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Enhancing Trust in Science: Current Challenges and Recommendations for Policymakers, the Scientific Community, Media, and Public

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ABSTRACT

Public trust in science has declined in the US since early 2025. In June 2025, only 8% of U.S. adults reported a great trust in science, a significant drop of nearly 24 percentage points from the previous record of 32% in June 2023. Additionally, in a recent survey by Nature, over 94% of U.S.-based researchers expressed concerns about the future of science. The scientific community is concerned that current science policies may negatively affect society worldwide. Scientific evidence is a vital source of information for policymaking, particularly in liberal democratic societies where trust in science is at the bedrock. Given recent U.S. policy shifts, understanding trust in science and its relationship with policymaking has become urgent. The policymakers, scientific community, media, and public play essential roles in this process. To ensure trust and support for science, all sectors of society must be informed and develop a thorough understanding of the current challenges and available recommended actions. However, to our knowledge, no review has been conducted that focuses specifically on recent U.S. policy changes, nor on the various stakeholders involved. This review article aims to achieve these goals by outlining the connection between science, public trust, and policymaking and by examining trends in trust in science in the US. It summarizes the recent changes that present challenges to scientific integrity and public trust. It also explains the lasting consequences of low trust in science on society and the resulting impact on addressing global issues. The article concludes with specific recommendations for policymakers, the scientific community, media, and public to safeguard this crucial pillar of policy and democracy.

1 | Introduction

Science and science-related policies profoundly shape our daily lives, impacting nearly every aspect, from the airplanes that take us on exciting vacations to the fiber-optic cables that keep us connected to the Internet and vaccines that guard against diseases such as the flu. Although scientific evidence may not be the sole source of information for tackling the challenges of liberal democratic societies (Douglas 2009; Jasanoff 2022; Pamuk 2022), it is a foundation for effective evidence-based policymaking (Vallance 2023). Cultivating synergistic relationships among stakeholders, including policymakers, the scientific community, media, and public, in these societies is imperative. Trust is the key to ensuring healthy and effective functioning of these relationships (Cologna et al. 2025; Lupia et al. 2024; Tyson and Kennedy 2024).

Trust in science is broadly defined as people's belief that scientific research, methods, scientists, and scientific community operate with competence, transparency, and openness and in public interest (Besley et al. 2021; Cologna et al. 2025; Hendriks et al. 2016). The conceptual framework in Figure 1, adapted

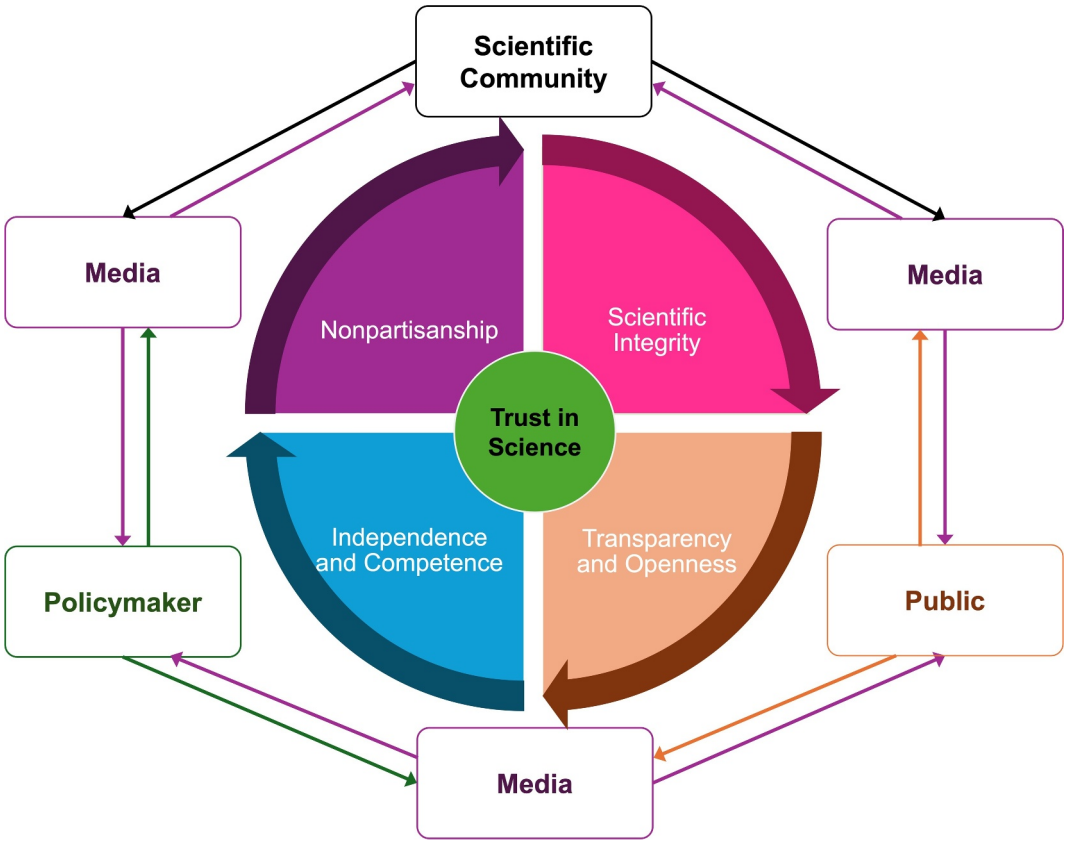

FIGURE 1 | Key science-relevant factors that impact trust in science and major communication pathways among stakeholders.

from previous studies (Besley et al. 2021; Cologna et al. 2025; Hendriks et al. 2016; Milkoreit and Smith 2025), outlines the key factors of trust in science: scientific integrity, transparency and openness, independence and competence, and nonpartisanship. Although studies have showed that individual characteristics and socio-demographics influence trust in science, a review of these individual differences is beyond the scope of this discussion (see Alper et al. 2024; Cologna et al. 2025; Wintterlin et al. 2022 for details).

