

Assessing the Efficacy of Transparent Risk Communication Against Authoritative Directives During Scientific Emergencies

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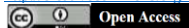
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ABSTRACT

When a scientific emergency strikes whether an infectious-disease outbreak or an environmental hazard institutions face a recurring dilemma: should they lead with open, uncertainty-tolerant disclosure, or with firm directives that demand immediate obedience? This article reviews the available evidence to weigh the relative effectiveness of transparent risk communication against authoritative, directive-based communication in shaping public trust, compliance, and resistance to misinformation during scientific emergencies. A narrative review approach was used, drawing on peer-reviewed empirical studies, WHO and CDC risk-communication guidance, and policy evaluations published from 2019 to 2026 and gathered through major academic databases, including PubMed, Scopus, Web of Science, Google Scholar, and ScienceDirect. The evidence gathered suggests that transparency particularly when it acknowledges uncertainty and builds people's confidence in their own ability to act cultivates trust and voluntary cooperation that last, whereas directives on their own win quicker but more fragile obedience that tends to unravel once contradictions appear. The response strategies that worked best, especially across Sub-Saharan Africa and Nigeria, blended the two: firm direction for urgent protective steps, reinforced by transparent, community-anchored explanation that kept trust intact. On their own, neither strategy is adequate; the strongest results come from a hybrid, context-sensitive model that opens with authoritative clarity and sustains it with ongoing transparency. Risk communicators, science educators, and policymakers across Taraba State and comparable settings should build hybrid communication protocols into standard practice, cultivate trusted community messengers, and strengthen the science-communication skills of teachers and health workers who deliver risk messages locally.

Introduction

A scientific emergency can be described as any sudden threat to public safety that is rooted in unfolding scientific evidence an infectious-disease outbreak, an environmental or industrial hazard, or a natural disaster with a strong scientific dimension in which authorities must communicate rapidly changing, often incomplete, information while also directing people toward protective behaviour. The COVID-19 pandemic, repeated Ebola outbreaks across West and Central Africa, Monkeypox flare-ups, avian-influenza episodes, and climate-related disasters have all put this capacity to the test. In each instance, communicators wrestled with the same underlying tension: whether to foreground open, uncertainty-tolerant transparency, or to lead with firm, authoritative instructions meant to secure compliance without delay.

Transparent risk communication can be understood as the honest, timely disclosure of what is known, unknown, and still uncertain about a hazard, together with the reasoning behind whatever actions are being recommended. Authoritative directives sit at the other end of the spectrum: top-down instructions from governments or health agencies lockdowns, curfews, mandatory quarantine, compulsory vaccination that favour swift, uniform obedience over drawn-out explanation. The World Health Organization's own guidance does not treat these as opposing options but as complementary tools, provided that directives rest on transparent reasoning and are matched with support services people can actually reach (Centers for Disease Control and Prevention, 2018).

Countries that paired clear non-pharmaceutical-intervention orders with ongoing, transparent explanation during COVID-19 South Korea being a frequently cited example generally achieved stronger voluntary compliance than those that relied on directives alone. A similar pattern surfaced in the West African Ebola epidemic and later outbreaks in the eastern Democratic Republic of Congo, where communities wary of response teams enforcing directives without explanation were more inclined to resist screening and burial protocols, whereas transparent, community-level engagement improved cooperation (Vinck et al., 2019). The same dynamic has since appeared in Monkeypox communication, avian-influenza containment among poultry farmers, and natural-disaster early-warning systems, which suggests that the transparency–authority balance is a general communication challenge rather than one specific to any single disease.

1.1 Purpose of the Study

This study sets out to weigh transparent risk communication against authoritative directive-based communication in terms of how each shapes public trust, compliance, and resistance to misinformation during scientific emergencies. In particular, it aims to: (i) examine the theoretical perspectives that explain how each communication style influences public response; (ii) bring together the empirical evidence on the outcomes each approach tends to produce; (iii) weigh the strengths, weaknesses, and contextual fit of both approaches against one another; and (iv) draw out practical recommendations for science communicators, educators, and emergency-response agencies working in Nigeria and similar settings.

