matrix.
- Narrative synthesis and thematic categorization.

Sources of information

The search was conducted in the Scopus, Web of Science, SciELO, and Redalyc databases, supplemented by Google Scholar and scite.ai to include open-access literature. The search period was from August 5 to 10, 2025.

Search strategy

Bilingual Boolean equations (English/Spanish) were designed, adapted to each platform, combining key terms related to climate change, misinformation, and public perception. Example equation: (“climate change” OR “global warming”) AND (“misinformation” OR “disinformation”) AND (“public perception” OR “public opinion”) AND (“social media” OR “digital platforms”).

Inclusion and exclusion criteria

Inclusion

- Publications between 2020 and 2025.
- Languages: English and Spanish.
- Peer-reviewed studies, with full text available.
- Direct focus on environmental misinformation, social perception, or climate change.

Exclusion:

- Theses, non-refereed reports, or reports without full access.
- Documents prior to 2020 or in other languages.
- Publications focused on non-environmental misinformation.

Selection and analysis process

The corpus selection and analysis process was carried out systematically and sequentially, in accordance with the criteria established for the integrative review. In the first stage, the records were identified and refined by eliminating duplicates and reviewing titles and abstracts, in accordance with the defined inclusion and exclusion criteria.

Subsequently, the selected articles were read in full to assess their thematic relevance and methodological consistency. Next, the relevant information was coded and a narrative synthesis of the findings was produced, aimed at identifying patterns, trends, and research gaps surrounding environmental misinformation and public perception of climate change.

Documentary analysis and methodological validation tools

The analysis of the included studies was carried out using documentary instruments designed specifically for this integrative review. First, a data extraction matrix was applied to systematize key information from each article (authorship, year, country, objectives, methodological approach, main findings, and contributions).

Secondly, a critical quality assessment guide based on the PRISMA 2020 guidelines and CASP criteria was used to verify the methodological consistency, thematic relevance, and analytical soundness of the selected studies.

Finally, a thematic analysis protocol was applied to identify recurring patterns, conceptual categories, and research gaps in relation to narratives of environmental disinformation and their effects on public perception of climate change.

To reinforce the validity and replicability of the process, the corpus was analyzed independently by two reviewers, achieving a level of agreement greater than 90%. Triangulation was also applied between theoretical approaches and theoretical frameworks, geographical contexts, and study types. The matrices and criteria used are available upon editorial request, allowing for external verification of the procedure followed.

PRISMA diagram and quantitative summary

The adapted PRISMA 2020 diagram (Figure 1) shows the flow of identification, screening, and selection of the 41 articles included. Table 1 summarizes the number of records per database, duplicates excluded, documents reviewed, and studies finally included.

Figure 1
PRISMA diagram adapted to the systematic study selection process for the integrative review (2020-2025)

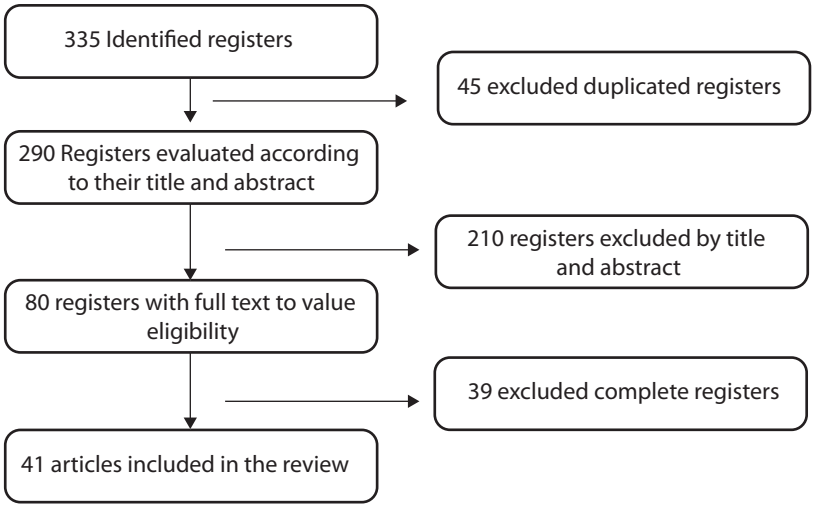


Table 1
Sources of information and records identified in the integrative review (2020-2025)

