BMC Health Services Research

RESEARCH Open Access

Tackling infectious disease outbreak and vaccination misinformation: a community-based strategy in Niger State, Nigeria

Abara Erim[1], Sunday Oko[1], Sonia Biose[1], Kemisola Agbaoye[1], Okechi Eberechukwu Nzedibe[2], Anwuli Nwankwo[1*], Patrick Gimba[3] and Vivianne Ihekweazu[1]

Abstract

Background While studies might have found misinformation to affect health decision-making, it is not solely responsible; it also plays a role. The rapid spread of misinformation undermines public trust in health systems and interventions, negatively affecting health decisions and exacerbating health crises. Nigeria Health Watch established a Health Misinformation Fellowship programme in this study to combat health misinformation through community-based approaches in Nigeria.

Methods The fellowship was conducted between August 2023 and January 2024 in Niger State, Nigeria, and combines both in-person and virtual training sessions to equip participants with the skills and knowledge needed to identify, address, and manage health misinformation. The participants were from diverse backgrounds, including media practitioners, civil society organisations, traditional and religious leaders, community leaders, and people with disabilities. The programme included practical community engagement activities and strategic collaborations with state authorities. The evaluation was conducted through pre-and post-test assessments of participants' knowledge levels.

Results Participants (25) were selected from 45 applicants; 56% were males, and the largest groups of participants were from religious organisations (28%). The pre-test assessment revealed a 31–40% score for respondents, indicating a low level of knowledge, whereas the post-test indicated an improvement, with the highest score ranging from 81 to 100%. Several rumours were identified through community listening and social media monitoring, including misconceptions about vaccines and herbal medications. TV and Radio had the highest media engagement (10,000). The proactive engagement of fellows led to effective interventions and increased awareness within the community.

Conclusions Community-based approaches were found to be effective at combating health misinformation. The programme developed a sustainable health communication model by resolving issues related to logistics, cultural considerations, and coordination efforts. Lessons learned and strategies established provided a robust framework for

*Correspondence:
Anwuli Nwankwo
anwuli@nigeriahealthwatch.com

Full list of author information is available at the end of the article

future initiatives. Continued efforts to expand the programme and build strong partnerships with learning networks and government agencies are essential for sustainable impact and achieving long-term public health goals.

Keywords Health misinformation, Public health intervention, Health communication, Health misinformation management, Community approach, Capacity building, Niger State

Background

Health misinformation has become a significant challenge, particularly during the COVID-19 pandemic. Health misinformation can lead to disastrous effects by truncating public health efforts in many ways [1]. Among the misinformation created around the COVID-19 pandemic are fallacies about the origin of the virus, fake treatments, and vaccine myths [2]. The rapid spread of misinformation has been facilitated by social media platforms, where false information can quickly reach a large audience [3]. For example, false claims about COVID- 19 treatments, such as the use of chloroquine or the idea that certain foods could prevent the virus, have been widely circulated [1, 2]. The spread of misinformation is exacerbated by its emotional and sensational nature, which tends to attract more attention than factual information [3, 4]. A study revealed that false stories spread faster and more broadly on social media than true stories, particularly when they evoke strong emotions [4]. Moreover, misinformation has become a dangerous factor in health crises, capable of inducing increased fear and panic, eroding public trust in health authorities and scientific advice recommendations, as underscored by the World Health Organization [3]. Conspiracy theories that the virus is manufactured or that vaccines are harmful have led to increased vaccine hesitancy and rejection of public health measures such as masking and social distancing. This erosion of trust makes it more challenging for health authorities to implement effective public health strategies [5].

The consequences of health misinformation are severe and multifaceted. People may engage in harmful behaviours, such as using unproven treatments or abstaining from vaccination, leading to increased morbidity and mortality [5]. Additionally, misinformation about vaccines causing infertility or altering deoxyribonucleic acid (DNA) has contributed to vaccine hesitancy, reducing vaccination rates and hindering efforts to achieve herd immunity. Recognising this threat, the World Health Organisation (WHO) declared that 'COVID-19 was not only a pandemic but also an infodemic', emphasising the dual crises of virus spread and misinformation dissemination [6].

In Nigeria, the impact of health misinformation has been particularly pronounced, affecting public perceptions and behavioural change regarding vaccination, disease prevention, and treatment [7, 8]. For instance, during the Ebola outbreak, misinformation led some individuals to use salt water as a preventive measure, highlighting the dangerous results of uncontrolled rumours. This misinformation was widespread, with claims that bathing in saltwater or drinking could prevent Ebola, which led to severe health consequences, including the death of hypertensive individuals who followed this advice [9, 10]. Such misleading information rode on social media outlets and word-of-mouth, underlining how much misinformation can spread during a crisis [11]. Similarly, the COVID-19 pandemic resulted in a surge of misinformation that retarded adherence to public health measures, worsening the spread of the virus [12]. For example, there were widespread rumours that COVID-19 was a hoax or that it could be treated by ingesting some specific food items or substances, such as chloroquine, which resulted in cases of poisoning and other health complications [13]. Additionally, conspiracy theories about the COVID-19 vaccine, such as its ability to cause infertility or that it is a population control agent, also contribute significantly to vaccine hesitancy in Nigeria [14, 15]. These false narratives were often spread by influential figures and on social media platforms, making it challenging for health authorities to counter such false information accurately [7, 16].