Building public trust in science is a challenge. Public trust can quickly deteriorate, for example, when the scientific community faces suppression; media amplifies misinformation, polarization, or false equivalence; public perceives science as partisan; and integrity or transparency of science becomes questionable (National Academies of Sciences and E. and M 2015; Oreskes 2021; Resnick et al. 2015). This trust erosion can lead to severe consequences, as demonstrated by historical international events such as the catastrophic famine in the Soviet Union and China (Dikötter 2010; Mirsky 2012; Thaxton 2008), where political interference played a significant role. In the US, examples such as the Tuskegee Syphilis Study (Centers for Disease Control and Protection 2024; Scharff et al. 2010; Thomas and Quinn 1991) and climate science suppression under the George W. Bush administration in the 2000s (Maassarani and Government Accountability Project 2007; Rest and Halpern 2007; Revkin 2006) illustrate the complex relations among policymaking, science, and public trust in science. These historical events emphasize the need to understand how recent policy changes impact trust in science in the US by producing long-lasting implications for the future of society. While previous reviews on trust in science provide valuable insights (Lupia et al. 2024; Mann and Hotez 2025; National Academies of Sciences and E. and M 2015), the latest developments in policy demand a thorough reevaluation of this crucial topic. A timely analysis will provide essential perspectives that are vital for navigating and understanding the current landscape of trust in science. This review examines the relations between science, public trust, and policymaking. It outlines how recent government policies affect trust, describes the consequences of low trust in science, and offers recommendations for strengthening trust among all sectors of the society.

2 | The Relations Between Science, Trust in Science, and Policymaking

Science and policymaking are intricately linked and substantially influence each other (American Association for the Advancement of Science 2025; National Research Council 2012; Pain 2014). First, many public policies rely on scientific expertise to address complex issues such as public health, environmental protection, and disaster management (Jasanoff 1998). Second, government decisions frequently involve contractual and collaborative partnerships with universities and research institutes to obtain specialized knowledge, technology, or scientific services for public benefit (Holbrook and Frodeman 2011). Third, numerous government agencies employ scientists and experts whose research and analytical work are

critical for informing regulatory and operational decisions (Guston 2000). Finally, policies related to government science budgets, regulatory frameworks, and research funding priorities directly influence the scope and direction of scientific research, thereby affecting broader societal outcomes (Pain 2014; Pielke 2007).

These aspects profoundly influence scientists' abilities to research independently without undue political interference, which is a fundamental aspect of scientific integrity and rigor (Guston 2000). Compromised autonomy and diminished transparency can significantly undermine the scientific community's competence, reduce public trust, damage scientific institutions' credibility, and threaten evidence-based policies and democratic governance (National Academies of Sciences and E. and M. 2017; Oreskes 2021). As trust diminishes, scientific explanations are likely to be perceived as partisan messages or propaganda rather than informed public discourse. Policymakers have considerable power to influence these dynamics in the scientific community and public. However, the vital role of media should not be overlooked (Ophir et al. 2024), especially in liberal democratic societies.

On the one hand, the media can report prominent social issues, and journalists can publish opinion pieces and op-eds (i.e., opposite the editorial page) that utilize scientific findings to emphasize political priorities and engage with policymakers. For example, extensive media coverage of the Flint water crisis, which highlighted both scientific findings and personal stories, pressured government officials to act faster and prompted congressional hearings (Butler et al. 2016). On the other hand, the media also serves as a conduit and filter, mediating the relations between the scientific community, public trust, and political process (see Figure 1). For example, the partisan media coverage of mask mandates, COVID-19 vaccines, and physical distancing in the US resulted in a stark divide between trust and compliance (Gollwitzer et al. 2020; Jamieson and Albarracín 2020). This interplay creates a feedback loop: reduced trust makes it more challenging for policymakers to justify science-based policies, which, in turn, fuels further skepticism when policies are challenged or fail for nonscientific reasons.

Unfortunately, the second Trump administration's policy changes on news outlets and press freedom, including, but not limited to, funding cuts for public broadcasters and changes to the White House Press Pool, have further complicated the dynamics of the media's role in trust in science in the US. Today, public trust in science appears to be declining, a trend explored in subsequent sections.

2.1 | Trust in Science in the United States

U.S. adults generally report a higher level of trust in science, with a mean score of 3.86, compared to the global average of 3.62 across 68 countries, on a five-point scale from 1 (very unqualified) to 5 (very qualified) (Cologna et al. 2025). Scientists and medical scientists are the most trusted groups among public service professionals in the US (Haslett and Kekatos 2025; Union of Concerned Scientists 2022). However, in June 2025, the percentage of U.S. adults having great trust dropped to a concerning low of just 8%, and those who reported having little or no trust rose to 34% (see Figure 2), as reported in a longitudinal vaccination panel survey (N = 1833–2589) by the Annenberg Public Policy Center (see Supporting Information S1 for Methodology).