Database	Records identified	Duplicates excluded	Records reviewed (title/ abstract)	Records with full text	Included articles
Scopus	110	12	98	30	18
Web of Science	85	9	76	22	11
SciELO	55	5	50	13	6
Redalyc	40	4	36	9	4
Google Scholar	35	10	25	6	2
scite.ai	10	5	5	—	—
Total	335	45	290	80	41

Note. Data compiled from the systematic search process described in Figure 1 (PRISMA 2020).

Results

The thematic analysis of the 41 studies included allowed us to identify four main themes that structure the narratives of environmental disinformation and their relationship with public perception of climate change: (i) the construction of uncertainty and scientific skepticism, (ii) the politicization of climate discourse, (iii) the role of digital media ecosystems in amplifying misleading narratives, and (iv) the effects of disinformation on public trust and climate action. These themes emerge consistently throughout the analyzed corpus and form the basis for the presentation of the results developed below.

Types of disinformation and dominant narratives

The studies reviewed agree that environmental disinformation is articulated through various discursive forms, notably climate denial, conspiracy narratives, and the so-called *discourse of climate delay* or strategic delay of discourse (Elroy *et al.,* 2024; Torrico *et al.,* 2024; Lamb *et al*., 2020). The-

se narratives do not always directly deny climate change, but they tend to downplay its severity, postpone urgent measures, or disseminate arguments cloaked in apparent scientificity. Within denialism, recurring categories can be identified: denying that the phenomenon occurs, that it is anthropogenic, that it poses a real threat, or that the proposed solutions are effective (Coan *et al.,* 2021).

A common pattern is the use of rhetorical frameworks that emphasize uncertainty or appeal to the need for more research, a common strategy in certain corporate communications that simultaneously promote individual responsibility as a solution (Supran and Oreskes, 2021). These narratives tend to erode the credibility of scientific institutions or discredit expert voices, alleging financial motivations or labeling science as a "hoax" (Tam and Chan, 2023). More recently, a "new denialism" has been identified which, far from rejecting climate change, focuses its discourse on delegitimizing solutions, branding them as inefficient or driven by "hidden agendas" (Nicolosi *et al*., 2025).

Storani *et al.* (2025) and Suarez-Lledo and Alvarez-Galvez (2021) warn that, although this type of message represents a minor portion of the information ecosystem, its potential to generate interaction, mobilize reactions, and spread rapidly is considerably amplified on platforms governed by recommendation algorithms.

From a complementary perspective, Cann *et al.* (2021) highlight that the ideological biases of audiences have a significant impact on how climate information is interpreted and shared in digital environments. These biases drive polarization and the consolidation of echo chambers resistant to refutation, where users with specific ideological inclinations tend to consume and replicate erroneous content (Treen *et al.,* 2020; Jylhä *et al.,* 2020). This phenomenon is exacerbated during episodes of extreme weather, when misinformation narratives emerge and the contagious effect of conspiracy theories intensifies, as is the case with *chemtrail* theories, which distort perceptions of technologies such as solar geoengineering (Debnath *et al.,* 2023).

In the Latin American context, authors Gómez-Casillas and Gómez (2023) report that social media can also be spaces for environmental awareness, thus creating a hybrid scenario where the objectives of disinformation strategies coexist with sustained awareness-raising practices.

Platforms, formats, and agents involved

YouTube, Facebook, TikTok, Instagram, and X (formerly Twitter) are among the most active platforms in spreading climate disinformation. The latter has been particularly analyzed, especially for its role in denialist narratives and discussions about solar geoengineering (Daume, 2024; Thapa Magar *et al.,* 2024). Facebook, on the other hand, has served as a space for experimental tests evaluating corrective strategies against misleading content (Christner *et al.,* 2024).