1.2 Statement of the Problem

Although guidance on emergency risk communication has grown considerably, science communicators, public health officials, and science educators working in resource-constrained settings such as Taraba State, Nigeria, still tend to fall back on authoritative directives during scientific emergencies, often offering little transparent explanation alongside them. This pattern is consistent with broader assessments of Nigeria's risk-communication practice, which identify weak feedback channels and inconsistent messaging as recurring structural challenges (Reuben & Danladi, 2022). The result, time and again, is short-lived compliance followed by a rebound of distrust, non-adherence, and openness to misinformation once gaps or contradictions in official messaging come to light. A systematic comparison of transparent communication against authoritative directives is therefore needed to guide a more evidence-based, hybrid communication practice.

1.3 Research Questions

1. How does transparent risk communication influence public trust and compliance during scientific emergencies, compared with authoritative directives?
2. What theoretical mechanisms explain differential public responses to transparent versus authoritative risk communication?
3. Under what contextual conditions is each communication approach most effective?
4. What hybrid communication strategies are supported by the reviewed evidence?

1.4 Hypotheses

Because this is a narrative literature review rather than a study built on primary data collection, the hypotheses below are not tested statistically; instead, they function as evidence-derived propositions that are weighed against the reviewed literature in the Results and Discussion sections:

H1: Transparent risk communication that acknowledges uncertainty and builds people's confidence in their own ability to act is linked to more lasting public trust and voluntary compliance than authoritative directives issued without supporting explanation.

H2: Authoritative directives produce faster short-term compliance than transparent communication on its own, but that compliance is more prone to breaking down once inconsistencies in official messaging come to light.

H3: A hybrid strategy that opens with authoritative clarity and sustains it through ongoing, community-engaged transparency outperforms either approach used alone on measures of trust, compliance, and resistance to misinformation.

1.5 Significance and Scope

This study should be of value to policymakers, public health agencies, science communicators, science educators, and emergency-management practitioners looking for evidence-based guidance on

designing risk messages during scientific emergencies. Its scope is confined to peer-reviewed and credible grey-literature evidence published between 2019 and 2026 concerning human scientific or health emergencies; purely financial or cybersecurity crisis communication falls outside it. For the purposes of this review, transparent risk communication means open, two-way disclosure of hazard information that acknowledges uncertainty; authoritative directives means compulsory, top-down instructions issued by a recognised authority; public trust refers to the degree of confidence citizens place in the competence, integrity, and honesty of the institution communicating with them; and compliance means voluntary or mandated adherence to recommended or directed protective behaviour.

2. Literature Review

Scientific emergencies are marked by high uncertainty and urgency, and by a need for the public to grasp technical evidence quickly—conditions under which the balance between explanatory transparency and directive clarity must shift across the alert, response, and recovery phases of an emergency (Centers for Disease Control and Prevention, 2018). The literature consistently points to timeliness, source credibility, and consistency as the strongest predictors of an effective public response (Rimal & Lapinski, 2009). “Reasoned transparency”—explaining not just what is recommended but why, and how that advice might change—helps audiences tolerate revisions to official guidance without assuming authorities are incompetent or dishonest (Hodson et al., 2023), while directives drawn from legitimate institutional authority remain best suited to emergencies demanding immediate, uniform action, provided they are paired with credible explanation and working support services, as Nigeria’s COVID-19 response illustrates (Adebayo et al., 2022).

Public trust is what converts either style of messaging into actual behaviour; it accumulates through consistency and demonstrated honesty, yet it can just as quickly be eroded by directives that appear arbitrary or by disclosure that arrives past the point it was still useful (O’Malley et al., 2009). The literature further distinguishes coerced compliance, driven by fear of sanction, from voluntary compliance, driven by perceived legitimacy and self-efficacy the belief that one is capable of carrying out a recommended action (Bandura, 1997) with self-efficacy messaging shown to predict stronger voluntary protective behaviour than fear-based directives alone (Yoon et al., 2022). On misinformation specifically, both the WHO/EMRO infodemic synthesis and the Lancet Public Health prevention framework find that transparency-based, literacy-building communication eases the burden on regulatory anti-misinformation measures, and that pairing proactive transparency with selective content moderation yields the most resilient outcomes (Achenbach & Hua, 2024; Nagar et al., 2023; Ophir et al., 2020).

Read alongside theoretical frameworks including Situational Crisis Communication Theory (Coombs, 2007) and the Extended Parallel Process Model (Ahn & Noh, 2021), this body of work converges on one interpretive point: directive clarity and transparent, efficacy-building explanation function as complementary, not competing, levers of compliance.