Trust in science has long been characterized by polarization in the U.S. (Gauchat 2012; Gligorić et al. 2025). A significant political divide is evident when examining data by political affiliation. For example, it decreased in Republicans, Democrats, and Independents/Others by 13%, 53%, and 29%, respectively. The increase in the percentage of people reporting "not much or no trust" was particularly noticeable among Democrats (23%) and Independents/Others (11%), whereas Republicans showed a decrease (5%). In terms of trust in specific organizations and individuals (see Table 1), 70%–89% of Democrats and Independents/Others rated the highest level of "not much or no trust" in Robert Kennedy Jr., the current Secretary of the Department of Health and Human Services and 58% Republicans, in the Centers for Disease Control and Prevention (CDC), in line with their party leader's opinions on the federal agency's mission (Haslett and Kekatos 2025; Union of Concerned Scientists 2022).

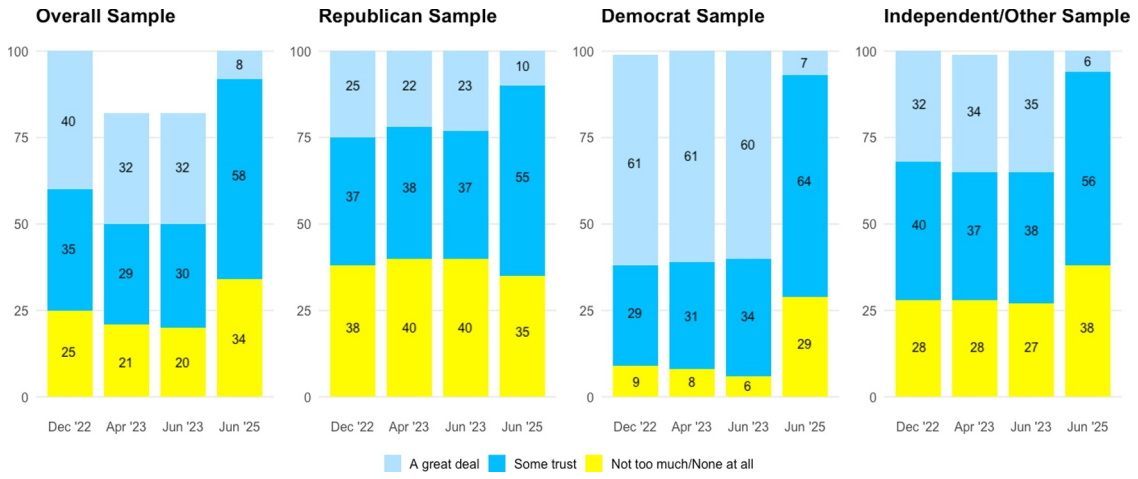

FIGURE 2 | Trust in science from December 2022 to June 2025.

TABLE 1 | Percentages of trust in science in June 2025 by sample type—overall, republicans, democrats, and independents/others.

	Overall (N = 1873)			Republican (N = 686)			Democrat (N = 611)			Independent/other (N = 576)		
Trust in specific organizations and individuals	**A great deal**	**Some trust**	**Not too much/ none at all^**	**A great deal**	**Some trust**	**Not too much/ none at all^**	**A great deal**	**Some trust**	**Not too much/ none at all^**	**A great deal**	**Some trust**	**Not too much/ none at all^**
U.S. centers for disease control and prevention (CDC)	18.53	39.35	42.12	8.31	33.24	58.45	32.57	43.54	23.89	15.80	42.19	42.01
Your primary care doctor or primary medical provider	42.77	44.85	12.34	37.03	50.00	12.85	**53.85**	38.46	7.69	37.85	45.49	16.66
Scientists in general	28.62	46.66	24.68	12.68	**51.90**	35.33	49.92	38.46	11.62	25.00	49.13	25.87
Doctors in general	26.37	**54.08**	19.45	16.76	**59.62**	23.50	40.75	47.95	11.15	22.57	**53.99**	23.44
Robert Kennedy, Jr., the current secretary of health and human services	10.46	25.15	**64.37**	21.87	40.82	37.32	1.80	8.84	**89.34**	6.08	23.78	**70.14**

Note: Bold font refers to percentages greater than or equal to 50%. Caret indicates the combined percentages of three responses: not too much trust, very little trust, and no trust at all.

A decline in trust in science was also recorded in another survey of a nationally representative sample (N = 1310) (Kearney et al. 2025). The crisis of trust is also reported in the scientific community. A 2025 survey by Nature found that 94% of nearly 1600 U.S.-based researchers were worried about the future of science in the US and believed that science policies under the second Trump administration would have a negative impact on society worldwide (Tollefson et al. 2025). This drop in trust serves as a clear warning, emphasizing the urgent need to assess how emerging federal policies may present challenges to the U.S. scientific community.

3 | Recent Government Policies and Their Possible Impacts on Trust in Science

The early days of the second Trump administration introduced significant policy changes that affected nearly every aspect of federal scientific activities (The New York Times 2025). During the first 100 days, the federal government made notable adjustments (Kiley and Asheer 2025; Malakoff and Brainard 2025), which can be categorized into three main areas. First, changes to federal research agencies' workforce, structure, and services that reduce science independence and competence and compromise transparency and openness. Second, modifications in scientific relations with other entities in the scientific community, such as universities and research institutes, which decrease scientific integrity and competence while promoting partisanship. Third, major changes to the existing best practices to promote scientific independence and representativeness. The effects of these changes on research, innovation, and scientific processes/evidence have raised concerns within the scientific community and public. The following sections describe how such policy shifts may reshape the future of American science.