One of the most problematic features is the multimodal nature of this disinformation, which, by mixing text, images, and video, not only appeals to emotions such as fear or irony, but also complicates its verification (Nasser *et al.,* 2025). AI has enhanced this effect through generative resources applied to voices, images, and avatars (Díaz-Soloaga and Pelzer-Peinado, 2024). Micallef *et al*. (2022) argue that its circulation across platforms reduces the margins of control. On YouTube, for example, this dynamic is evident: videos facilitate the spread of messages that erode public understanding of climate change.

Various actors intervene in this circulation of formats to spread these messages. González-Bailón and De Domenico (2021) point to the participation of automated accounts, *bots,* and disinformation networks, especially in times of political or environmental crisis (Treen *et al*., 2020). Populist leaders, *think tanks* opposed to mitigation policies (Coan *et al.,* 2021), and media outlets that reinforce conservative ideological frameworks (Thapa Magar *et al.,* 2024) are also involved. In turn, some corporations maintain communication strategies that delay public consensus through paid campaigns or *advertorials* in the traditional press (Supran and Oreskes, 2021). Taken together, these factors show the complexity of the media environment and the urgency of coordinated responses to climate misinformation.

Despite the centrality of dominant platforms, studies such as that by Proferes *et al*. (2021) draw attention to the role of less explored spaces, such as Reddit, which also contribute to the circulation of misinformation. This observation reinforces the need to broaden the analytical focus to unconventional digital environments (Treen *et al.,* 2020).

In response to this scenario, various mitigation agents are emerging. These include fact-checking organizations, artificial intelligence-based systems for detecting false claims (Leippold *et al.,* 2025), and government entities that

promote digital governance policies aimed at transparency and information resilience (Bravo *et al.,* 2024).

Effects on public perception

In recent years, there has been a significant increase in academic consensus regarding the structural impact that climate misinformation has on social perceptions of climate change. Continued exposure to deliberately falsified content leads to mistrust of science, undermines the credibility of expert institutions, and even provokes cynical responses to the climate crisis.

Essien *et al.* (2025) and Vivion *et al.* (2024) demonstrate that exposure to conspiracy theories increases the triggering of negative emotions that undermine willingness to support mitigation policies. Systematic reviews suggest that continued exposure to conspiracy theories can be harmful, as it contributes to rejecting the anthropogenic origin of climate change and decreasing the intention to act (Tam and Chan, 2023). These effects are mediated by emotions such as discouragement or helplessness, which in turn affect collective self-efficacy (Christner *et al.,* 2024).

Conspiracy narratives, such as the *chemtrail* theory, tend to have prolonged impacts on the legitimacy of sustainable measures (Debnath *et al*., 2023). Furthermore, this type of discourse undermines trust in science and the institutions that manage climate knowledge (Hameleers and van der Meer, 2021). In fact, Tohidi *et al*. (2025) observe a discrepancy between visible digital discourse and perceptions obtained through traditional surveys (Gounaridis and Newell, 2024).

At the same time, research such as that by Cann *et al.* (2021) shows that ideological beliefs strongly influence the type of information people consume, share, and consider credible. This behavior reinforces the creation of echo chambers where misinformation becomes normalized (Treen *et al*., 2020). Humprecht *et al.* (2020) emphasize that this vulnerability depends not only on content, but also on the media and political ecosystem in which it circulates. In this context, it has been documented that attitudes characteristic of radical right-wing populism (RRWP) increase adherence to misperceptions, with political affiliation (e.g., being a Republican voter in the US) being a significant predictor of information reception and processing (Christner *et al.,* 2024; Thapa Magar *et al*., 2024).

Even personal experiences with extreme weather events are filtered by ideological factors and so-called motivated reasoning, which acts as an interpretive filter (Daume, 2024). Finally, recent studies highlight the role of psychosocial factors such as collective narcissism in amplifying or containing the disinformation effect, as well as the relevance of strategically designed visual elements to modulate its impact according to context (Scherer *et al*., 2021; Agley *et al*., 2021; Bertin *et al*., 2021).