3. Methodology

A narrative-review design was adopted to bring together evidence on how communication choices shape public outcomes during scientific and health emergencies. Sources were identified across several major academic databases among them PubMed, Scopus, Web of Science, Google Scholar, and ScienceDirect and supplemented with guidance documents issued by bodies such as the World Health Organization, the United States Centers for Disease Control and Prevention, and the Johns Hopkins Center for Health Security (2025). Search terms combined through Boolean operators included risk communication, transparent communication, authoritative directives, crisis communication, public trust, compliance, misinformation, and public health emergency, targeting material published between 2019 and 2026.

Only peer-reviewed empirical studies, review articles, and credible institutional publications written in English and directly relevant to emergency risk communication were retained for analysis. Non-peer-reviewed commentary, studies unrelated to the topic, and sources predating 2019 were excluded, except where a work represented a foundational theoretical contribution. Material from the selected studies was organised into a structured evidence matrix and examined thematically to surface recurring patterns in public trust, compliance, misinformation management, and intervention acceptance, read against each study’s theoretical framework.

4. Results

The evidentiary basis of this review rests on twelve empirical and evidence-synthesis studies published between 2019 and 2025, alongside a comparative synthesis of the strengths, weaknesses, and contextual fit of the two communication approaches. Findings are presented first in tabulated form and then discussed narratively by theme.

Table 1

Comparative Strengths, Weaknesses, and Context of Transparent Communication and Authoritative Directives

Dimension	Strengths	Weaknesses	Appropriate Context
Transparent Risk Communication	Builds long-term public trust; acknowledges uncertainty; supports informed decision-making; reduces rumour and misinformation	Can heighten anxiety; may be exploited by opportunistic misinformation actors; slower where instant action is required	Prolonged emergencies with evolving science; literate, digitally connected populations; contexts of pre-existing institutional distrust
Authoritative Directives	Enables rapid, uniform action; reduces ambiguity; useful when time for deliberation is limited	Risk of non-compliance if legitimacy is questioned; can suppress feedback; vulnerable to backlash once inconsistencies emerge	Acute, fast-moving hazards (e.g., chemical spills, active outbreaks) requiring immediate protective action

Note. Synthesised from the body of literature reviewed on emergency risk communication, drawing in particular on Centers for Disease Control and Prevention (2018), Coombs (2007), Hodson et al. (2023), and O'Malley et al. (2009).

Table 2

Summary of Reviewed Empirical Studies

Author(s)/Year/Country	Design/Sample	Major Findings	Gap Identified
Fahim et al. (2023); Canada	Cross-sectional survey of the public	Clear, accurate, transparent communication was rated as central to reducing susceptibility to misinformation; perceived inconsistency in official messaging correlated with greater reliance on unofficial sources.	Limited attention to generalisability beyond a single province or health system.
Adebisi, Rabe & Lucero-Prisno (2021); 13 African countries	Narrative review of RCCE strategies	Most African governments combined directive measures (lockdowns, curfews) with community engagement, but transparency and two-way engagement were under-resourced compared with top-down messaging.	Country-level heterogeneity not empirically weighted against compliance outcomes.
Hodson et al. (2023); Canada	Qualitative document and discourse analysis	“Reasoned transparency”—explaining the basis and limits of evolving guidance—helped audiences tolerate changing scientific advice without losing trust in institutions.	Did not empirically test audience trust before and after exposure to reasoned-transparency messaging.