The persistence of misinformation has had long-term effects on public health efforts. Despite efforts by the government and health organisations to disseminate accurate information, the deep-seated mistrust in government and health institutions has made it difficult to change public perceptions and behaviours [17]. This distrust is compounded by the historical context of low government responsiveness and elite division, which makes the population more vulnerable to believing and spreading misinformation. As a result, misinformation continues to pose a significant barrier to effective disease prevention and control in Nigeria, necessitating ongoing efforts to improve health communication and build public trust [7, 18].

Recognising the critical need to manage health misinformation, Nigeria Health Watch, a not-for-profit health communication and advocacy organisation, launched the Health Misinformation Management Fellowship programme. This initiative will equip community stakeholders with knowledge and skills to effectively combat health misinformation. According to Ferrara et al. [19], health misinformation management involves several strategies, such as platform regulation, educational interventions, corrective approaches, and automated detection

and responses. Specific communities are particularly affected by misinformation, such as dense and isolated communities, which are more vulnerable due to their social structures [20]. During the COVID-19 pandemic, misinformation spread more effectively in these communities. Health and political domains are also significantly impacted, with misinformation about vaccines and treatments leading to public health crises and false information influencing elections and democratic processes [21–23]. Populations heavily reliant on social media for news are especially susceptible, as the rapid spread of misinformation creates echo chambers that reinforce pre-existing beliefs [24, 25]. This study was instigated by the ongoing challenge of infectious disease outbreaks and the upsurge of vaccine-related misinformation in the country. Despite concerted efforts to combat vaccine-preventable diseases, the spread of misinformation has contributed to vaccine hesitancy, significantly hindering the effectiveness of public health interventions [7, 8]. However, this fellowship was designed to build capacity for combating health misinformation at the grassroots level, empowering participants to identify, address, and manage misinformation within their communities.

Methods

Programme design and structure

The Health Misinformation Management Fellowship was carried out in Niger State, Nigeria. It was designed with a comprehensive and inclusive structure aimed at addressing its fellows' diverse backgrounds and needs. The programme was intentionally andragogic, focusing on education and skill development in health misinformation management. The structure of the fellowship included the following components:

- *Learner-Centred Models*: The fellowship adopted a learner-centred model, tailoring the educational experience to each participant's needs and preferences. This approach fostered active engagement and ensured that fellows took ownership of their learning journey.
- *Virtual Training*: Recognising the importance of technology, the fellowship incorporated virtual training sessions. These online modules complemented the in-person training, ensuring flexibility and accessibility for all participants.
- *Community Engagement and Advocacy*: Beyond the classroom, the fellowship adopted an action learning process, carrying out community engagement and advocacy activities. This practical application allowed fellows to implement their training in real-world scenarios, enhancing the programme's overall effectiveness.
- *Collaboration with State Health Structures*: The fellowship actively collaborated with state health authorities to ensure the training aligned with local healthcare priorities and policies. This approach enhanced the fellowship's relevance and fostered a sense of ownership among state stakeholders.

Implementation and activities

The following table below outlines the timelines for the fellowship implementation and activities (Table 1).

The fellowship, which lasted from August 2023 to January 2024 (Table, encompassed a series of strategic and well-coordinated activities, as outlined in Table 2.

Assessment of group activity

The Health Misinformation Fellowship activities were assessed based on a grouping system. It involves a comprehensive review of the detailed reports submitted by each group. The effectiveness of the fellowship was measured by the reach and impact of the activities, the quality and completeness of documentation, and the success

Table 1 Timelines of the fellowship implementation

Table 2 Strategic activity implementation

Activities	Month/Year of Implementation	Comments
Needs Assessment	August 2023	The fellowship began with a robust needs assessment to identify knowledge gaps and training needs in health misinformation management. The findings from this assessment were instrumental in shaping the fellowship framework and curriculum.
Stakeholder Engagement	September 2023	Key players from government agencies, media organisations, religious institutions, and community leaders were engaged to form strategic partnerships. This phase facilitated a holistic and impactful approach to addressing health misinformation.
Call for Application	October 2023	A call for applications was issued, followed by a meticulous screening process to select 25 participants with diverse skill sets and perspectives. The goal was to assemble a cohort capable of tackling misinformation from diverse backgrounds.
Orientation and training	November 2023	Selected fellows underwent an orientation programme to familiarise themselves with the fellowship's objectives, expectations, and structure. This was followed by specialised training sessions covering essential areas such as fact-checking, digital literacy, communication strategies, and the use of technology tools for misinformation detection.
Community engagement activities	October 2023 – January 2024	Throughout the fellowship, participants engaged in various community-based activities, including school storms, market visits, and public forums. These activities were designed to combat misinformation at its source and involved direct interaction with community members.
Continuous Group Activities	November 2023	Group activities and regular assessments fostered collaboration among fellows, promoting a dynamic exchange of ideas and strategies. Continuous monitoring ensured fellows were progressing effectively.
Graduation Ceremony	January 2024	The fellowship concluded with a graduation ceremony, celebrating the successful completion of the programme and recognising the achievements of the fellows. This event provided a platform for fellows to showcase their projects and the strategies they developed to counter misinformation.

in identifying and mitigating misinformation. This structured approach ensured the fellowship's objectives were met and provided valuable insights for future initiatives.

Assessment checklist

- Effectiveness of outreach: We assessed how practical the outreach sessions were about health misinformation management.
- Engagement Metrics: We documented and reported the outreach activities conducted by the fellows, including metrics that captured the reach and impact of these group activities.
- Quality of Documentation: The reporting templates completed by the fellows were reviewed based on key parameters. These included the presence of relevant keywords that described the nature of misinformation encountered, strategies employed in addressing it, the audience's reactions, and any challenges or lessons learned from their interventions.
- Completeness: Ensuring that the reporting template was thoroughly and accurately filled out for each activity.
- Final Group Project: Each group was mandated to develop a final team project that was then graded.

