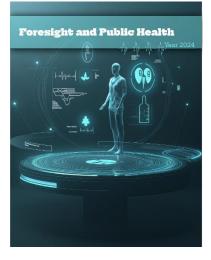
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Introduction

How Will Social Media Shape Public Health Narratives in the Next Decade? A Qualitative Scenario-Based Study

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ABSTRACT

This study explores how social media will shape public health narratives over the next decade. A qualitative scenario-based approach was employed, utilizing semi-structured interviews with 30 experts in public health communication, digital media strategy, and health policy. Participants were recruited through online announcements and professional platforms, ensuring diverse expertise. Data collection continued until theoretical saturation was reached, and the interviews were transcribed and analyzed using NVivo software. Thematic analysis was conducted to identify key themes related to social media's evolving role in public health narratives, with a focus on misinformation management, Al-driven content curation, crisis communication, and regulatory challenges. The analysis revealed that social media plays an increasingly central role in public health communication by enabling rapid crisis responses, facilitating digital health campaigns, and fostering community engagement. However, experts highlighted concerns about misinformation, algorithmic biases, and ethical AI use in digital health messaging. The study also found that interactive public health education, social listening, and citizen science are emerging trends that will shape future public health narratives. Additionally, disparities in digital access and corporate influences on health communication were identified as ongoing challenges that require strategic interventions. Participants emphasized the need for regulatory frameworks, stronger factchecking mechanisms, and inclusive digital literacy initiatives to improve public health messaging on social media. The findings suggest that while social media offers significant opportunities for advancing public health communication, it also presents risks that must be managed through improved governance, ethical AI implementation, and public engagement strategies. Future public health efforts must focus on misinformation control, AI transparency, and digital equity to ensure that social media contributes positively to global health outcomes.

Keywords: Social media, public health communication, misinformation, artificial intelligence, digital health campaigns, crisis communication, digital literacy.

The proliferation of social media has significantly transformed the landscape of public health communication, influencing the way health narratives are created, disseminated, and perceived by global audiences. Over the past decade, digital platforms have evolved into primary sources of health information, shaping public understanding, behavioral responses, and policy discourses related to public health issues. As social media continues to evolve with algorithmic advancements, artificial intelligence (AI)-driven content curation, and participatory user engagement, the next decade is expected to witness a profound shift in how public health narratives are constructed and controlled

{Masłowska, 2025 #147480}. These transformations raise critical questions about the role of social media in fostering accurate health communication, combating misinformation, and ensuring ethical engagement in public health discussions {Tasențe, 2024 #147477}. While the accessibility and immediacy of social media platforms provide unparalleled opportunities for public health organizations to reach diverse audiences, the challenges of misinformation, algorithmic biases, and digital divides remain significant concerns {Setiawan, 2024 #147464}.

One of the primary ways social media influences public health is by amplifying health campaigns, facilitating realtime crisis communication, and engaging audiences in health-related discourse. Digital platforms allow health authorities to disseminate information quickly, enabling rapid responses to emerging public health threats such as pandemics, disease outbreaks, and vaccination campaigns {Saputra, 2024 #147457}. However, social media's decentralized nature also means that misinformation and disinformation can spread rapidly, often outpacing the reach of verified scientific content {Razzano, 2024 #147465}. Studies indicate that misleading health narratives, particularly those surrounding vaccines, pandemics, and alternative medicine, have gained traction through algorithmic amplification, creating an environment where misinformation can shape public perceptions and behaviors {Putri, 2024 #147470}. The challenges of distinguishing reliable health information from misleading content have prompted calls for stronger regulation, improved digital literacy initiatives, and more proactive engagement from health organizations in the digital space {Nogueira, 2024 #147492}.