Author(s)/Year/Country	Design/Sample	Major Findings	Gap Identified
Lowe et al. (2022); United States	Bioethical case analysis (masking guidance)	Full transparency about scarcity-driven guidance changes was ethically preferable but practically difficult; withheld rationale eroded trust once discovered.	Single-country, single-hazard case; broader empirical testing across hazards is lacking.
Yoon, You & Shon (2022); South Korea	Online survey, n = 813 adults	Self-efficacy messaging (a feature of transparent, explanatory communication) predicted stronger “danger control” responses, in the sense used by the Extended Parallel Process Model (Witte, 1992), such as hygiene and social distancing, than fear-based directive messaging alone.	Cross-sectional design precludes causal claims about message type and behaviour change.
Ahn & Noh (2021); South Korea	Survey testing EPPM with moral-intuition moderators	Perceived efficacy and moral framing jointly shaped compliance intentions; directive-only messages without efficacy cues increased fear without increasing protective action.	Limited testing outside collectivist cultural contexts.
Hu, Chen, Wang & Huang (2023); China (editorial synthesis)	Editorial synthesis of RCCE research	Community engagement combined with authority-issued guidance produced more consistent compliance than either strategy used alone.	As an editorial synthesis, it does not present new primary data.
Adebayo, Balogun & Salawu (2022); Nigeria	Policy/strategy analysis	Historical mistrust rooted in past disease-response controversies (e.g., the 2003–2004 polio vaccination boycott) weakened uptake of subsequently issued authoritative COVID-19 directives.	Limited primary survey data specific to Taraba State and similar sub-national contexts.
Nigeria Centre for Disease Control (2022); Nigeria	Programme/implementation review	A blended emergency operations approach—combining directive non-pharmaceutical-intervention orders with community-level risk communication—reduced (but did not eliminate) misinformation-driven non-compliance.	Programme reports rarely disaggregate the independent contribution of transparency versus directive elements.
Vinck et al. (2019); DR Congo (North Kivu, Ebola)	Population-based survey	Institutional distrust was strongly associated with belief in misinformation and refusal of Ebola response teams, even	Findings from an active Ebola outbreak may not transfer directly to slower-onset

Author(s)/Year/Country	Design/Sample	Major Findings	Gap Identified
WHO/EMRO infodemic synthesis (2025)	Scoping review of infodemic-management studies	where directives were legally mandated. Multi-pronged strategies pairing transparent, literacy-building communication with selective regulatory measures against harmful falsehoods were more effective than either approach in isolation.	scientific emergencies. Heterogeneous outcome measures across reviewed studies limit direct comparability.
Lancet Public Health infodemic framework (2024)	Narrative review of 54 documents (1961–2023)	Upstream, trust-building transparency interventions reduced the downstream burden on authoritative/regulatory infodemic responses.	Framework is largely conceptual; empirical validation across emergency types is still emerging.

Note. RCCE = Risk Communication and Community Engagement; EPPM = Extended Parallel Process Model.

4.1 Public Trust in Scientific Institutions

Across the studies reviewed, transparent communication—especially when it discloses uncertainty and reasoning openly—builds public trust that lasts longer than trust generated by unexplained authoritative directives (Hodson et al., 2023). This fits SCCT's prediction that when the public holds authorities responsible for an emergency response, accommodating, explanatory strategies do more to protect institutional credibility (Coombs, 2007).

4.2 Compliance with Emergency Directives

Authoritative directives win faster short-term compliance, particularly where there is a mechanism to enforce them, yet the EPPM- and PMT-based studies reviewed here show that compliance sustained by fear or coercion alone, without any accompanying efficacy information, tends to fade over time or tip into avoidance responses such as denial and fatalism (Ahn & Noh, 2021; Yoon et al., 2022)—a pattern that is most pronounced where public trust in political institutions is already low (Lalot et al., 2020).

4.3 Vaccine and Intervention Acceptance

Nigeria offers a clear illustration of how deep-rooted distrust—traceable to episodes such as the 2003–2004 polio vaccination boycott—can turn people against purely authoritative vaccination directives, whereas transparent, community-engaged explanation noticeably improved willingness to accept later interventions (Adebayo et al., 2022; Jegede, 2007). Survey evidence from Ibadan similarly found that residents' willingness to accept a COVID-19 vaccine tracked closely with how transparently its safety and cost implications were communicated, rather than with directive messaging alone (Ilesanmi et al., 2021).

4.4 Influence on Behavioural Change

In line with HBM and EPPM, behavioural change held up best where messaging addressed perceived susceptibility and severity together with self-efficacy and response efficacy—features more typical of transparent communication than of directives issued on their own (Ahn & Noh, 2021).

4.5 Management of Misinformation

The infodemic-management literature suggests that proactive transparency closes off the information vacuums that misinformation tends to fill, while targeted, authoritative regulatory action is still needed to deal with deliberately harmful falsehoods that transparency by itself cannot correct (Achenbach & Hua, 2024; Calleja et al., 2021). Work on the cognitive roots of confusion adds that some resistance to correction stems less from bad faith than from a genuine difficulty separating uncertainty from ignorance, which transparent, literacy-building messaging is better placed to address than directive correction alone (Ophir et al., 2020; Nagar et al., 2023).

