

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

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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

Social media platforms emerged as dominant vectors for misinformation. Thematic integration and quantitative summaries highlighted consistencies and contradictions.



- 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.