Social media has also redefined the traditional hierarchy of health communication by allowing diverse voices, including influencers, patient advocates, and independent researchers, to shape public health narratives. Unlike traditional media, where health communication was primarily controlled by government agencies and professional medical bodies, social media provides a democratized platform where individuals and organizations alike can contribute to health discussions {Ninković, 2024 #147456}. This shift has created both opportunities and challenges. On the one hand, social media enables grassroots public health movements, empowering communities to advocate for health-related causes and mobilize collective action {Ngoma, 2024 #147454}. On the other hand, the rise of digital influencers and non-expert voices has led to the spread of anecdotal evidence, conspiracy theories, and unverified health claims that can undermine public trust in scientific recommendations {Moore-Pizon, 2024 #147490}. The role of digital influencers in shaping health beliefs has been particularly evident during global health crises, where social media personalities with large followings have sometimes promoted unverified treatments or discouraged evidence-based medical interventions {Kumar, 2024 #147459}.

In the next decade, the increasing integration of AI in social media platforms is expected to further transform public health communication. AI-driven content curation, personalized health recommendations, and automated health chatbots are already influencing how individuals access and interpret health information {Johnson, 2024 #147484}. AI-based algorithms determine which health-related content appears in users' feeds, shaping their exposure to specific narratives and potentially reinforcing pre-existing beliefs through filter bubbles and echo chambers {Harwinda, 2024 #147493}. While AI has the potential to enhance the personalization of health interventions, it also raises concerns about algorithmic biases, ethical AI implementation, and the need for transparency in automated health messaging {Fruehwirth, 2024 #147471}. Research indicates that algorithmic decision-making in social media can sometimes favor engagement over accuracy, promoting sensationalist content that garners high interaction rates even if it lacks scientific credibility {Chen, 2024 #147479}. This dynamic underscores the necessity for ethical oversight and regulatory frameworks that ensure AI-driven health content aligns with public health goals rather than commercial interests {Yahaya, 2023 #147483}.

Another critical aspect of social media's impact on public health narratives is its role in crisis communication and real-time information dissemination. The COVID-19 pandemic demonstrated how digital platforms could serve as essential tools for health agencies to communicate updates, share preventative measures, and counter misinformation {Xin, 2023 #147491}. Social media allowed real-time interaction between health professionals and the public, fostering direct engagement and rapid information exchange {Xie, 2023 #147481}. However, the pandemic also highlighted vulnerabilities in digital health communication, such as the proliferation of misinformation about vaccines, the politicization of health measures, and the rapid spread of conspiracy theories {Tian, 2023 #147474}. These challenges

underscore the importance of developing more effective strategies for managing digital health crises in the future {Sjakti, 2023 #147472}.

Ethical and regulatory challenges remain central to discussions about the future of social media and public health. With increasing concerns over data privacy, misinformation, and digital divides, governments and health organizations must develop frameworks that balance the need for open communication with safeguards against harmful content {Schoultz, 2023 #147466}. Some researchers have argued that stronger collaboration between social media companies, public health agencies, and fact-checking organizations is necessary to ensure accurate health messaging {Sandhu, 2023 #147458}. Additionally, disparities in digital access remain a significant issue, with marginalized communities often facing barriers to accessing reliable online health information {Ope-Davies, 2023 #147475}. Addressing these challenges requires a multifaceted approach that includes regulatory interventions, public-private partnerships, and digital literacy campaigns aimed at fostering critical thinking skills in online health information consumption {NarlN, 2023 #147467}.

Given these complexities, this study aims to explore how social media will shape public health narratives in the next decade through a qualitative scenario-based approach.

Methods and Materials

This study employs a qualitative research design utilizing a scenario-based approach to explore how social media will shape public health narratives in the next decade. The study is structured around semi-structured interviews with experts and professionals in the fields of public health, social media communication, and digital health policy. The participants were selected based on their expertise in public health communication, digital media trends, and health policy. A total of 30 participants were recruited through online announcements and professional networking platforms, ensuring diversity in perspectives across different sectors, including academia, government agencies, healthcare organizations, and social media industry professionals. The inclusion criteria required participants to have substantial experience in public health communication or digital health strategies, with a minimum of five years of professional experience in their respective fields. The study continued until theoretical saturation was reached, meaning that no new themes or insights emerged from additional interviews.