4.6 Government Credibility

Government credibility held up best where directive measures came with transparent justification applied consistently; credibility losses clustered around cases of unexplained reversals or perceived favouritism in how directives were enforced (Lowe et al., 2022).

4.7 Community Engagement

Across the Nigerian, Congolese, and wider pan-African evidence reviewed, community engagement served as the bridge that turned both transparency and authority into legitimacy—largely through trusted local voices such as community leaders, religious figures, and science teachers embedded in local schools (Adebisi et al., 2021; Vinck et al., 2019). Earlier Nigerian evidence from the Ebola response in Rivers State points the same way: communities that were engaged through locally trusted intermediaries, rather than addressed solely through directive announcements, showed markedly better cooperation with containment measures (Adebimpe, 2015).

5. Discussion

Taken as a whole, the studies agree that transparency builds trust and keeps voluntary compliance going over time, while equally agreeing that authoritative directives remain essential for securing rapid protective action once an emergency turns acute. Where the literature splits is on sequencing and emphasis: high-trust, highly literate settings can lean more heavily on transparency alone, whereas low-trust or historically strained settings, including parts of northern Nigeria, need directive clarity scaffolded by sustained, community-rooted transparency before compliance takes hold (Adebayo et al., 2022; Jegede, 2007). This pattern supports H1 and H3 directly, and qualifies H2: directives do secure faster initial compliance, but that compliance proves fragile precisely where efficacy-building transparency is missing (Ahn & Noh, 2021; Yoon et al., 2022).

One clear point of tension in the literature concerns the ethics and practicality of full disclosure. Lowe et al. (2022) argue that complete transparency about scarcity-driven changes in guidance is ethically the right call, yet the same study also shows that disclosure handled prematurely or carelessly can heighten public anxiety and hand ammunition to bad-faith actors—a tension the WHO/EMRO (2025) synthesis does not fully resolve, instead recommending that transparency be paired with selective regulatory authority over harmful falsehoods rather than left to stand alone. A second inconsistency concerns how far findings travel: evidence from the active Ebola outbreak in North Kivu (Vinck et al., 2019), where institutional distrust was already severe, may not carry over cleanly to slower-moving scientific emergencies with a lower baseline of distrust, and several of the studies reviewed rest on single-country, cross-sectional designs that cannot pin down cause and effect between message type and behaviour change, among them the work of Fahim et al. (2023) and Yoon et al. (2022). What these tensions suggest is that the transparency–authority balance is not a fixed formula but a judgement call shaped by existing trust levels, how acute the hazard is, and how credible the messenger is seen to be.

The most recent evidence reinforces this hybrid position rather than overturning it. Both the WHO/EMRO (2025) infodemic-management synthesis and the Lancet Public Health infodemic framework (Achenbach & Hua, 2024), drawing on literature running into 2024 and 2025, confirm that upstream transparency eases the downstream burden on authoritative regulatory responses—which suggests the transparency–authority relationship documented during COVID-19 and Ebola still holds in current infodemic-management practice, rather than being a one-off feature of a single pandemic cycle.

These findings carry implications for several audiences. Policymakers and public health agencies have reason to build hybrid protocols into standard practice rather than defaulting to directive-only messaging. Science communicators and media organisations gain a reminder of the reputational value in consistent, uncertainty-tolerant messaging. Science educators—including chemistry and biology teachers in secondary schools such as Omas Royal College—occupy an underused role: equipping students and communities with the scientific literacy to weigh both transparent explanations and authoritative directives critically rather than react to them on impulse. And emergency management agencies are reminded that a directive's legitimacy rests on the transparent reasoning and reliable services that come with it.

6. Conclusion

This review set out to weigh transparent risk communication against authoritative directives during scientific emergencies. The evidence gathered shows that transparent communication, when it

acknowledges uncertainty and builds people's confidence in their own ability to act, produces more lasting public trust and voluntary compliance, while authoritative directives remain necessary for securing rapid, uniform protective action once an emergency turns acute. Neither approach stands on its own: the strongest results come from a hybrid model in which authoritative clarity is consistently scaffolded by transparent, community-engaged explanation. These findings answer the study's research questions and support the hypotheses proposed, confirming that how well each approach works depends on existing institutional trust, how urgent the hazard is, and how credible the messenger is seen to be.