Mitigation strategies, gaps, and recommendations

The continuous increase in climate misinformation has led the scientific community to propose, among other things, strategies that are not limited to correcting false data. One of the most relevant is the *technocognition* approach, which integrates educational, regulatory, and technological aspects to promote cognitive skills that lead to critical analysis of the information in circulation (Treen *et al.,* 2020). This approach becomes even more relevant in contexts of low digital literacy, where persuasive discourses are more likely to take root. For this reason, several studies insist on promoting, from the earliest stages, the use of tools that allow for the early detection of misleading narratives (Essien *et al.,* 2025).

The introduction of content on climate misinformation in educational settings has proven to be more effective when the educational content is complemented by digital regulation and active correction mechanisms (Freiling and Matthes, 2023; Herasimenka *et al*., 2024). In this context, there are two approaches that can be applied: *prebunking,* which prepares people for exposure to misleading content, and *debunking,* which is applied after the content has been disseminated, refuting the logic behind it (Christner *et al*., 2024). As the urgency to scale up responses increases, artificial intelligence tools such as CLIMINATOR generate introductions to verification processes in complex scenarios thanks to linguistic models (Leipold *et al.,* 2025). In addition to its connection with scientific-epistemic indicators from the IPCC, it bases the way it detects and validates itself institutionally on its form of representation. On the other hand, teaching materials such as infographics, diagrams, and mnemonic devices have been valued as resources that simplify and help to enhance critical thinking at a very early age (Stokes-Parish, 2022).

The effectiveness of these strategies is far from uniform and often depends on the environment in which they are applied. Previous research agrees that there are no universal recipes: each intervention requires slight adjustments to local cultural, media, and political conditions (Debnath *et al.,* 2023). Added to this is a strong geographical asymmetry in the production of knowledge, centered mainly in countries of the Global North, which has created substantial gaps in regions such as Latin America and Southeast Asia (Tam and Chan, 2023). At the same time, there has been a progressive deterioration in trust in scientific institutions, weakened both by events such as the pandemic (Papakyriakopoulos *et al.,* 2020; Moore *et al.,* 2023) and by complex psychosocial factors, including collective narcissism (Narayan *et al.,* 2021). Faced with this reality, several studies highlight the urgent need to develop tools that allow for a more accurate assessment of the persistent effects of disinformation in highly dynamic contexts (Nasser *et al.,* 2025).

In light of these difficulties, some proposals focus on improving digital governance as a way of attempting to resolve the problem in a more structural manner, including, in particular, strengthening transparency through more powerful monitoring systems that attempt to track the progress of public policies (González, 2020) or standardizing climate data, emphasizing its openness, quality, and accessibility to citizens (Bravo *et al.,* 2024). It is also suggested that the institutional responsibilities contained in the governance models themselves be redefined, promoting more spaces for participation that encourage accountability and co-responsibility in decision-making (Bravo *et al.,* 2024; González, 2020).

Typology of disinformation narratives and proposed conceptual model

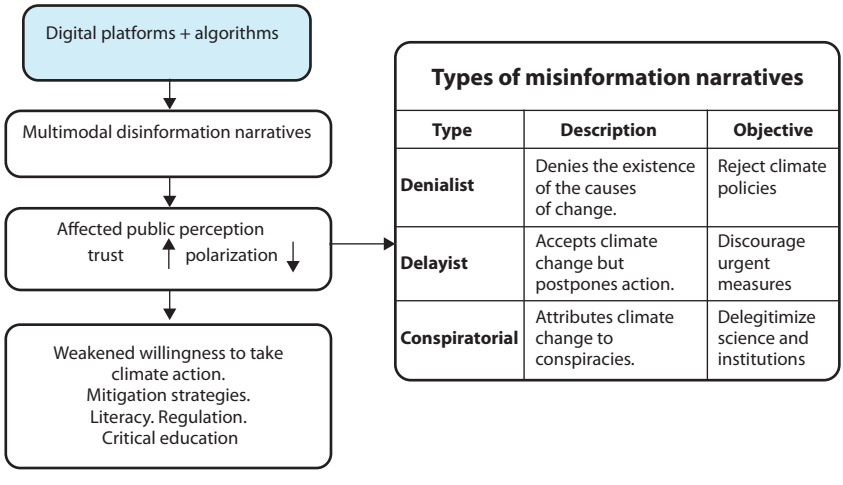
Thematic analysis of the selected studies reveals recurring patterns in disinformation discourses on climate change. These regularities made it possible to construct a structured typology and an integrative conceptual model aimed at understanding how these narratives circulate, shape public image, and determine climate action behaviors.