3.1 | Cutting Jobs, Changing Staffing, and Removing Public Data Access

The most immediate and pressing change involves substantial organizational restructuring and staff reduction in federal research institutions. For example, workforce reduction, initiated by the Department of Health and Human Services (HHS), affecting up to 10,000 employees (Kaiser 2025b; Stein et al. 2025) and major leadership changes at the U.S. Food and Drug Administration (FDA) with commissioner appointments, resulting in the immediate dismissal of key regulatory staff (Al-Faruque 2025). The disbandment of the HHS Human Research Ethics Advisory panel in late March 2025 underscores this period of rapid institutional change (C. Funk et al. 2019; Gu and Feng 2022; National Academies of Sciences and E. and M 2015).

While careful and thoughtful administrative restructuring can yield efficiency, the rapid and widespread nature of these changes can negatively impact academic freedom, hinder ongoing research (J. Funk 2025; Jewett 2025; Moniuszko 2025; Roubein and Sun 2025), disrupt scientific progress (Eskin 2025), and stifle innovation (Gonzalez et al. 2025). Job cuts not only reduce the scientific workforce (Pradhan 202 5) but also foster uncertainty (Gardner et al. 2025), potentially driving experienced researchers to seek employment outside federal institutions or even overseas—raising concerns about a possible large-scale "brain drain" (Goldman et al. 2017; Greer et al. 2025; Witze 2025). Service disruptions may follow, particularly in critical fields, such as food and drug safety, medical research, and climate science. Fewer trained scientists (Pradhan 202 5) may cause a decline in public scientific literacy, potentially undermining trust in science in the long term.

In addition, restricting or removing access to public scientific data (McConnellJacobs 2025) substantially undermines the transparency, openness (Kaste 2025), and ability of researchers,

journalists, and policymakers to track disease outbreaks, monitor environmental changes (McConnellJacobs 2025), and provide accurate public information. For example, changes in the National Cancer Institute's Cancer Information Service (Tin 2025a, 2025b) and federal survey questions regarding gender identity and LGBTQ+ status have narrowed the availability of health and demographic information (Wang 2025). These changes obstruct the ability to monitor equity in service provision and limit advocacy efforts for vulnerable populations. Similarly, disbanding advisory committees may further erode trust in federally supported research and health recommendations.

3.2 | Discontinuing Federal Research Funding and Limiting International Exchange

The second major area of change affects scientific relations with all universities, research institutes, and organizations seeking federal funding (Garisto et al. 2025; Owermohle 2025). For example, many of the termination or freeze of research funding and contract for universities were tied to unmet political demands regarding antisemitism, as revealed in court documents, even though the research had little to no connection with discrimination against Jews (Binkley and Casey 2025). By late May 2025, the National Institutes of Health (NIH) had reportedly terminated over 2100 grants (Oza 2025) and the National Science Foundation (NSF) over 1000 (Grant Watch 2025). Furthermore, at least $6 billion in research funds were frozen across prominent universities, including Columbia University, University of California San Francisco, Yale University, and Johns Hopkins University (Devi 2025; Ross et al. 2025). The closure or restructuring of agencies such as the U.S. Agency for International Development (USAID) and U.S. Department of Agriculture (USDA) (USDA; Plume and Huffstutter 2025) further led to additional funding halt, laboratory closure, fewer doctoral applicants, and hiring freezes for researchers and postdoctoral scholars (Garisto 2025b; Saul 2025).

Although the related lawsuits are still unfolding, these terminations have created a climate of instability within the research community. In mid-June, the NIH reinstated 900 grants in response to the federal appeals court's order (Kaiser 2025c; Lopez 2025). However, in late August, the Supreme Court ruled 5-4, allowing the Trump administration to halt approximately $800 million NIH research grants—a decision that was not contested by government lawyers (Garisto and Kozlov 2025; Kaiser 2025a). Furthermore, the White House announced plans to appeal after a federal judge ruled on September 3 that the Trump administration's decision to freeze $2.6 billion in research funding for Harvard was unconstitutional retaliation and violated the university's First Amendment rights. These legal battles caused irreparable long-term damage to the U.S. scientific community.

The massive funding cuts for numerous projects demonstrate inadequate consideration of their scientific significance and rigor, which can affect public perception of scientific independence, objectivity, and integrity. If unchallenged, these actions risk being perceived as permissible, reasonable, and acceptable, further undermining the scientific community's independence and competence. Indeed, the sweeping changes have impaired scientists' ability to secure future grant funding, raising concerns about long-lasting ramifications. Experts warn that repeated disruptions may significantly delay advances in treatment and innovation. For example, Dr. McNutt, President of the National Academy of Sciences, expressed deep concern, stating that the future of U.S. science is pessimistic (NationalAcademyofSciences 2025). Dr. Parikh, Chief Executive Officer of the American Association for the Advancement of Science (AAAS), underscored the loss of global leadership— "This is not just a 5-year problem. It's a 10-year, 20-year, 30-year problem" (Davis 2025). Economists at the American University estimate that a 50% reduction in federal science funding could lower the U.S. gross domestic product by approximately 7.6% (Gonzalez et al. 2025). In addition to these far-reaching economic impacts, reductions in federal science funding could lead to an estimated loss of $16 billion to the local economy and approximately 68,000 jobs (Sinclair et al. 2025). More importantly, grant and funding terminations wasted billions of taxpayer money (S. Reardon 2025), with increasing number of lawsuits.

