Science denialism, misinformation, and health protection

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Doctors for the Environment – ISDE Italia considers the quality of scientific information essential for protecting health and the environment and for communities' ability to make informed decisions.

Science is not a set of immutable truths. Doubt, the comparison of hypotheses, critical review, and the evolution of knowledge in light of new evidence and technologies, as well as the questioning of previously accepted conclusions, are fundamental parts of the scientific method.

Precisely for this reason it is necessary to distinguish legitimate scientific dissent from **scientific denialism**, understood as the systematic rejection of solid and convergent evidence through arguments that do not respect the verification criteria specific to scientific research.

Climate change

Climate change denial represents one of the most significant examples of denial or systematic minimization of scientific evidence, with significant consequences for public health, also due to insufficient preparation and prevention for the associated risks.

Available scientific knowledge unequivocally shows that, although the climate system is influenced by multiple variables, observed global warming is primarily driven by anthropogenic greenhouse gas emissions, particularly those resulting from the use of fossil fuels, as well as changes in land use.

Climate change, pollution, and biodiversity loss are closely interconnected environmental crises largely attributable to human activities. However, biodiversity loss is not a primary

cause of global warming, although it interacts with the climate system and can reduce ecosystem resilience.

Scientific evidence also documents growing concern about the intensifying effects of global warming, including extreme temperatures, heat waves, heavy rainfall, and other extreme weather events.

Climate change is now also a major health issue: heat waves, extreme weather events, changes in the spread of infectious diseases, food and water insecurity, air pollution, migration, and social consequences impact, directly and indirectly, the health of populations.

Countering climate change denialism and promoting socioeconomic policies and models aimed at reducing climate-altering emissions, pollution, and other anthropogenic pressures on ecosystems are therefore essential mitigation and prevention tools, with significant health benefits.

Denialism and misinformation in the health and environmental fields

Similar phenomena can occur in other areas relating to health and the environment.

In this context, it's useful to distinguish between **misinformation**, understood as the unintentional dissemination of false or inaccurate information; **disinformation**, characterized by the intentional dissemination of false or misleading content; and **malinformation**, in which authentic information is used out of context or in a way that causes harm. This distinction allows us to better understand different phenomena and tailor responses accordingly.

The phenomenon of “manufactured doubt” deserves *particular* **attention**. *Manufactured doubt*, that is the deliberate production of artificial uncertainty around consolidated scientific evidence or documented risks. Strategies of this type have been described, in different ways and contexts, in relation to, among other things, tobacco, lead, asbestos, PFAS, pesticides, and fossil fuels.

The dissemination of false, seriously distorted, or misleading information can undermine the effectiveness of prevention, reduce trust in public health programs, alter perceptions of environmental and health risks, and make it more difficult to adopt policies based on the best available evidence.

Particular attention must also be paid to the dissemination, through the media and digital platforms, of content in which personal opinions and information lacking adequate scientific basis are presented as equivalent to evidence obtained through scientifically validated methods.

Don't confuse criticism and denialism

ISDE considers it equally important to prevent the reference to “science” from being used to delegitimize any criticism.

Scientific research can be characterized by uncertainty, errors, and conflicting interpretations. Institutions can also make mistakes.

Economic and other interests, including those related to the exercise of power, can influence research, policies, and government decisions, including through undeclared conflicts of interest.

Public policies, even when based on available scientific knowledge, involve social and ethical choices that must be open to democratic discussion.

Even the marginalization of scientifically sound criticism, as well as the refusal to engage in appropriate debate, can undermine trust in science and institutions. Countering misinformation must therefore not translate into limiting legitimate scientific debate.

Climate experts gathered in the "Science to the Vote" committee have proposed the establishment of a Scientific Council (Scientific Council for Climate and Environment, CSCA) to serve as an independent advisory body to the Government and Parliament. This proposal was also presented at a hearing in the Chamber of Deputies in 2023, with the aim of promoting data-based public decisions based on the best available scientific evidence. To date, this proposal has not been implemented.

Data transparency, independent research, the declaration of any conflicts of interest, and free scientific debate are therefore essential tools for strengthening the quality and credibility of scientific knowledge and countering denialism and misinformation.

The response to misinformation cannot consist of a dogmatic confrontation between experts, nor between experts and citizens, but must be based on the quality of evidence, transparency, and the ability to communicate the limitations and uncertainties of available knowledge.

The role of doctors and environmental and health professionals

Physicians have a special responsibility in communicating health risks.

Professional authority entails a specific responsibility to provide information based on available scientific knowledge and to avoid disseminating unfounded claims, in accordance with the ethical principles governing medical information and professional communication.

This responsibility requires scientific rigor, independence, clarity, and the ability to listen. Differing or conflicting opinions, as well as citizens' fears, doubts, and questions, should not be automatically equated with denial or conspiracy theories.

On the contrary, distinguishing scientific uncertainty and the legitimate demand for information from the systematic manipulation of evidence is a necessary condition for maintaining a relationship of trust between medicine, science, and society.

A commitment to information integrity

ISDE therefore believes it is necessary to promote:

- scientific and health literacy of the population;
- training healthcare professionals in risk communication;
- transparency of sources and conflicts of interest;
- the independence of scientific research;
- adequate public funding of independent research;
- accessibility of data and knowledge;
- correct communication of scientific uncertainties;
- the fight against organized disinformation regarding the environment and health;
- dialogue with citizens and communities, avoiding stigmatization and opposition;
- the responsibility of digital platforms, including with reference to the European *Digital Services Act* and obligations relating to the management of systemic risks associated with disinformation;
- the protection of researchers and communicators from intimidation campaigns and reckless legal actions (*Strategic Lawsuits Against Public Participation* , SLAPP).

Protecting the environment and health requires societies capable of distinguishing scientific doubt and the necessary critical scrutiny from denial of evidence, criticism from misinformation, and dissent from manipulation.

Defending the integrity of scientific information doesn't mean removing science from public discussion. It means creating the conditions for such discussion to take place based on verifiable facts, transparency, debate, and accountability.

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