The typology distinguishes three main categories:

- Denialist narratives: these reject the existence or severity of climate change.
- Delaying narratives: they delay action by appealing to uncertainty or unrealistic solutions.
- Conspiracy narratives: they erode trust in science and spread unfounded theories.

Although these narratives differ in content and objectives, they can easily be reappropriated in multimodal digital environments, reinforced by algorithms and short formats. The conceptual model developed articulates these dynamics based on the relationship between digital platforms, narrative plots, shared emotions, and institutional weakening. It shows how prolonged exposure to altered content evolves scientific trust, deteriorates citizen behavior, and deepens polarization. To counteract these effects, the model includes three strategic axes obtained from various analyses: critical literacy, technological verification, and digital governance.

Figure 2
Conceptual model and typology of disinformation narratives on climate change



Types of misinformation narratives

Type	Description	Objective
Denialist	Denies the existence of the causes of change.	Reject climate policies
Delayist	Accepts climate change but postpones action.	Discourage urgent measures
Conspiratorial	Attributes climate change to conspiracies.	Delegitimize science and institutions

The conceptual model presented in Figure 2 organizes the key dynamics identified in the review, where digital platforms and algorithms act as drivers of multimodal disinformation narratives. Taken together, these studies show that environmental disinformation operates as a structural mechanism that directly influences public perception of climate change, reinforcing narratives of doubt, polarization, and mistrust of science.

Discussion

The results obtained allow us to understand how narratives of environmental disinformation, widely documented in recent scientific literature, influence public perception of climate change by reinforcing dynamics of mistrust, polarization, and resistance to climate action.

In this sense, the findings of this integrative review confirm a growing consensus in the literature: environmental disinformation not only distorts public understanding of climate change, but also directly influences citizens' willingness to adopt sustainable practices and support mitigation policies. Authors such as Vivion *et al.* (2024) and Essien *et al.* (2025) emphasize that continued exposure to misleading narratives, whether through outright falsifications, more subtle distortions, or discursive delay mechanisms, affects the scientific interpretation of the phenomenon and reduces the perception of urgency to act.

This scenario brings back concerns raised years ago in the context of post-truth (Lewandowsky *et al.,* 2017), although now with more robust empirical support and within increasingly complex digital environments. Research in fields such as vaccination reinforces this same line of thinking: the credibility attributed to sources, rather than being a simple addition, becomes a critical variable in scenarios of uncertainty (Stecuła *et al.,* 2020).

A relevant change identified in this review is related to the formats and spaces where disinformation circulates. Unlike classic studies focused on traditional media (Boykoff and Boykoff, 2004), more recent analyses highlight the prominence of visual networks and algorithmic environments that amplify the circulation of manipulated content through multimodal resources, artificial intelligence, and emotional stimuli (Micallef *et al*., 2022; Törnberg and Törnberg, 2025). This is not only a technological shift, but also a symbolic one: the images, tones, rhythms, and emotions used contribute to the

persistence of misleading content, even in the face of attempts at correction (Nasser *et al.,* 2025).

However, these dynamics do not unfold uniformly. Research such as that of Gómez-Casillas and Gómez (2023) warns that, in certain Latin American contexts, social media can also be allies in raising climate awareness. This ambivalence requires the adoption of culturally situated interpretive frameworks capable of capturing the nuances and resistances inherent in local digital narratives.