Compounding these effects, the second Trump administration has recently revoked the visas of international students and visiting scholars (Drenon 2025; Epstein 2025), restricting their ability to study and work at U.S. universities. Federal officials have stated that the policy shift applies to new applicants whose social media accounts would be screened. The decline in the enrollment of international students/scholars further intensified the economic impacts (NAFSA: Association of International Educators 2025). This undermines the traditional role of American higher education as a hub for independent scientific exchange and collaboration, in which scholarly representation, inclusion, and engagement are essential for promoting trust in science.

3.3 | Changing Governmental Research Priorities

The final area of significant change involves the shifting of government research priorities through executive decisions, which impact scientific integrity, independence, and competence. The second Trump administration aims to discard the rigorous practices that have previously supported the independence and representativeness of scientific research by politically realigning them (Kozlov 2025). Recent federal directives have reversed longstanding commitments to diversity, equity, and inclusion (DEI) in science (Perkins 2025). These commitments are supported by evidence (Asmal et al. 2022; Freeman and Huang 2015; Hellman 2025; Nature 2018). Diverse research teams can foster greater creativity, enhance problem solving, and lead to more robust and innovative scientific discoveries that address a wide range of public needs, thereby building trust within marginalized communities (J. Reardon et al. 2023). Anyone can benefit from such efforts. However, the rollback of the DEI commitment completely deters these efforts, reduces competence, and creates new barriers to opportunities (Moore 2025; Perkins 2025).

By mid-September 2025, NIH and NSF have terminated approximately $6 billion in grants (Ross et al. 2025), citing that the research "no longer effectuates agency priorities" without specifying the priorities. Support for foundational biomedical research

(Garisto 2025a; Graves et al. 2025; Mallapaty 2025), including projects on Alzheimer's disease, climate change, vaccines, diabetes, and cancers, has also been terminated or deprioritized (Parshall 2025; Waldman et al. 2025) in favor of more applied and administration-driven areas, such as nuclear energy (Bhatia et al. 2025; U.S. National Science Foundation, 2025).

These changes involve de-emphasizing independent, merit-based reviews in the federal funding process; proposals deemed misaligned with new priorities are returned to applicants regardless of scholarly significance. This shift adversely affects the independent review and funding system, particularly when funding is directed toward specific political agendas. For example, the appointment of David Geier, a vaccine critic who was previously disciplined for practicing medicine without a license, to head autism vaccine research at HHS, despite a robust scientific consensus debunking this alleged link (Branswell 2025; Deer 2007; Science News Staff 2025). Geier's appointment is widely regarded as the dismissal of proper medical and scientific ethics and an established scientific consensus. Such decisions increase doubts regarding the credibility and integrity of scientific and public health institutions, further promoting pseudoscience and misinformation.

The rollback of mechanisms that increase transparency and help address historical sources of mistrust in science and government (National Academies of Sciences and E. and M. 2017; Page 2007), together with the revival of widely discredited research, may discourage both established and aspiring scientists from contributing to the scientific workforce, ultimately slowing scientific progress and undermining the U.S. capacity to address both domestic and global challenges (Leifer et al. 2025).

4 | Lasting Consequences of Low Trust in Science

Reduced trust can have profound implications (Jia et al. 2023; U.S. Centers for Disease Control and Prevention, 2025) and trigger a downward spiral affecting multiple aspects of public life and policies. Some noteworthy consequences are as follows:

Reduction in Public Health Compliance. Low trust in science is frequently associated with skepticism toward medical guidance, which can result in declining vaccination rates and increasing risk of preventable diseases (Choi and Fox 2022; Larson et al. 2016). Additionally, mistrust, often aggravated by misinformation or past abuse, can undermine health campaigns and jeopardize herd immunity, especially in the case of infectious diseases (Lee et al. 2016).

Spread and Persistence of Misinformation. Low trust in specific scientists can extend to the entire scientific community, making individuals more susceptible to misinformation and conspiracy theories (Lewandowsky et al. 2017; National Academies of Sciences and E. and M. 2025). This can deepen polarization and undermine effective policy responses.

Increase in Public Safety Risks and Social Disparities. Ignoring or avoiding scientific consensus on treatment and prevention may compromise public safety (Sulik et al. 2021). For example, resistance to genetically modified crops due to misinformation hinders the adoption of safer agricultural practices, negatively affecting food security (Pidgeon and Fischhoff 2011).

Public Disengagement with Science. Public engagement in science tends to decrease (C. Funk et al. 2019; Gu and Feng 2022; National Academies of Sciences and E. and M 2015), undermining efforts to build a well-informed society and challenging collective action to address complex issues.

Delayed Action on Urgent Global Issues. Widespread skepticism regarding scientific consensus can hinder policy implementation on urgent issues such as climate change (McConnellJacobs 2025; van der Linden et al. 2015).

Decrease in Research Funding. Public distrust in science can influence policymakers to reduce or restructure research funding, thereby decreasing the resources available for breakthroughs and long-term progress (Resnik 2011).

Decline in Economic Competitiveness. Regions with high levels of scientific distrust may underinvest in research and development, diminishing their technological leadership and capacity to compete economically on a global scale (Agarwal 2025; Bloch 1987; Coccia 2008; Jones 2022).

Erosion of Evidence-Based Policy and Democratic Processes. A decline in trust in science weakens evidence-based approaches, allowing propaganda or non-scientific beliefs to shape policies and public discourse (National Academies of Sciences and E. and M 2015; Oreskes and Conway 2010).