Impact measurement

- The total number of individuals in the community engaged through all activities was quantified
- Behavioural change: Gauging any reported changes in behaviour or understanding of misinformation among the target audience
- The number and types of misinformation identified during outreach
- How effectively do the teams address and correct misinformation during their activities?

Fellows selection process

Inclusion criteria

The selection process for the Fellowship was designed to ensure participants had the necessary resources, skills, and commitment to benefit fully from the programme. The qualifying questions used for screening participants included the following:

1. *Access to Technology*:
    a. The participants were required to have access to a functional laptop with internet access to participate in online training sessions and complete assignments.
    b. The participants needed a reliable Android smartphone, which is essential for communication and participation in various fellowship activities.
2. *Proficiency in Digital Tools*: Participants were asked to rate their proficiency using Zoom, Google Meet, Microsoft Teams, WhatsApp, and Telegram. This ensured the selected fellows were comfortable with the digital platforms used throughout the Fellowship.

3. *Commitment to Duration*: The participants expressed their willingness to commit to the entire 12-week duration of the fellowship programme. This commitment was crucial for ensuring consistent participation and engagement.
4. *Acceptance of Unpaid Opportunity*: The participants were informed that the Fellowship was not a paid opportunity and were asked to confirm their comfort with this arrangement. This criterion helped ensure that the participants were motivated by the learning and impact potential rather than financial gain.
5. *Geographical limitations*: The Fellowship was limited to individuals residing in Niger State to focus on local public health challenges and ensure that participants could attend in-person sessions when needed.
6. *Recommendation Letters*: The participants were required to submit recommendation letters from the leaders of their organisations or groups. This helped verify their commitment and suitability for the Fellowship.

These criteria ensured that the selected fellows were well-equipped, committed, and appropriately supported to benefit from and contribute effectively to the fellowship program.

Training

The fellows underwent intensive 3-day training using a training manual, Microsoft PowerPoint slides, and case studies. The programme covered several critical areas, which included the following:

1. Understanding what constitutes health misinformation, its types, and the significant impact it can have on public health and individual behaviours. The participants explored the mechanisms by which health misinformation spreads, mainly through social media and traditional media platforms.
2. The roles of algorithmic recommendations, echo chambers, and viral content in rapidly disseminating false information. The training emphasised the importance of identifying health misinformation, both online and offline, by recognising misleading headlines, fake news, and unverified claims.
3. Strategies to counteract misinformation effectively include engaging with communities, providing accurate information, and debunking false claims empathetically.
4. The amplification of correct health information using social media and traditional media involves crafting effective messages, engaging with media outlets, and utilising various platforms to reach diverse audiences.

Practical sessions were an essential component of the training. Through case studies and role-playing scenarios, participants addressed real-life examples of misinformation.

Data collection

Pre-test

At the commencement of the Fellowship, a pre-evaluation survey was designed and administered to capture baseline data on participants' knowledge and skills in combating health misinformation. A wide variety of stakeholders were represented among the study participants, including media representatives, community, religious, traditional, and civil society organisations, and disability groups. The survey included quantitative questions to assess participants' confidence level in managing health misinformation and qualitative open-ended questions to understand participants' motivations and expectations for the Fellowship. The survey was distributed digitally through WhatsApp to ensure accessibility and efficiency. The survey is uploaded as a Supplementary material. Participants were oriented on the purpose and importance of the survey during a brief pre-training session. This session, conducted on the morning of the first day, emphasised the need for honest responses and explained how the data would be used to tailor training and measure program effectiveness.

Post-test

At the end of the 3-day intensive training, a post-evaluation survey was administered to assess participant knowledge and skills improvement. The design of this survey mirrored the pre-evaluation survey to allow for direct comparison and evaluation of the training's effectiveness. The test distribution method remained consistent with the pre-evaluation process to ensure a seamless experience. Additionally, a fellowship graduation was held at the end of the programme, and qualitative speeches were recorded which was used to supplement study evidence.

Data analysis

Once all surveys were collected, the data underwent a thorough cleaning process to remove incomplete or duplicate responses and was analysed using an Excel spreadsheet. Key metrics included changes in knowledge and skills between the pre-and post-training surveys. Additionally, qualitative speeches from fellows and community members were recorded and utilised to complement the programme's evidence.

Table 3 Sociodemographic characteristics of the fellows

Variables	Frequency ($n = 25$)	Percentages (%)
Age range (years)		
< 30	3	12
30–49	15	60
≥ 50	7	28
Gender		
Male	14	56
Female	11	44
Marital status		
Single	3	12
Married	22	88
Educational qualifications		
No formal education	3	12
Primary education	2	8
Secondary education	2	8
Collage/university	18	72
Category of participants		
Religious Organisations	9	36
CSO	1	4
Traditional Organisations	2	8
Community groups	7	28
Media	4	16
Disability groups	2	8

Results

Sociodemographic characteristics of the fellows

After screening the 45 applicants for the fellowship programme, approximately 25 people (56%) who met the inclusion criteria were selected. The sociodemographic characteristics of the fellows are presented below (Table 3).

The pre and post-test evaluation of the training

Pre- and post-tests were used to assess participants' knowledge about managing and combating health misinformation, and as shown in Fig. 1, significant improvements were revealed.

Community engagement activities

The community engagement activities conducted by the fellows reached various categories in the state, as shown in Figs. 2, 3 and 4.