Data collection was conducted through semi-structured interviews, allowing for in-depth exploration of experts' perspectives on how social media will shape public health narratives in the next decade. The interview questions were designed to elicit insights into emerging trends, challenges, and opportunities associated with digital public health communication. The interviews were conducted virtually using video conferencing tools, ensuring flexibility and accessibility for participants from different geographical locations. Each interview lasted between 45 and 60 minutes and was recorded with the participants' consent. Transcriptions of the recorded interviews were created for analysis.

Data analysis followed a structured qualitative approach using NVivo software to manage, code, and analyze the interview data systematically. Thematic analysis was employed to identify patterns and key themes emerging from the participants' narratives. First, an initial coding framework was developed based on preliminary readings of the transcripts, followed by iterative refinement as new insights emerged. Axial coding was used to establish relationships between themes, leading to the construction of future scenarios regarding the role of social media in public health communication. The analysis was conducted by multiple researchers to enhance credibility, and discrepancies in coding were resolved through discussion and consensus. Through this analytical process, the study identifies dominant themes and potential trajectories for public health narratives in the digital space over the next decade.

Findings and Results

The demographic analysis of the study participants revealed a diverse group of experts across various domains related to public health and digital communication. Among the 30 participants, 18 were male (60%) and 12 were female (40%), reflecting a balanced representation of gender perspectives. The age distribution indicated that 7 participants (23.3%) were between 30 and 39 years old, 14 participants (46.7%) were between 40 and 49 years old, and 9

participants (30%) were 50 years or older, suggesting that the majority had substantial professional experience. In terms of occupational background, 11 participants (36.7%) were public health professionals, 8 participants (26.7%) were digital media strategists specializing in health communication, 6 participants (20%) were health policy analysts, and 5 participants (16.6%) were social media researchers with expertise in digital trends. The educational background of participants showed that 25 individuals (83.3%) held doctoral degrees, while 5 individuals (16.7%) had master's degrees, highlighting the high level of expertise among respondents. Regarding geographical distribution, 14 participants (46.7%) were from North America, 7 participants (23.3%) were from Europe, 5 participants (16.7%) were from Asia, and 4 participants (13.3%) were from other regions, ensuring a diverse range of insights on global public health communication trends. The variation in participants' demographics provided a comprehensive understanding of how social media is shaping public health narratives from different professional, regional, and disciplinary perspectives.

Category	Subcategory	Concepts (Open Codes)
The Role of Social Media in Public Health Communication	Expansion of Digital Health Campaigns	Online health awareness, real-time crisis communication, targeted health messaging
	Influence of Influencers and Digital Advocates	Public health ambassadors, influencer credibility, audience engagement strategies, misinformation risks
	Personalization of Health Content	Al-driven health recommendations, user behavior analysis, tailored health advice, digital nudges
	Community-Based Health Movements	Grassroots health activism, patient advocacy groups, collective digital action, peer-to-peer support
	Challenges of Information Overload	Conflicting health messages, digital fatigue, filtering credible sources
Ethical and Regulatory Challenges in Public Health Narratives	Misinformation and Disinformation	Spread of false health claims, algorithmic amplification, fact-checking initiatives, counter-narratives
	Privacy and Data Security Concerns	User consent, ethical use of health data, AI-based surveillance, regulatory policies
	Digital Divide in Health Communication	Unequal access to digital health resources, literacy gaps, marginalized community engagement
	Ethical AI in Health Messaging	Algorithmic bias, transparency in AI-driven health narratives, accountability in automated health recommendations
The Future of Public Engagement Through Social Media	Interactive Public Health Education	Gamification of health awareness, virtual reality in health learning, real-time expert engagement
	Citizen Science and Crowdsourced Health Research	Public participation in research, user-generated health insights, real-world data collection
	Social Listening for Public Health Trends	Al-powered sentiment analysis, early detection of health concerns, public discourse monitoring
	Health Behavior Change Campaigns	Digital habit tracking, social incentives for health actions, community-based motivation strategies
	Trust in Digital Public Health Platforms	Credibility of government health accounts, role of traditional media in digital health, user perceptions of authenticity
The Impact of Algorithmic Trends on Public Health Narratives	AI and Automated Health Messaging	Chatbots in health support, predictive health alerts, AI-driven mental health support
	Platform Censorship and Content Moderation	Suppression of health misinformation, ethical concerns in content removal, shadow banning of controversial topics
	Viral Trends in Health Narratives	Social media health challenges, virality of health misinformation, trends shaping health perception
	Corporate Influence on Public Health Messaging	Sponsorships in health campaigns, commercial interests in health narratives, influence of pharmaceutical branding
	Real-Time Crisis Communication	Government response strategies, rapid health messaging, crisis-driven digital engagement