Given these consequences, restoring trust in science requires coordinated action across all sectors of society. The next section reviews the literature on best practices and outlines the recommended actions for each group to rebuild and strengthen public trust in science.

5 | Strengthening Trust in Science

Historical events have demonstrated that collaborative efforts of policymakers, the scientific community, media, and public can significantly impact and foster trust in science, ultimately accomplishing evidence-based policymaking. For example, funding for HIV/AIDS education, research, and patient care significantly increased in the 1980s, primarily driven by civil engagement in policy shaping (Neus 2023; Wright 2013). The following sections review the relevant literature and outline specific recommended actions for each sector (see Table 2).

5.1 | Policymakers

Policymakers should pass robust scientific integrity legislation, such as the Scientific Integrity Act, that protects federal scientists from political interference, censorship, and retaliation (Ellickson 2025; Kinsella 2023; Wren 2015). Such laws can mandate transparent decision making, public access to government-funded research, and whistleblower protection.

TABLE 2 | Key recommended actions for policymakers, the scientific community, media, and public.

Science-relevant factors that impact trust in science	Policymakers	The scientific community	The media	The public
Scientific integrity	Strengthen scientific integrity policies (Ellickson 2025; Wren 2015).	Defend scientific integrity and report problematic practices (Guston 2000; Nietzel 2025). Uphold academic freedom and scientific independence.	Report on the integrity and transparency of federal research funding review process, members of advisory committees (National Academies of Sciences and E. and Medicine 2017). Prioritize the report of prominent threats to science integrity.	Stay alert for unreliable science brokers and promote credible science information (Lewandowsky and Oberauer 2016; Scheufele and Krause 2019a).
Transparency and openness	Embed transparent science in legislative process (Jasanoff 2004; Sarewitz 2016). Increase transparency, coverage, and openness to government data (Gonzálvez-Gallego and Nieto-Torrejón 2021; Pielke 2007).	Collaborate with cross-sectors and international alliances (Gluckman 2016; Research America 2025; The Data Rescue Project 2025). Increase redundant, open-access data repositories (The Public Environmental Data Partners 2025).	Report established scientific consensus, credible source information, and validate findings with public data (Weingart 2017).	Engage persistently with elected officials and media on issues with highly localized implications (such as clean air zones) (Albagli and Iwama 2022; Fischer 2000).
Independence and competence	Ensure independent science advisory bodies (Finucane 2025; Markowitz and Rosner 2014).	Strengthen science communication with the public and media (Jamieson et al. 2019; Kabat 2017; Lupia et al. 2024). Employ the community participatory approach and other similar strategies throughout research processes.	Ensure sensitivity to different perspectives from qualified and diverse scientists (National Academies of Sciences and E. and Medicine 2017; Oreskes and Conway 2010; Weingart 2017). Explain the scientific process as a continuous process to address uncertainty and disagreement (Ophir et al. 2024).	Engage in citizen science to integrate local knowledge with other forms of scientific evidence (Bartock 2024; Goldenberg 2023).
Nonpartisanship	Fund independent nonpartisan research organizations (e.g., OTA (or its modern successor; Bimber 1996).	Sign and promote open letters (e.g., Bethesda declaration (Adams et al. 2025), declaration of Dissent (U.S. Environmental protection agency 2025)). Support joint legal actions to challenge policies that prioritize political needs (American Association of University Professors 2025a).	Avoid contributing to polarization by using politicized language (Jamieson 2017; Jamieson and Albarracín 2020; Sonmez et al. 2023).	Build cross-partisan, community science dialog (Jasanoff 2004; Schmid and Betsch 2019). Support science-protecting litigation and legal advocacy (Bartock 2024; Burgess 2014).

Note: Some recommended actions can affect multiple factors due to their interrelated nature. The grouping and color-coding employed here are intended solely for presentation purposes and do not reflect any statistically significant differences.

When introducing new legislation or major regulatory actions, policymakers need to conduct independent scientific reviews or appoint independent scientific advisory boards. They should ensure that the scientific knowledge used in policymaking has undergone independent peer review, and clearly explain how scientific evidence has been integrated into other considerations (Greenmyer 2024; Mercuri 2020). These findings should be included in legislative records (Jasanoff 2004; Sarewitz 2016). This process would establish a durable institutional framework for integrating science into policymaking regardless of government actors.

Meanwhile, learning from the lead poisoning in the 1970s and the subsequent Lead and Copper Rule in the 1990s (Environmental Protection Agency 2017; Jacobs and Brown 2022; Markowitz and Rosner 2014; Union of Concerned Scientists 2019), policymakers should ensure that science advisory committees are composed of competent, independent experts with appointments based on merit rather than political loyalty (National Academy of Sciences et al. 2005). Leveraging legislation such as the Federal Advisory Committee Act (FACA) can also mandate balanced and transparent selection processes and public disclosure of conflicts of interest. Policymakers should require federal advisory committees (FACs) such as the Lead Exposure and Prevention Advisory Committee (LEPAC) to submit independent information, even if the executive branch has the authority to make separate decisions on policy implementation (Finucane 2025). This can enable the public to understand the independent opinions and advice of eminent scientists on shaping strategies, identifying risks, and promoting the public interest.