Media and social media engagement

The fellows engaged in an extensive media campaign across various platforms. These efforts provided a platform for the fellows to disseminate accurate information and address the impact of misinformation on a broader scale, amplifying their messages and extending their impact beyond direct community engagements, as shown below (Table 4).

Identifying and addressing rumours

The participants identified 35 rumours and instances of health misinformation in their communities. Dedicated effort was made to address misinformation, employing a multipronged approach that included word-of-mouth, community listening, and social media channels. This approach allowed the fellows to address misinformation at its source, ensuring a more effective intervention.

Sources of misinformation

This fellowship focused on debunking misinformation about HPV vaccination as a result of the national rollout of the vaccine and its inclusion in the routine immunisation schedule. However, rumours were identified through various sources of misinformation, as shown in Table 5. Words of mouth (34%) involved direct communication with community members during outreach activities. Rumours identified through this method include beliefs that vaccines are dangerous, HPV vaccine reduces fertility, vaccines could prevent pregnancy, herbal medication can cure HIV/AIDS, pineapple and oranges cause miscarriage at the early stage of pregnancy, and oral polio vaccine (OPV) has been replaced with HPV vaccine to reduce childbirth. Community Listening (29%)

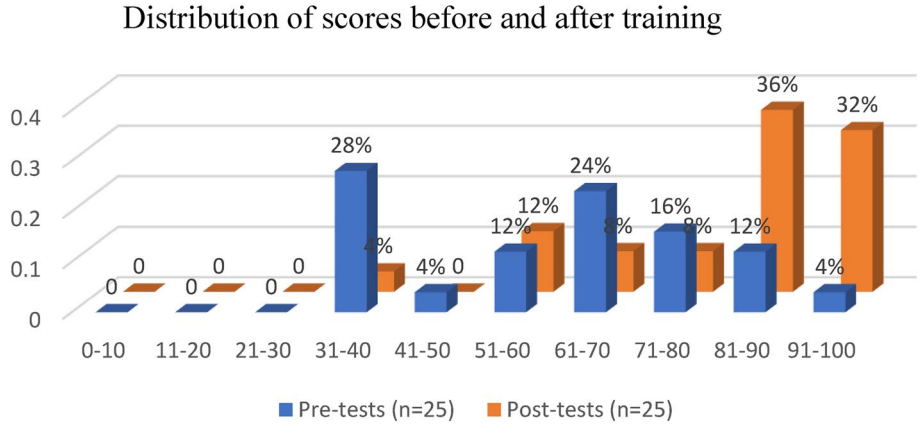

Fig. 1 Distribution of scores before and after the training

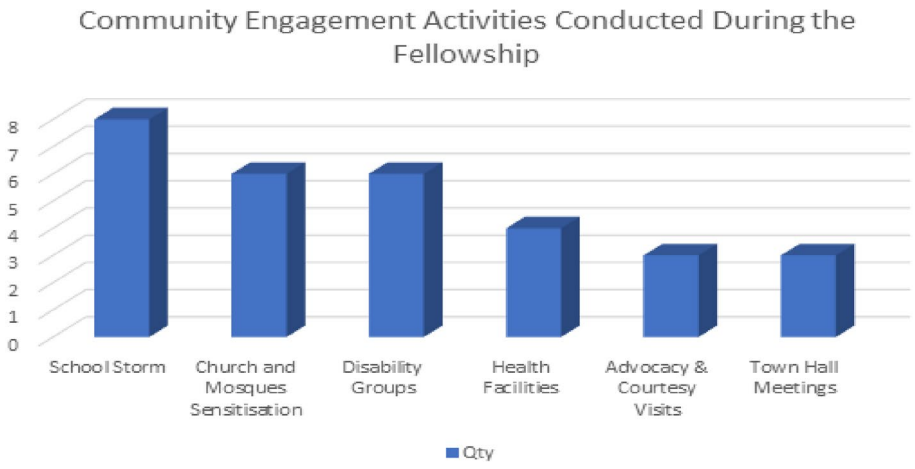

Fig. 2 Different community engagement activities conducted by the fellows during the fellowship programme

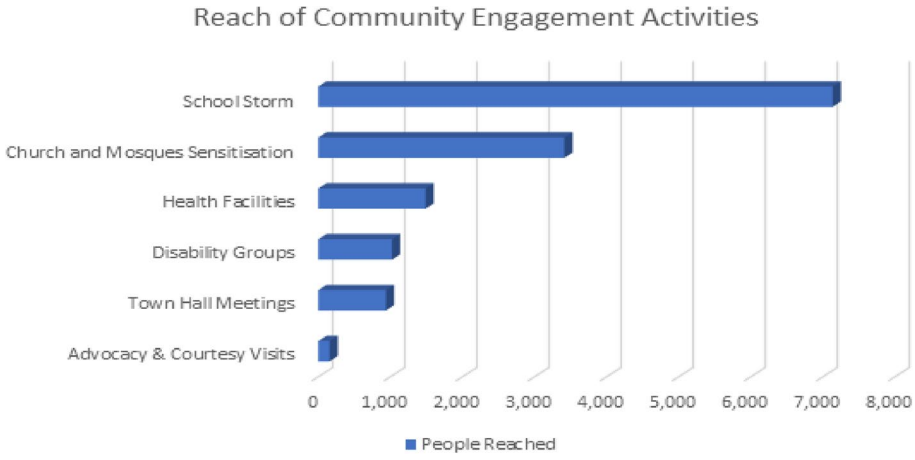

Fig. 3 Reach of community engagement activities carried out by the fellows during the fellowship programme

