## Unravelling the infodemic: a systematic review of misinformation dynamics during the COVID-19 pandemic

Social media platforms prioritize engagement and virality over accuracy. Misinformation is not bound by borders, and its effects are global.



## Introduction

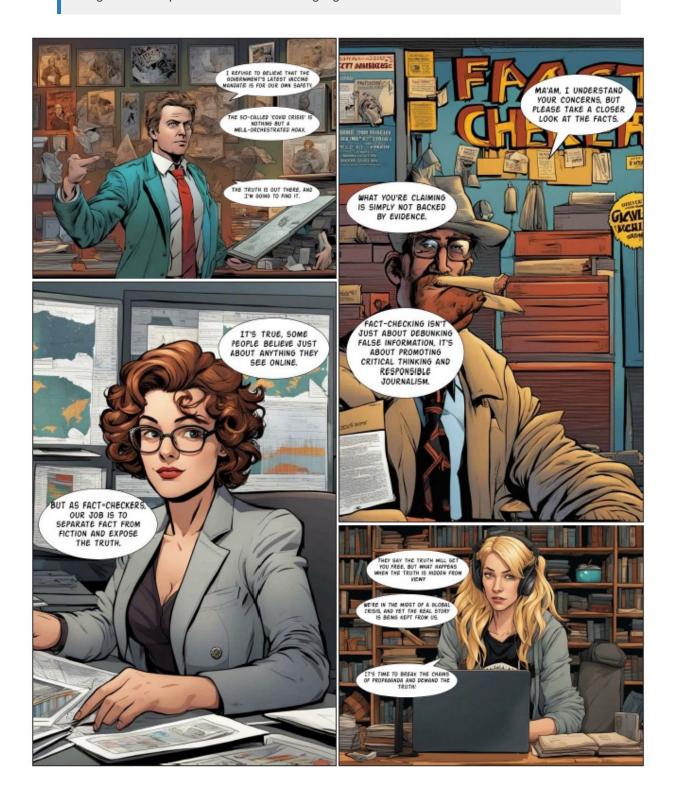
Misinformation spreads through a structured process with multiple stages. Social media platforms prioritize engagement and virality over accuracy.



- Covid-19 pandemic posed a significant challenge to global healthcare systems. It also gave rise to an unprecedented surge in misinformation, termed an "infodemic"
- This study examines the factors driving covid-19 misinformation. It explores the spread via social media, its impact on public health.
- Misinformation spreads through a structured process with multiple stages. Each stage
  influences how false information gains attention and persists. Source may include manipulated
  content, misinterpretations, or deliberate fabrications.
- Social media platforms prioritize engagement and virality over accuracy. Emotionally charged misinformation spreads faster than factual content.
- As misinformation spreads, it enters echo chambers. People mainly interact with like-minded individuals. This limits their exposure to corrective information.
- Digital literacy programs help individuals assess the credibility of online content. Healthcare professionals and community leaders play an important role in spreading accurate information.
- Timothy stanley: if unchecked, false narratives continue to spread. He says timely corrections can increase public awareness and reduce spread of misinformation.

## **Development**

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- This systematic review aims to synthesize the existing body of literature on the covid-19 pandemic. A focus is on identifying its causes, manifestations, and implications.
- The review adheres to the preferred reporting items for systematic reviews and meta-analyses 2020 and the quality of reporting of meta-analyses statement.
- Studies published between december 2019 and december 2024 were included if they focused specifically on covid-19-related misinformation causes, spread, impacts, and mitigation strategies. Only english-language, peer-reviewed articles, conference papers, and reputable preprints were considered.
- A comprehensive search was conducted across pubmed, scopus, web of science, and google scholar. The initial search on 4 december 2024 was re-run on 6 january 2025.
- Two independent researchers extracted study characteristics and thematically coded them into seven themes: the role of digital platforms in amplifying misinformation.
- Amstar 2 tool assesses methodological quality of included studies. Inter-rater discrepancies resolved through discussion or third-party arbitration.
- 185 full texts sought, 27 not retrievable; 158 assessed for eligibility, 82 excluded. 76 studies met criteria and were included.
- A narrative synthesis categorized findings into misinformation spread, impact, and mitigation. Thematic integration and quantitative summaries highlighted consistencies and contradictions.
- Social media platforms (facebook, twitter, youtube) emerged as dominant vectors for misinformation. Common misinformation themes included viruses, treatments, vaccine safety, and conspiracy theories.
- Algorithmic biases prioritize engagement over accuracy, favoring misinformation. Ai-driven detection offers speed but risks false positives. Human fact-checking provides nuance but lacks scalability.
- Reactive measures (fact-checking, content moderation) often lag behind rapid spread.
   Proactive strategies (digital literacy, trusted messengers) depend on sustained engagement.
   Structural solutions (regulation, algorithm transparency) face ethical and implementation challenges.
- Deepfakes exacerbate misinformation challenges; automated moderation systems must incorporate human oversight to mitigate biases. Understanding belief formation and emotional triggers is critical for designing resilient interventions.

## Conclusion

Misinformation is not bound by borders, and its effects are global. Research highlights importance of digital literacy, institutional collaboration.



- Future research must focus on a multi-faceted approach. Research must combine technological, behavioral, social, and policy-driven strategies.
- Misinformation is not bound by borders, and its effects are global. Tackling the infodemic requires global cooperation among researchers, policymakers, and technology companies.
- Misinformation spreads rapidly in local communities through word-of-mouth, local media, and interpersonal interactions. It is essential to evaluate the efficacy of grassroots efforts in building trust.
- Singapore's protection from online falsehoods and manipulation act empowers authorities to issue correction orders to platforms and individuals found spreading falsehoods.
- Research highlights importance of digital literacy, institutional collaboration, and proactive policy frameworks. Findings provide foundation for developing robust misinformation mitigation strategies.