Additionally, lawmakers should support government research organizations that promote or carry out independent science, such as the Office of Technology Assessment (OTA or its modern successor; Bimber 1996), Congressional Research Service (CRS), and Government Accountability Office (GAO) which can provide Congress with nonpartisan expert analysis to counteract the executive branch control of science (Union of Concerned Scientists 2019).

Lawmakers should require agencies to release scientific data, models, and methodologies that inform publicly available regulatory decisions unless they are restricted for national security or privacy reasons (Pielke 2007). Additionally, these materials should be published in leading peer-reviewed journals rather than confined to an in-house database or publication system. Increasing transparency, coverage, and openness to data can enhance accountability and reduce the chances of evidence being suppressed or distorted, which, in turn, would foster public trust in science (Goldenberg 2023; Gonzálvez-Gallego and Nieto-Torrejón 2021; O'Hara 2012). Just as lawmakers and policymakers bear the responsibility of maintaining scientific integrity, the scientific community plays a distinct role in safeguarding trust. The following recommendations are directed toward scientists, universities, and research institutes.

5.2 | The Scientific Community

The scientific community should reaffirm and uphold clear principles of academic freedom, scientific independence, and non-retaliation for politically sensitive research or statements (Altbach 2001; American Association of University Professors 2025b). All entities should carefully navigate external pressures (Adams et al. 2025) to ensure that the research and scientists are not subject to censorship or punitive measures for political reasons (Jasanoff 1998). For example, the Bethesda Declaration (Adams et al. 2025), which supports the scientific community in speaking against the administration's emphasis on political change, undermines scientists' ability to maintain an agency's nonpartisan mission. Several other declarations are about recent policy changes that have compromised the integrity of science (Hinman-Sweeney et al. 2025; U.S. Environmental Protection Agency 2025). Finally, universities should allocate resources and develop training to help scientists bridge the gaps between research and policy advice (Nature 2024).

Universities and research institutes should provide legal, institutional, and public support for scholars whose federal grants or contracts have been discontinued (Nietzel 2025), researchers who provide critical comments on federal reports, and members whose scientific work is misrepresented, suppressed, or politicized by the administration (Guston 2000). Legal aid funds, rapid response teams, and well-defined institutional policies are critical for defending academic freedom and scientific integrity (Holbrook 2017).

Scientists should collaborate with research foundations, civic organizations, state and local governments, and international partners to maintain scientific standards and engage in collaborative research even when federal support declines (Gluckman 2016; Research America 2025; The Data Rescue Project 2025). A notable example is the research partnership between scientists and community organizations studying syringe exchange programs (SEPs) and HIV infection rates (Gorman 2016; Green et al. 2012; Hurley et al. 1997). These collaborations ultimately turn research findings into evidence-based policies, as demonstrated by the Consolidated Appropriations Act (2010 and subsequent years), which lifted the 1989 ban on using federal funds to support SEPs and federal policy changes at the CDC.

Additionally, the scientific community should take action to back up existing government data. The Data Rescue Project (The Data Rescue Project 2025), along with initiatives such as the End of Term Archive (The End of Term Web Archive 2025) and Public Environmental Data Partners (The Public Environmental Data Partners 2025), serve as exemplary models for this effort. It is also essential to establish reliable open-access repositories for vital scientific datasets and reports that can be altered, removed, or suppressed by the administration (ICPSR 2025) to ensure long-term public access to climate, environmental, public health, and other crucial data.

Scientists and the scientific community should proactively and persistently engage the public and the media. They should use a clear and straightforward language to explain the value of science, counter misinformation (Chan et al. 2017; Chan, Jones, Jamieson, et al. 2017; Lewandowsky et al. 2012), address public concerns, and build trust across political divides (Leshner 2015; Philipp-Muller et al. 2022; Scheufele 2013). Communicating scientific information that connect with people's values, experiences, and everyday lives can humanize science and the

scientists. When scientific information is presented as a human endeavor with real-world connection and relevance, public audiences are more likely to engage, care, and trust the information (Dahlstrom 2014; Yang et al. 2025). Partnerships with community organizations and bipartisan stakeholders can also bridge the gap between scientists and public (Kabat 2017; Leshner 2015). Engaging stakeholders and end-users throughout the research process using approaches, including systems science (Hieronymi 2013), team science (National Research Council 2015), community-engaged research (Sanders Thompson et al. 2021), participatory action research (Cornish et al. 2023; Doucette et al. 2023), citizen science (Van Vliet and Moore 2016), and related approaches can directly empower diverse community populations. Finally, scientists and academic journals have various strategies to signal their trustworthiness at different levels (Jamieson et al. 2019; Lupia et al. 2024).

While the scientific community's contribution continues, the media also has a unique responsibility to foster public trust in science through reporting. The media section includes news outlets, broadcast/print media, online news platforms, podcasters, and independent journalists.

5.3 | The Media

News media should report on the integrity and transparency of research (National Academies of Sciences and E. and Medicine 2017), including those supported by federal and private funding. Bringing attention to flaws or biases in scientific processes can strengthen trust in science over the long term (Oreskes and Conway 2010), provided that reporting is factual and constructive. It assures the public that science is conducted with integrity and that checks and balances are in place in the community. To increase scientific integrity, the media should report on the actions taken by other stakeholders to combat political interference and ensure the appropriate use of scientific evidence for policymaking. This can alert the public and policymakers to real risks and serve as a protective mechanism.