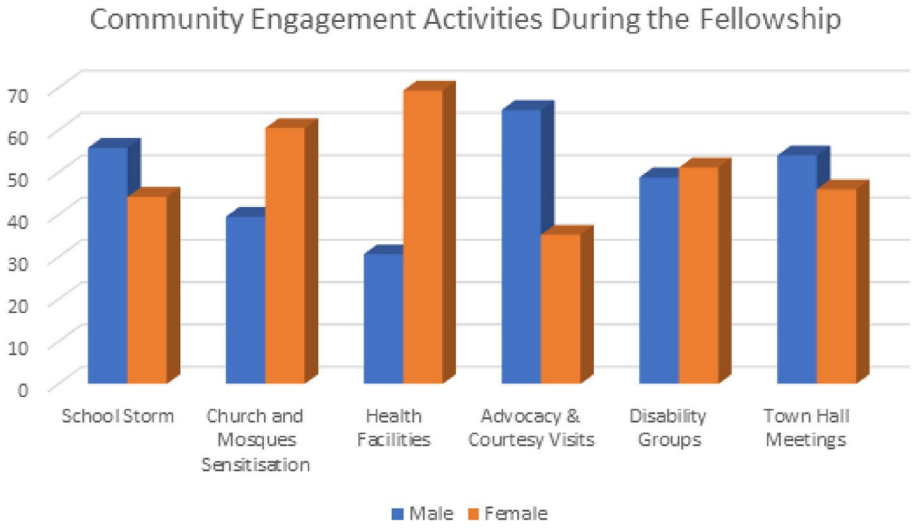

Fig. 4 Gender breakdown of people reached during the fellows' community engagement activities during the fellowship programme

Table 4 Media and social media engagement

Media engagement	Reach
Facebook	5,000
Twitter (X)	3,000
WhatsApp	1,200
TV & Radio	10,000
Total	**19,200**

Table 5 Identified sources of rumours

Sources	Number of rumours	Percentage (%)
Words of mouth	12	34
Community listening	10	29
Social media channels	13	37
Total	**35**	**100**

occurs through social media channels to gather insights and understand prevalent misinformation. This method allowed fellows to effectively capture and address rumours that circulated within the community.

Social media channels (37%) involve monitoring platforms such as WhatsApp, Facebook, and Twitter to identify and address circulating misinformation. Rumours identified on these platforms include beliefs that vaccines can darken one's teeth, vaccines can make one a flesh-eater, bleach cures cancers, and eating eggs during pregnancy may cause behavioural changes in newborns. Additionally, on X (Twitter) and Facebook, there was a rumour that the HPV vaccine was meant only for children who had been sexually assaulted.

Impact of the fellowship programme

The fellowship had an impact on the health system of Niger State, as reflected in their testimonials, which took place at the fellowship graduation ceremony.

In his welcome address, the Honorable Commissioner for Primary Health Care in Niger State emphasised the importance of accurate health information in guiding public decisions and improving health outcomes.

He noted that "*the nature of the training received by the fellows will be a pool of experts that will assist officials in the state's health sector when the need arises".*

During the certificate and award presentation, the State Disease Surveillance and Notification Officer appreciated the programme's valuable insights into effectively managing misinformation.

She observed, "*It has been an exciting and educative experience, and I would also like to appreciate every participant. On a personal note, I have gained valuable insights into effectively managing misinformation. Judging from the participants' responses during the training, they have undergone a similar enlightenment".*

In providing an overview of the fellowship, the State Epidemiologist highlighted challenges posed by technological advancements in the spread of misinformation.

He acknowledged the *"The fellowship training of Cohort 1 on Health Misinformation Management in Niger State which Nigeria Health Watch supported to be an initiative in the right direction".*

The State Health Educator described the fellowship's impact on increasing vaccine uptake and addressing misinformation about COVID-19 and HPV. The fellowship activities conducted in Niger State contributed to increased knowledge and awareness among caregivers and key stakeholders, which reportedly led to improved uptake of routine immunisation (RI) and COVID-19 services in the state.

Community impact

The fellowship's impact extended to the community, as evidenced by testimonials from various community members as reported by the fellows.

A student reported increased awareness of cervical cancer and the need for the HPV vaccine, which she shared with her family and peers.

> *"I have been enlightened about the danger of cervical cancer and the need to receive the HPV vaccine. I have also informed my parents and my siblings about the harmful effect of spreading and heeding misinformation".*

Another student found the misinformation management sessions enlightening, helping her differentiate accurate information from false claims.

> *"The misinformation management session was an eye-opener for me, as it helped me differentiate accurate information from misinformation."*

Similarly, a journalist shared how the fellowship improved his understanding of misinformation, enabling him to report more accurately and responsibly.

> *"The visit of the Misinformation Management Fellows to the Nigeria Union of Journalism (NUJ) was very impactful. It reminded us, journalists and especially me, of the need to always verify any information we get before we disseminate".*

A community leader noted the increased awareness and willingness to accept health interventions among community members following sensitisation activities by fellows. "The sensitisation has increased my awareness of health matters and my willingness to accept any government-approved policy on health care services".

A market woman expressed gratitude for the fellows' efforts in promoting vaccine acceptance and addressing

health-related rumours, underscoring the fellowship's positive impact on grassroots health communication.

> *"I appreciate Nigeria Health Watch for their kind gestures in bringing the initiative to the grassroots level".*

Regarding overall impact, Okechi Eberechukwu Nzedibe, a WHO-certified infodemic Manager, praised the fellowship's structured approach and success in combating health misinformation. During the certificate and award presentation, she highlighted the enthusiasm and self-efficacy of the fellows, which were crucial in making the fellowship a resounding success.