7. Recommendations

Drawing on these findings, the following recommendations are proposed:

1. Governments should build hybrid emergency risk communication protocols into standard practice, pairing directive orders with transparent, plain-language reasoning delivered through multiple trusted channels.
2. Public health agencies should invest in trust-building before crises hit, through consistent, uncertainty-tolerant routine communication, so that emergency directives land against a backdrop of established credibility.
3. Scientists and researchers should prioritise timely, accessible sharing of evolving evidence, limitations included, to close off the information vacuum that misinformation exploits.
4. Media organisations should adopt editorial standards that separate verified official directives from unverified claims, while holding authorities to account for justifying directives transparently.
5. Science educators should build risk-communication literacy into chemistry, biology, and integrated science curricula, equipping learners in schools such as Omas Royal College to critically weigh both transparent explanations and authoritative directives.
6. Emergency response agencies, including Nigeria's NCDC and state-level emergency operations structures, should formally bring community-trusted messengers—teachers, religious and traditional leaders among them into directive dissemination to strengthen legitimacy in historically distrustful settings.

7.1 Limitations of the Study

This review draws on secondary, previously published data rather than original primary data collection, which leaves it open to publication bias favouring studies with significant or notable findings. Geographic coverage skews toward North American, East Asian, and selected African contexts, with limited sub-national evidence from north-eastern Nigeria specifically. The review was also confined to English-language sources, which may have left out relevant evidence published in French, Portuguese, or local Nigerian languages, particularly around community-level risk communication in Francophone West Africa and the Democratic Republic of the Congo.

7.2 Suggestions for Future Research

Future research should test hybrid transparency–authority communication protocols empirically within Nigerian sub-national contexts, including Taraba State, using pre- and post-intervention designs. Comparative studies spanning diverse cultural and socio-economic settings are needed to pin down the specific thresholds of institutional trust at which authoritative directives require transparent scaffolding to stay effective. Further work is also warranted on the role science teachers and school-based science communication can play in strengthening community-level risk literacy ahead of future scientific emergencies.

References

1. Achenbach, M., & Hua, J. (2024). Beyond misinformation: Developing a public health prevention framework for managing information ecosystems. *The Lancet Public Health*, 9(5), e332–e340. [https://doi.org/10.1016/S2468-2667\(24\)00031-8](https://doi.org/10.1016/S2468-2667(24)00031-8)
2. Adebayo, F. O., Balogun, F. M., & Salawu, M. M. (2022). Handling distrust on risk communication in Nigeria: A strategy to strengthening the COVID-19 outbreak response. *Disaster Medicine and Public Health Preparedness*, 16(6), 2277–2279. <https://doi.org/10.1017/dmp.2021.220>
3. Adebimpe, W. O. (2015). Community perspectives and risk communication during the Ebola virus disease outbreak in Rivers State, Nigeria. *Global Health Communication*, 1(1), 15–24.