Reporting the dismissal of all members of the CDC Advisory Committee on Immunization Practices (ACIP) based on alleged claims of conflicts of interest and replacing them with individuals selected by Secretary Kennedy can unavoidably undermine public trust in medical science and the government. Instead, the media should take this opportunity to present overwhelming evidence and establish a consensus (e.g., vaccine safety). By providing accessible data, media can help audiences distinguish between fringe and well-supported claims (Knight Foundation 2018; Scheufele and Krause 2019a). This can build trust by anchoring reporting transparency and replication, which are the central tenets of science.

On a related note, journalists can promote science independence and competence by including findings and expert opinions from scientists with diverse backgrounds. This practice improves accuracy and inclusivity, reflecting the range of views within a discipline while avoiding equal treatment of scientifically unsupported positions. This approach also models and reinforces DEI commitments, which positively affect problem-solving in science (Page 2007) and increase trust.

Media outlets can demystify changes in scientific advice and clarify if the recommendations come from independent advisors or scientists with government ties. Embracing uncertainty, debating interpretations, and accepting research limitations will prepare audiences to think critically about updates instead of believing in biased narratives and viewing changes in scientific evidence as failures. This aligns with recommendations from organizations such as National Academies (National Academies of Sciences and E. and Medicine 2017; Ophir et al. 2024).

Finally, media impartiality is not a new issue. Previous research has demonstrated that polarized framing affects science communication. Specifically, polarized or politicized framing increases distrust and creates divides, leading audiences to interpret scientific findings through a partisan lens. Using neutral fact-based language and focusing on evidence aids in maintaining or restoring shared trust across groups, as validated by research on the effects of media during COVID-19 (Jamieson and Albarracín 2020). The last section outlines recommended actions for the public, a sector that holds immense power. As emphasized by Ressa (2022), "journalism enabled facts to survive, but it was the communities that must respond. Globally, we need a new model of civic engagement."

5.4 | The Public

Every person can be an informed citizen by seeking, sharing, and amplifying quality scientific journalism and choosing not to spread unverified information from podcasts or blog posts. The public should also fact-check sources of information and expert commentaries, particularly on social media, to distinguish between scientific claims and pseudoscience, counteract disinformation, and foster a science-literate culture within the community (Lewandowsky and Oberauer 2016; Scheufele and Krause 2019b).

Participating in local or national citizen science initiatives such as air and water quality monitoring enables the public to contribute to maintaining vital datasets that may face funding cuts or other challenges (Albagli and Iwama 2022). The public can contribute to science by sharing local or experiential knowledge, which may enhance scientific understanding and refine the values and expectations that shape research (Bartock 2024; Goldenberg 2023). This engagement also demonstrates bottom-up community support for scientific research and environmental protection (Bonney et al. 2009; Irwin 2018; Skarlatidou et al. 2024; Vegt et al. 2023).

The public should consider supporting or participating alongside organizations such as the American Civil Liberties Union and Union of Concerned Scientists to strengthen their efforts to address governmental actions that may hinder scientific progress, reverse science-based regulations, or contravene transparency laws (Bartock 2024).

Citizens should also foster community-level, inclusive dialogs (Jasanoff 2004; Schmid and Betsch 2019), especially across

ideological divides, on science issues, such as vaccines, climate policy, or environmental regulation, recognizing shared values (Chan et al. 2020) and building trust that buffers against top-down political changes in science.

Finally, citizens should actively reach out to elected officials and media, engage in public comment periods, attend town halls, support campaigns that uphold scientific integrity, promote open data, and encourage fact-based policymaking (Albagli and Iwama 2022; Fischer 2000). By organizing public efforts, every person can help raise awareness about the significance of science in decision-making and encourage respectful dialog around highly localized issues such as climate change.

6 | Conclusion

Trust in science is vital for our future development and possibly for the survival of our civilization. The challenges detailed above underscore the urgent need for collective action across all sectors of society to secure public trust and support scientific endeavors in the US. This review, like other similar articles, has notable limitations. For instance, some policies may no longer be relevant to trust in science, as previous regulations have been revoked and replaced with updated measures. Furthermore, when the situations unfold, certain recommended actions may no longer be practical, while new strategies have emerged. The relations among the factors that influence trust in science and how stakeholders improve and hinder these associations may also warrant reevaluation as new research findings become available. Ultimately, a broad community effort guided by a set of consensus standards and values rather than top-down policies from the administration can help establish shared goals to enhance trust in science. This approach should focus on ensuring checks and balances and preserving the integrity of scientific work, representing humanity's best approach for addressing this complex issue.

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Conflicts of Interest

The Author declares no conflict of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data will be publicly available after completing all of our own reporting for a given study and preparing the data for public release.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.
Supporting Inormation S1: spc370104-sup-0001-suppl-data.docx.

Biography

Man-pui Sally Chan's research focuses on understanding and addressing health challenges, particularly in the areas of infectious disease prevention and care. She integrates social psychological theory with various research approaches, including experimental designs, meta-analysis, and data science techniques. Her primary areas of interest include health communication, misinformation and its correction, belief persistence, and health behavior change. Chan has co-authored papers on these topics for AIDS, AIDS and Behaviors, the American Journal of Public Health, Nature Human Behavior, PNAS Nexus, Psychological Science, Vaccine, and The Oxford Handbook of the Science of Science Communication. She holds a Ph.D. in Social Psychology from the University of Hong Kong and has completed postdoctoral training at the University of Cambridge in the United Kingdom and the University of Illinois at Urbana-Champaign in the United States. Currently, she is a Research Associate Professor at the University of Pennsylvania in Pennsylvania.