Table 1. The Results of Qualitative Codings

The analysis of the semi-structured interviews revealed four major themes regarding how social media will shape public health narratives in the next decade: the role of social media in public health communication, ethical and regulatory challenges in public health narratives, the future of public engagement through social media, and the impact of algorithmic trends on public health narratives. Each of these themes included multiple subcategories, reflecting diverse perspectives from participants on emerging trends, challenges, and opportunities in digital public health communication.

One of the dominant themes was the role of social media in public health communication, which encompassed five key subcategories. The expansion of digital health campaigns was frequently mentioned, with participants highlighting the increasing reliance on real-time crisis communication, targeted health messaging, and the use of social media to enhance health awareness. One participant noted, *"Social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging, and the social media has become the primary tool for public health messaging has become the primary tool for public health messaging has become the primary tool for public health messaging has become the primary tool for public health messaging has become the primary tool for public health messaging has become the primary tool for public health messaging has become the primary tool for public health messag*

particularly in times of crisis. The ability to reach millions within minutes is something traditional media cannot compete with." Another significant subcategory was the influence of influencers and digital advocates, as experts pointed out how public health ambassadors and influencers play a vital role in spreading health-related content. However, concerns about misinformation were also raised. As one interviewee stated, "Influencers can amplify important health messages, but the challenge is ensuring that they share accurate information rather than misleading content." Personalization of health content through AI-driven recommendations was another prominent subtheme, as social media platforms increasingly tailor health messages based on user behavior. Community-based health movements were also identified as a growing trend, with digital platforms enabling grassroots activism and patient advocacy. Finally, participants acknowledged the challenges of information overload, where the vast amount of online health content makes it difficult for users to distinguish credible sources from misleading information.

Ethical and regulatory challenges in public health narratives emerged as another critical theme, with four major subcategories. Misinformation and disinformation were highlighted as a primary concern, with participants discussing the rapid spread of false health claims due to algorithmic amplification. One expert stated, *"Even when public health agencies provide accurate information, misinformation spreads much faster and is often more engaging."* Privacy and data security concerns were also frequently discussed, with participants raising ethical questions regarding user consent, the use of health data by AI, and the role of regulatory policies in digital health surveillance. Another key subcategory was the digital divide in health communication, as some participants pointed out disparities in access to online health resources and gaps in digital literacy, particularly among marginalized communities. Ethical AI in health messaging was also debated, with participants emphasizing the need for transparency and accountability in AI-driven public health communication.

The future of public engagement through social media was another central theme, with five subcategories. Interactive public health education was identified as an emerging trend, where gamification, virtual reality, and realtime expert engagement are expected to make health education more accessible and engaging. One participant commented, *"We are moving towards a future where people will not just read about public health issues but will experience them through immersive digital technologies."* Another subcategory, citizen science and crowdsourced health research, was discussed in terms of how public participation in research and user-generated health insights are shaping the development of health policies. Social listening for public health trends was also highlighted, with AI-powered sentiment analysis playing a key role in monitoring emerging health concerns. One interviewee explained, *"By analyzing social media conversations, we can detect public health threats early, even before official reports come out."* Health behavior change campaigns, which leverage digital habit tracking and community-based motivation strategies, were also viewed as an effective way to encourage positive health actions. Finally, trust in digital public health platforms was emphasized, with experts debating the credibility of government health accounts and the role of traditional media in ensuring authenticity in online health narratives.