> *"The Niger State Health Misinformation Management Fellowship is nothing short of a tremendous success. I am impressed with the enthusiasm, drive, and self-efficacy the fellows have demonstrated to make the fellowship a resounding success".*

The collective feedback underscores the fellowship's effectiveness in addressing health misinformation in the state, with significant improvements in knowledge, community engagement, and public health outcomes.

The programme's success is reflected in the increased capacity of health professionals and the positive ripple effects across the state.

Discussion

A novel aspect of the programme was identifying and addressing specific rumours and misinformation through various channels, including word of mouth, community listening, and monitoring social media. This targeted rumour management approach presented a proactive strategy not widely reported in existing research, which often focuses on measuring misinformation prevalence rather than targeted interventions [26–29]. Furthermore, the programme's emphasis on capacity building and empowering local stakeholders to continue misinformation management aligns with sustainability principles and local ownership, which are crucial for long-term impact and scalability. The programme has laid the foundation for continued efforts to combat health misinformation by equipping community members with the necessary skills and knowledge. This resonates with the experiences of similar initiatives globally, which have demonstrated the potential of well-designed health communication programmes to improve health outcomes and foster community resilience against misinformation [30]. Overall, the health misinformation management fellowship programme in Niger State, Nigeria, aligns with global best practices and demonstrates the effectiveness of a comprehensive, community-based approach to combating health misinformation. The programme's success underscores the importance of engaging diverse stakeholders, leveraging multiple communication channels, and tailoring interventions to local contexts and needs. As the global community continues to grapple with the challenges posed by health misinformation, initiatives such as this fellowship programme serve as a model for empowering communities and fostering resilience against misinformation.

The health misinformation management fellowship programme in Niger State adopted a comprehensive approach to equip participants with the knowledge and skills to combat health misinformation effectively. The diverse group of fellows represented various age groups, educational backgrounds, and organisations, aligning with global recommendations to involve various community stakeholders in health communication initiatives [31–33]. A notable aspect of the programme was the strategic inclusion of male fellows (56%) based on the needs assessment identifying men as influential opinion leaders in the communities [31]. This gender-focused approach resonates with guidance from the World Health Organisation (WHO) and other global health bodies, emphasising the importance of engaging influential community members, including traditional and religious leaders, in health promotion efforts [34, 35]. The programme's multifaceted approach combined community engagement activities (e.g., school visits, religious gatherings, health facility engagements) and media campaigns across various platforms, reflecting global strategies emphasising community-based interventions and leveraging diverse communication channels [31]. This comprehensive approach aligns with recommendations for addressing misinformation at multiple levels and through trusted sources [36, 37].

Challenges encountered during the programme

The Health Misinformation Management Fellowship Programme faced several logistical challenges.

1. Fellows, particularly those from remote areas, experienced difficulties travelling to the training location because of poor infrastructure and long distances.
2. Limited access to reliable internet and technological devices hindered the participation of some fellows in virtual sessions.
3. Community resistance poses another significant obstacle. Initial resistance and mistrust towards the programme were evident in specific communities due to entrenched beliefs and widespread misinformation.

4. Cultural beliefs and practices conflict with disseminating accurate health information, making it challenging to change long-held misconceptions within these communities.
5. Coordination and communication among diverse stakeholders have also proven to be complex. Coordinating activities and maintaining effective communication among government agencies, community leaders, and health workers required significant effort.
6. Aligning the schedules of fellows, trainers, and community events was complex, leading to delays and the frequent need for rescheduling activities.

Strategies to address these challenges

1. *Challenges*: To address logistical challenges, the programme provided transportation support and arranged a central training location to facilitate easier access for fellows from remote areas. Ensuring that all fellows had access to necessary technological devices and reliable internet connectivity improved their participation in virtual sessions. These measures significantly enhanced the programme's logistical feasibility.
2. *Trust*: Building trust and overcoming community resistance involves engaging community leaders and influencers in endorsing and supporting the programme, thereby motivating trust within the community.
3. *Cultural sensitivity*: Incorporating cultural sensitivity training for fellows enabled them to approach communities respectfully and understand, facilitating better acceptance of the programme's messages. These strategies were crucial in addressing resistance and fostering community collaboration.
4. *Coordination and communication*: Effective coordination and communication were achieved by holding regular planning and coordination meetings with all stakeholders. They were also engaged early before programme implementation and carried along throughout. This ensured smooth communication and alignment of activities. Adopting a flexible approach to scheduling allowed for adjustments based on the availability of fellows, trainers, and community members, reducing conflicts and delays. These strategies were instrumental in maintaining the programme's momentum and ensuring its smooth execution.

Future directions

Investing in training community networks is crucial for ensuring the sustainability and scalability of health communication interventions, including misinformation management programmes. This approach empowers local communities to take ownership of the efforts, ensuring the programme's longevity and enabling its expansion to other regions. In the successful pilot phase, Nigeria Health Watch aims to expand the fellowship programme to other regions in Nigeria, leveraging lessons learned and scaling up its impact. Future cohorts will benefit from a refined curriculum and an extended network of stakeholders committed to combating health misinformation. Additionally, the programme will be broadened to include various groups and stakeholders, such as health service providers, social media influencers, creatives and bloggers, and organisational leaders. By engaging these diverse groups, the fellowship aims to create a comprehensive network of informed health communicators capable of disseminating accurate information through various channels and platforms.