Among the key findings is the leading role of the delayist narrative, currently one of the most influential forms of climate disinformation. Unlike outright denialism, this strategy does not deny the phenomenon, but manages to neutralize its seriousness by delaying, relativizing, or delegitimizing the available solutions. Several studies have clearly documented its presence (Elroy *et al.,* 2024; Lamb *et al.,* 2020), and it has even been recognized by IPCC reports (2023), which highlights its impact in the political and media arena.

In this sense, the findings confirm that environmental disinformation is not only an informational problem, but also a communicational phenomenon with direct effects on how citizens interpret, value, and respond to climate change.

Likewise, it has been shown that public perception of climate change is influenced by psychosocial factors. Emotional states such as anxiety, apathy, or skepticism tend to intensify when exposure to conspiracy theories is frequent and sustained. At the same time, there has been a progressive erosion of trust in scientific institutions (Tam and Chan, 2023; Christner *et al.,* 2024), while variables such as political affiliation continue to influence the way climate information is interpreted (Jylhä *et al.,* 2020; Thapa Magar *et al.,* 2024).

Regarding mitigation approaches, the literature agrees on three main lines: media literacy, corrective interventions (*debunking and prebunking*), and automated verification technologies. Although these strategies have shown some effectiveness, their impact is uneven and depends largely on the type of message, the platform used, the sender, and even the timing of their application (Freiling and Matthes, 202). Tools such as CLIMINATOR, based on artificial intelligence, show promising potential by automating real-time verification and reinforcing educational efforts (Leippold *et al.,* 2025).

However, there are still gaps that hinder a more comprehensive approach to the phenomenon. Most academic production comes from the Global North, which overshadows the experience and contributions of regions such as Latin America, Africa, and Southeast Asia. On the other hand, the work carried

out tends to focus on platforms such as Twitter/X or Facebook, leaving aside other platforms with a large reach in the Global South where users spend much of their time, such as WhatsApp, Telegram, or TikTok (Milan and Treré, 2020). At the same time, there are many questions about the effectiveness of institutional responses, which are often limited by ethical, political, and technological dilemmas regarding digital governance (Papakyriakopoulos *et al*., 2020; Gisondi *et al*., 2022).

In view of the different variables, this review proposes a typology of disinformation narratives that introduces denialist, delayist, and conspiratorial narrative forms, which allows us to map the audiences they target beyond their persuasive objectives and channels of circulation. In turn, these avatars and narrative forms enable a conceptual model that links digital environments, algorithmic mechanisms, public perception, and responses to the climate crisis. Rather than a closed theoretical model, a flexible tool is developed to guide interventions in public policy, critical education, or digital regulation.

Finally, three lines of work are presented in the context of communication policies: a) the structural regulation of platforms, focusing on algorithmic transparency and the assumption of responsibility by intermediaries; b) media literacy that goes beyond the technical, anchoring itself in cultural and linguistic dynamics; and c) the contextualization of intervention according to the social network, emphasizing those that are used intensively in fundamentally underrepresented areas. These axes are relevant for moving toward a more equitable and resilient information ecosystem that is in tune with the challenges of climate change.

Limitations and projections for future research

Although this integrative review provides a comprehensive and up-to-date overview of the dynamics of environmental disinformation and public perception of climate change, it also has some limitations that should be acknowledged. First, the period analyzed (2020-2025) may have left out earlier research that would have been useful for understanding the historical evolution of digital narratives. Similarly, this integrative review has only included publications in English and Spanish, limiting the scope of languages and cultures that may have influenced the results. Another point to note is that the review has also had a certain degree of prevalence of descriptive works,

with relatively little comparative or longitudinal evidence that can be used to establish large-scale trends.

In terms of future projections, it is recommended that the review be expanded to areas that are underrepresented, such as Latin America, Africa, and South Asia, and that mixed and computational approaches (e.g., network analysis and semantic mining) be developed to more accurately observe the circulation of disinformation narratives in real time. It is also suggested that research be conducted to link the effects of disinformation with the processes of education and citizen participation, so that media literacy can be assessed as an impact variable rather than a theoretical recommendation. Finally, it is a priority to establish interdisciplinary alliances between communication, data science, and public policy that consolidate sustainable strategies against climate disinformation.