The impact of algorithmic trends on public health narratives was the fourth major theme, with five subcategories. AI and automated health messaging were frequently discussed, particularly in relation to chatbots providing mental health support and predictive health alerts. One participant observed, *"AI-driven tools are making health support more accessible, but there are still challenges in ensuring these systems are free from bias."* Platform censorship and content moderation were also debated, with some participants highlighting the need for misinformation control while others expressed concerns about the ethical implications of suppressing certain topics. Viral trends in health narratives were another important subcategory, as interviewees discussed how social media challenges and viral content shape public perceptions of health issues. Corporate influence on public health messaging was a recurring concern, with participants pointing to the role of sponsorships and commercial interests in shaping digital health discourse. Lastly, real-time crisis communication was highlighted as a crucial function of social media, with experts stressing the importance of rapid government responses and the role of digital platforms in disseminating urgent health updates.

Discussion and conclusion

The findings of this study underscore the complex and evolving role of social media in shaping public health narratives over the next decade. Through qualitative scenario-based analysis, several key themes emerged regarding the opportunities and challenges of digital health communication. Participants highlighted that social media is increasingly central to public health messaging, enabling rapid dissemination of information and fostering community engagement. However, the findings also reveal concerns about misinformation, algorithmic biases, the ethical use of AI, and disparities in digital health access. Experts emphasized the need for regulatory frameworks, public-private collaborations, and innovative digital literacy strategies to enhance the effectiveness of social media as a public health tool. These results align with existing research, demonstrating that while social media presents significant advantages for health communication, it also poses challenges that require strategic interventions {Masłowska, 2025 #147480}.

One of the most notable findings of this study was the increasing reliance on social media for public health campaigns and real-time crisis communication. Experts acknowledged that social media platforms allow health organizations to reach global audiences quickly and efficiently, particularly in times of health emergencies. This aligns with prior research indicating that during the COVID-19 pandemic, social media played a crucial role in public health messaging, providing real-time updates, promoting preventive behaviors, and facilitating interactions between health professionals and the public {Tasențe, 2024 #147477}. Studies have shown that platforms like Twitter and Facebook enabled direct engagement with audiences, allowing health agencies to counter misinformation and build public trust {Setiawan, 2024 #147464}. However, the effectiveness of these strategies was often undermined by the spread of misinformation, which sometimes gained more traction than verified health information {Saputra, 2024 #147457}.

Misinformation and disinformation were identified as significant threats to the credibility of public health messaging on social media. Participants expressed concerns about the role of influencers and algorithmic amplification in spreading unverified health claims. This finding is consistent with previous studies that highlight how misleading health narratives—especially regarding vaccines, alternative treatments, and pandemic-related measures—have been widely disseminated on social media, often influencing public perception and behavior {Razzano, 2024 #147465}. Research suggests that the decentralized nature of social media allows non-expert voices to gain prominence, sometimes even overshadowing official health agencies {Putri, 2024 #147470}. For instance, a study on health misinformation found that conspiracy theories and pseudoscientific claims often receive higher engagement than evidence-based content, largely due to the emotional and sensational nature of such narratives {Nogueira, 2024 #147492}. This reinforces the need for robust misinformation management strategies, including improved fact-checking mechanisms, collaboration between public health institutions and digital platforms, and enhanced public awareness initiatives {Ninković, 2024 #147456}.

The role of AI and algorithmic decision-making in shaping public health narratives was another key theme that emerged from the findings. Experts discussed how AI-driven recommendation systems influence the visibility of health content, potentially reinforcing echo chambers and filter bubbles. Prior research supports this observation, demonstrating that social media algorithms prioritize engagement metrics, which can inadvertently promote sensationalist health content over scientifically accurate information {Ngoma, 2024 #147454}. This issue was particularly evident during the pandemic, where AI-driven content curation led to the viral spread of misleading information {Moore-Pizon, 2024 #147490}. While AI has the potential to enhance the personalization of public health messaging, studies suggest that it must be carefully regulated to prevent the unintentional amplification of misinformation {Kumar, 2024 #147459}. Research has also highlighted concerns regarding algorithmic bias in digital health communication, with some studies arguing that AI systems may disproportionately target specific demographics, leading to disparities in information exposure {Johnson, 2024 #147484}.