Conclusion

The Health Misinformation Management Fellowship Programme by Nigeria Health Watch has significantly enhanced the capacity of community stakeholders to address health misinformation. The fellowship created a network of proactive health communicators by overcoming logistical and cultural challenges. Through a blend of training, community engagement, and strategic collaborations, it fostered the dissemination of accurate health information. Emphasising cultural sensitivity and local knowledge, the programme built trust and acceptance, ensuring long-term improvements in public health communication. Its success in Niger State highlights the potential of community-driven strategies. Expanding the programme and strengthening partnerships will sustain its impact and improve health outcomes nationwide.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12913-025-12683-z.

Supplementary Material 1.

Supplementary Material 2.

Supplementary Material 3.

Acknowledgements

The authors are grateful to the Niger State community members for their support in this fellowship.

Authors' contributions

AE, SO, SB, OEN and PG, implemented the health misinformation management fellowship study and conducted data entry. AE conducted data analysis. AE, SB, OE and SO wrote the first draft of the manuscript. AN wrote and reviewed the manuscript. VI and KA provided strategic leadership and oversight to the conceptualisation and implementation of the fellowship and approved the final manuscript.

Funding
This research was conducted as part of the project funded by Bill and Melinda Gates Foundation.

Data availability
Data is provided within the manuscript and the supplementary information file.

Declarations

Ethics approval and consent to participate
The research was conducted in accordance with the Declaration of Helsinki, approved by the National Health Research Ethics Committee of Nigeria (NHREC) with the ethics code number NHREC/01/01/2007-12/10/2023 and informed consent was obtained from all subjects.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

Author details
[1]Nigeria Health Watch, Abuja, Nigeria
[2]Department of Global Health and Health Systems, Euclid University, Bangui, Central African Republic
[3]Department of Public Health, Niger State Ministry of Secondary and Tertiary Health, Minna, Nigeria

Received: 2 September 2024 / Accepted: 1 April 2025
Published online: 08 April 2025