Conclusions

The integrative review confirms that environmental disinformation manifests itself as a structural, dynamic, and multidimensional phenomenon, the implications of which have a direct impact on public perception of climate change. Within this context, denialist, delayist, and conspiracy narratives operate strategically to distort public discourse, hinder urgent decision-making, and weaken the social consensus necessary to implement effective mitigation and adaptation policies.

Digital platforms, in their variability, play a decisive role in the spread of these narratives. Using multimodal formats, they become accomplices in their viralization, hindering information verification mechanisms. However, there are still significant gaps in the analysis of widely used platforms in the Global South, such as WhatsApp, TikTok, and Telegram, which have been scarcely studied in comparison to the flood of studies focused on Twitter/X and Facebook.

In terms of psychosocial effects, there is little public confidence in climate science, which adds to the reactivation of negative emotions (cynicism, mistrust, or apathy) that would limit the willingness to adopt pro-environmental behaviors, which are amplified by variables such as political ideology, polarization of information, and unequal access to verified information.

Although current strategies focus on media literacy, information correction, and the use of visual teaching resources, their structural impact is still limited. In this regard, it is necessary to promote empirically validated, culturally contextualized, and technologically up-to-date interventions that are capable of recognizing the particularities of the digital environment and responding to socio-territorial diversity.

As a substantive contribution, this review proposes a structured typology of disinformation narratives (denialist, delayist, and conspiratorial) and an integrative conceptual model that articulates the relationships between digital platforms, content viralization, citizen perception, and collective willingness to take climate action. Both resources strengthen theoretical analysis and guide the design of more effective public policies and communication strategies against climate disinformation.

Finally, it highlights the need to consolidate interdisciplinary, multilingual, and regionally situated analytical frameworks. Only through a critical, comprehensive, and contextualized approach will it be possible to address the informational challenges that hinder global climate action and move toward building sustained public consensus.

Ethical considerations

This study did not involve the direct participation of individuals or the processing of sensitive data, so approval from a research ethics committee was not required. The entire corpus analyzed comes exclusively from secondary sources, corresponding to indexed and freely accessible academic literature.

Complementary digital tools such as Google Scholar and Scite.ai were used to locate and verify references, in addition to the Mendeley bibliographic manager, which was used to organize and systematize academic citations. Generative artificial intelligence (Gemini) was used on an *ad hoc* basis as an auxiliary support, limited to the construction of search equations and the preliminary sorting of bibliographic information. It should be noted that neither the analysis nor the final draft were carried out using automated systems. All interpretative and methodological decisions were made exclusively by the authors. In accordance with the principles of academic integrity, it should be emphasized that the use of AI did not at any time replace the critical judgment or rigorous intellectual work required for an integrative review of this type.

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Declaration of Authorship - CRediT Taxonomy	
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Verónica Beatriz Juárez-Jiménez	Data curation and formal analysis, validation, visualization, and writing – original draft, validation, visualization, and writing – original draft. Writing – revision and editing.
José Eugenio Chafloque-Capuñay	Data curation and formal analysis, validation, visualization, and writing – original draft, validation, visualization, and writing – original draft. Writing – review and editing.
Arnulfo Borges-Huanca	Data curation and formal analysis, validation, visualization, and writing—original draft, validation, visualization, and writing—original draft. Writing—review and editing.

Declaration on the Use of Artificial Intelligence
The authors **DECLARE** that, in the preparation of the article entitled ***Narratives of environmental disinformation and public perception of climate change***, Artificial Intelligence tools were used in a manner that complemented, rather than replaced, the intellectual work of the authors. The tools used were: Google Scholar, Scite.ai, and Gemini. The tasks for which they were used were: the first two for locating and verifying references, and the last for constructing search equations and preliminary sorting of bibliographic information.