Another crucial issue identified in this study was the ethical and regulatory challenges surrounding social mediabased public health communication. Experts raised concerns about data privacy, user consent, and the ethical implications of AI-generated health content. These concerns align with previous studies that have emphasized the importance of ethical AI in public health communication {Harwinda, 2024 #147493}. Research suggests that while AIdriven health tools offer numerous benefits, they also require transparency and accountability to ensure ethical implementation {Fruehwirth, 2024 #147471}. Furthermore, studies have shown that disparities in digital access exacerbate the challenges of ensuring equitable public health communication. The digital divide remains a persistent issue, with marginalized communities often having limited access to reliable online health resources {Chen, 2024 #147479}. Experts in this study echoed these concerns, emphasizing the need for inclusive digital health strategies that address disparities in access, literacy, and trust in online health content {Yahaya, 2023 #147483}.

The study also found that public engagement through social media is likely to become more interactive in the coming decade. Experts highlighted the growing role of digital tools such as gamification, virtual reality, and citizen science in enhancing health education. These findings are consistent with prior research indicating that interactive health communication strategies improve engagement and retention of public health information {Xin, 2023 #147491}. The increasing role of citizen science and crowdsourced health research was also noted, with experts emphasizing the value of public participation in shaping health policies. Research has shown that social listening and AI-powered sentiment analysis can provide valuable insights into emerging public health concerns, allowing for more responsive interventions {Xie, 2023 #147481}. These findings suggest that the future of public health communication will likely involve more participatory and technologically advanced strategies that integrate real-time user engagement {Tian, 2023 #147474}.

Finally, the study highlighted the growing influence of corporate interests in shaping digital health narratives. Experts expressed concerns about the role of commercial sponsorships and industry-driven health messaging on social media. Prior studies have shown that pharmaceutical companies, wellness brands, and private health entities increasingly use social media for targeted advertising and health promotion {Sjakti, 2023 #147472}. While this can enhance awareness of health products and services, it also raises ethical concerns regarding transparency and conflicts of interest {Schoultz, 2023 #147466}. Research has suggested that stronger regulatory oversight is needed to ensure that corporate-driven health narratives align with public health objectives rather than purely commercial interests {Sandhu, 2023 #147458}.

Despite the valuable insights generated, this study has several limitations. First, as a qualitative research study relying on expert interviews, the findings are interpretive and context-specific, limiting generalizability to broader populations. The perspectives gathered reflect the expertise of participants from diverse backgrounds, but they may not fully capture the views of all stakeholders involved in public health communication. Additionally, the study was conducted using an online interview format, which may have influenced the depth of discussions compared to in-person interactions. Finally, while the study explored future scenarios based on expert insights, predicting the long-term evolution of social media and public health narratives remains inherently uncertain due to rapid technological advancements and shifting digital behaviors.

Future research should consider expanding the scope of qualitative inquiry by incorporating a broader range of stakeholders, including policymakers, social media platform representatives, and community health workers. A mixedmethods approach combining qualitative and quantitative analyses could provide a more comprehensive understanding of social media's impact on public health narratives. Additionally, longitudinal studies examining the evolution of public health discourse on digital platforms over time could offer valuable insights into shifting trends and emerging challenges. Further research on AI-driven health communication, misinformation mitigation strategies, and regulatory frameworks for digital public health messaging is also needed to inform evidence-based policy decisions.

To maximize the benefits of social media for public health communication, practitioners should focus on developing more effective misinformation management strategies, including collaboration with fact-checking organizations and algorithmic adjustments that prioritize accuracy over engagement. Public health organizations must also invest in digital literacy initiatives to enhance the public's ability to critically evaluate health information online. Ethical AI implementation should be prioritized, ensuring that algorithmic decisions in health communication align with public health goals and do not reinforce biases. Additionally, inclusive communication strategies should be developed to address digital disparities and ensure that all populations have equitable access to reliable health information. Finally, stronger regulatory oversight of corporate-driven health narratives is necessary to prevent conflicts of interest and uphold the integrity of public health messaging in digital spaces.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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