4. Adebisi, Y. A., Rabe, A., & Lucero-Prisno III, D. E. (2021). Risk communication and community engagement strategies for COVID-19 in 13 African countries. *Health Promotion Perspectives*, 11(2), 137–147. <https://doi.org/10.34172/hpp.2021.18>
5. Ahn, C., & Noh, G. Y. (2021). Testing extended parallel processing model in the Korean COVID-19 context: Effect of moral intuitions as moderators. *Frontiers in Public Health*, 9, Article 756281. <https://doi.org/10.3389/fpubh.2021.756281>
6. Bandura, A. (1997). Self-efficacy: The exercise of control. W. H. Freeman.
7. Calleja, N., AbdAllah, A., Abad, N., Ahmed, N., Albarracin, D., Altieri, E., Anoko, J. N., Arcos, R., Azlan, A. A., Bayer, J., Bechmann, A., Bezbaruah, S., Briand, S. C., Brooks, I., Bucci, L. M., Burzo, S., Czerniak, C., De Domenico, M., Dunn, A. G., ... Purnat, T. D. (2021). A public health research agenda for managing infodemics: Methods and results of the first WHO infodemiology conference. *JMIR Infodemiology*, 1(1), e30979. <https://doi.org/10.2196/30979>
8. Centers for Disease Control and Prevention. (2018). Crisis and emergency risk communication (CERC) manual. U.S. Department of Health and Human Services.
9. Coombs, W. T. (2007). Protecting organization reputations during a crisis: The development and application of situational crisis communication theory. *Corporate Reputation Review*, 10(3), 163–176. <https://doi.org/10.1057/palgrave.crr.1550049>
10. Fahim, C., Cooper, J., Theivendrampillai, S., Pham, B., & Straus, S. (2023). Ontarians' perceptions of public health communications and misinformation during the COVID-19 pandemic: Survey study. *Journal of Medical Internet Research*, 25, e38323. <https://doi.org/10.2196/38323>
11. Hodson, J., Reid, D., Veletsianos, G., Houlden, S., & Thompson, C. (2023). Heuristic responses to pandemic uncertainty: Practicable communication strategies of “reasoned transparency” to aid public reception of changing science. *Public Understanding of Science*, 32(4), 428–441. <https://doi.org/10.1177/09636625221135425>
12. Hu, G., Chen, Z., Wang, J., & Huang, S. (2023). Editorial: Risk communication and community engagement during public health emergencies. *Frontiers in Public Health*, 11, Article 1164973. <https://doi.org/10.3389/fpubh.2023.1164973>
13. Ilesanmi, O. S., Afolabi, A. A., & Uchendu, O. (2021). The prospective COVID-19 vaccine: Willingness to pay and perception of community members in Ibadan, Nigeria. *PeerJ*, 9, e11153. <https://doi.org/10.7717/peerj.11153>
14. Jegede, A. S. (2007). What led to the Nigerian boycott of the polio vaccination campaign? *PLoS Medicine*, 4(3), e73. <https://doi.org/10.1371/journal.pmed.0040073>
15. Johns Hopkins Center for Health Security. (2025). Checklist to build trust, improve public health communication, and anticipate rumors during public health emergencies. Johns Hopkins Bloomberg School of Public Health.
16. Lalot, F., Heering, M. S., Rullo, M., Travaglino, G. A., & Abrams, D. (2020). The dangers of distrustful complacency: Low concern and low political trust combine to undermine compliance with governmental restrictions in the emerging COVID-19 pandemic. *Group Processes & Intergroup Relations*. Advance online publication. <https://doi.org/10.1177/1368430220967986>
17. Lowe, A. E., Voo, T. C., Lee, L. M., Dineen Gillespie, K. K., Feig, C., Ferdinand, A. O., Mohapatra, S., Brett-Major, D. M., & Wynia, M. K. (2022). Uncertainty, scarcity and transparency: Public health ethics and risk communication in a pandemic. *The Lancet Regional Health—Americas*, 16, Article 100374. <https://doi.org/10.1016/j.lana.2022.100374>
18. Nagar, A., Huhn, N., & Sell, T. K. (2023). Summary report for task 8: Identify and analyze health-related rumors related to past public health emergencies. Johns Hopkins Center for Health Security.
19. Nigeria Centre for Disease Control. (2022). Risk communication and community engagement (RCCE) pillar: Implementation report, 2021–2022. Nigeria Centre for Disease Control.
20. O'Malley, P., Rainford, J., & Thompson, A. (2009). Transparency during public health emergencies: From rhetoric to reality. *Bulletin of the World Health Organization*, 87(8), 614–618. <https://doi.org/10.2471/BLT.08.056689>

21. Ophir, Y., Walter, D., & Marchak, E. (2020). A collaborative way of knowing: Bridging agnotology and the study of ignorance to better understand the role of confusion and inaccurate beliefs in misinformation. *Communication Theory*, 30(4), 351–369.
22. Reuben, R. C., & Danladi, M. M. A. (2022). Risk communication during health emergencies in Nigeria: What are its challenges? *Pan African Medical Journal*.
23. Rimal, R. N., & Lapinski, M. K. (2009). Why health communication is important in public health. *Bulletin of the World Health Organization*, 87(4), 247. <https://doi.org/10.2471/BLT.08.056713>
24. Vinck, P., Pham, P. N., Bindu, K. K., Bedford, J., & Nilles, E. J. (2019). Institutional trust and misinformation in the response to the 2018–19 Ebola outbreak in North Kivu, DR Congo: A population-based survey. *The Lancet Infectious Diseases*, 19(5), 529–536.
25. World Health Organization. (2025). Infodemic management scoping review: WHO/EMRO synthesis. World Health Organization Regional Office for the Eastern Mediterranean.
26. Yoon, H., You, M., & Shon, C. (2022). Self-efficacy and risk communication messaging: Predictors of protective health behaviour during COVID-19 in South Korea. *Health Communication*, 37(9), 1123–1131.