Scientific Misinformation

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Scientific misinformation refers to false, misleading, or inaccurate information that contradicts, ignores, or misrepresents established scientific evidence or consensus. It can stem from accidental misunderstanding or ignorance of facts, as well as from their deliberate distortion (generally referred to as “disinformation”). Unlike rigorous scientific evidence, misinformation typically lacks a credible evidential basis and does not rely on the scientific method. Often spread through mass media, social networking platforms, or informal communication, scientific misinformation can undermine public trust in science, influence health and policy decisions, and contribute to confusion or harmful behaviours at both personal and societal levels.

misinformation disinformation fake news pseudoscience scientific literacy digital literacy cognitive bias fact-checking debunking

Scientific misinformation has been defined as “publicly available information that is misleading or deceptive relative to the best available scientific evidence and that runs contrary to statements by actors or institutions who adhere to scientific principles” [1]. It is important to note that the word “misinformation” refers to factually incorrect information shared without knowledge of its falseness or any intent to deceive. In this sense, it is distinct from both “disinformation” (deliberately false information shared with intent to deceive) and “malinformation” (factually correct information shared with intent to deceive or harm, e.g., information taken out of context or distributed with hateful/malicious intent) [2]. While misinformation, disinformation, and malinformation have distinct definitions in the taxonomy of information disorder, the categorisation of harmful information is complicated by a degree of overlap between the three concepts [3]. For example, an individual might be unaware of the falseness or maliciousness of some information and spread it while believing it to be true and without meaning any harm—or even in a misguided attempt to be helpful to others. Depending on the context, misinformation and disinformation can take different forms and denominations, including “fake news” (deliberately misleading information maliciously presented as legitimate news items), “pseudoscience” (beliefs or practices that claim to be scientific but lack the empirical support and methodological rigour that define legitimate science), and “propaganda” (communication designed to promote a particular viewpoint or agenda by controlling or manipulating the flow of information) [4].

References

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