References

1. Yadav V, Dhadwal Y, Kanozia R, Pandey SR, Kumar A. Unravelling the web of health misinformation: exploring the characteristics, emotions, and motivations of misinformation during the COVID-19 pandemic. Asian J Public Opin Res. 2024;12(1):53–74. https://doi.org/10.15206/ajpor.2024.12.1.53.
2. Nelson T, Kagan N, Critchlow C, Hillard A, Hsu A. The danger of misinformation in the COVID-19 crisis. Mo Med. 2020;117(6):510–2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7721433/.
3. Infodemics and misinformation negatively affect people's health behaviours, new World Health Organisation review finds. World Health Organisation; 2022. pp. 1–3. https://www.who.int/europe/news/item/01-09-2022-infodemics-and-misinformation-negatively-affect-people-s-health-behaviours--new-who-review-finds.
4. Martel C, Pennycook G, Rand DG. Reliance on emotion promotes belief in fake news. Cogn Res. 2020;5(1):47. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7539247/.
5. Ferreira Caceres MM, Sosa JP, Lawrence JA, Sestacovschi C, Tidd-Johnson A, Rasool MHU, et al. The impact of misinformation on the COVID-19 pandemic. AIMSPH. 2022;9(2):262–77. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9114791/.
6. World Health Organization (WHO). Infodemics and misinformation negatively affect people's health behaviours, new WHO review finds. 2022. https://www.who.int/europe/news-room/01-09-2022-infodemics-and-misinformation-negatively-affect-people-s-health-behaviours--new-who-review-finds.
7. Wonodi C, Obi-Jeff C, Adewumi F, Keluo-Udeke SC, Gur-Arie R, Krubiner C, et al. Conspiracy theories and misinformation about COVID-19 in Nigeria: implications for vaccine demand generation communications. Vaccines. 2022;40(13):2114–21. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8830779/.
8. Sadiq M, Croucher S, Dutta D. COVID-19 vaccine hesitancy: a content analysis of Nigerian YouTube videos. Vaccines. 2023;11(6):1057. https://doi.org/10.3390/vaccines11061057.
9. Center for Democracy and Development (CDD). Health misinformation: false stories from Ebola to coronavirus. 2020. https://www.cddwestafrica.org/reports/health-misinformtion-false-stories-from-ebola-to-coronavirus/.
10. Fung ICH, Fu KW, Chan CH, Chan BSB, Cheung CN, Abraham T, et al. Social media's initial reaction to information and misinformation on Ebola, August 2014: facts and rumours. Public Health Rep. 2016;131(3):461–73. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4869079/.
11. Bali S, Stewart KA, Pate MA. Long shadow of fear in an epidemic: fearonomic effects of Ebola on the private sector in Nigeria. BMJ Glob Health. 2016;1(3):e000111. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5321397/.
12. Caceres MM, Sosa JP, Lawrence JA, Sestacovschi C, Tidd-Johnson A, Rasool MH, Gadamidi VK, Ozair S, Pandav K, Cuevas-Lou C, Parrish M. The impact of misinformation on the COVID-19 pandemic. AIMS Public Health. 2022;9(2):262. https://pmc.ncbi.nlm.nih.gov/articles/PMC9114791/.
13. Adesuyi D, Oluwarore N, Adewole N, Oladapo I, Egwuenu N. Knowledge and sources of COVID-19 information in nigeria during the COVID-19 pandemic: a case study for evaluating outbreak health communication practices in nigeria. Popul Med. 2023;5(Supplement). Available from: http://www.populationmedicine.eu/Knowledge-and-sources-of-covid-19-information-in-nigeria-during-the-covid-19-pandemic,164339,0,2.html. [cited 2024 Aug 20].
14. Lee SK, Sun J, Jang S, Connelly S. Misinformation of COVID-19 vaccines and vaccine hesitancy. Sci Rep. 2022;12(1):13681. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9366757/.
15. Old claims, new concerns: How fake news on COVID still affects attitude toward vaccination in Nigeria. The Cable; 2023. https://www.thecable.ng/old-claims-new-concerns-how-fake-news-on-covid-still-affects-attitude-toward-vaccination-in-nigeria/.
16. Building a community network for health misinformation management. Nigeria Health Watch. Nigeria Health Watch; 2024. https://articles.nigeriahealthwatch.com/building-a-community-network-for-health-misinformation-management/.
17. Matyek J, Maimoko DD, Ochai T. Curbing Health misinformation with scientific journals: a study of Nigeria's punch and tribune online newspapers. AJDDC. 2024;4(2):115–30. Available from: https://ejournal.uinsaid.ac.id/index.php/ajdc/article/view/7609. [cited 2024 Aug. 20].
18. Ferrara E, Cresci S, Luceri L. Misinformation, manipulation, and abuse on social media in the era of COVID-19. J Comput Soc Sc. 2020;3(2):271–7. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7680254/.
19. Muhammed TS, Mathew SK. The disaster of misinformation: a review of research in social media. Int J Data Sci Anal. 2022;13(4):271–85. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8853081/pdf/41060_2022_Article_311.pdf.
20. Okereke M, Ukor NA, Ngaruiya LM, Mwansa C, Alhaj SM, Ogunkola IO, Jaber HM, Isa MA, Ekpenyong A, Lucero-Prisno DE III. COVID-19 misinformation and infodemic in rural Africa. Am J Trop Med Hyg. 2020;104(2):453 https://pmc.ncbi.nlm.nih.gov/articles/PMC7866344/.
21. Swire-Thompson B, Lazer D. Public health and online misinformation: challenges and recommendations. Annu Rev Public Health. 2020;41(1):433–51. https://www.annualreviews.org/content/journals/10.1146/annurev-publhealth-040119-094127.
22. National Guard Supplemental Guard (NGSG) graduate health misinformation management fellows. Newsline; 2024. https://www.newsline.org.ng/single-post?post_id=524+NGSG+graduates+Health+Misinformation+Management+fellow.
23. Nigeria health watch partners with Niger state health ministries to tackle health misinformation. Nigeria Health Watch; 2023. https://articles.nigeriahealthwatch.com/nigeria-health-watch-partners-with-niger-state-health-ministries-to-tackle-health-misinformation/.
24. Debunking misinformation with Nigeria Health Watch's Kemisola Agbaoye. Jamlab; 2024. https://articles.nigeriahealthwatch.com/nigeria-health-watch-partners-with-niger-state-health-ministries-to-tackle-health-misinformation/.
25. Alderwick H, Hutchings A, Briggs A, Mays N. The impacts of collaboration between local health care and nonhealth care organisations and factors shaping how they work: a systematic review of reviews. BMC Public Health. 2021;21(1):753 https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-021-10630-1.
26. Countering online misinformation resource pack. United Nations Children's Fund (Unicef); 2020. https://www.unicef.org/eca/media/13636/file.
27. Kreps SE, Kriner DL. Assessing misinformation recall and accuracy perceptions: evidence from the COVID-19 pandemic. HKS Misinfo Review. 2023. Available from: https://misinforeview.hks.harvard.edu/article/assessing-misinformation-recall-and-accuracy-perceptions-evidence-from-the-covid-19-pandemic/. [cited 2024 Aug 20].
28. Lu X, Head M, Yang J, and Tariq A. An investigation of misinformation susceptibility of older adults: a persuasive perspective. SIGHCI 2022 Proceedings. 2022. p. 27. https://aisel.aisnet.org/sighci2022/27.

29. Huguet A, Kaufman JH, Melissa KA. Media habits and misinformation susceptibility of adults aged 55 years and older. 2024. https://www.rand.org/content/dam/rand/pubs/research_reports/RRA2900/RRA2909-1/RAND_RRA2909-1.pdf.
30. White V, Chiswell M, Webber E, Martin P, Piper A. What impact does participation in a communication skills training program have on health professionals' communication behaviors: findings from a qualitative study. J Canc Educ. 2023;38(5):1600–7.
31. Tembo D, Hickey G, Montenegro C, Chandler D, Nelson E, Porter K, et al. Effective engagement and involvement with community stakeholders in the production of global health research. BMJ. 2021:n178. https://www.bmj.com/content/372/bmj.n178.long.
32. Oyo-Ita A, Bosch-Capblanch X, Ross A, Oku A, Esu E, Ameh S, et al. Effects of engaging communities in decision-making and action through traditional and religious leaders on vaccination coverage in Cross River State, Nigeria: a cluster-randomised control trial. Fast PE, editor. PLoS ONE. 2021;16(4):e0248236. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8051768/.
33. Partnership with faith-based organisations, UNAIDS strategic framework. U.S Agency International Development (USAID); 2009. https://data.unaids.org/pub/report/2010/jc1786_fbo_en.pdf.
34. Stover J, Avadhanula L, Sood S. A review of strategies and levels of community engagement in strengths-based and needs-based health communication interventions. Front Public Health. 2024;12:1231827. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11035763/.
35. Acerbi A, Altay S, Mercier H. Research note: fighting misinformation or fighting for information? HKS Misinfo Review. 2022. Available from: https://misinforeview.hks.harvard.edu/?p=8514. [cited 2024 Aug 20].
36. Southwell BG, Brennen JSB, Paquin R, Boudewyns V, Zeng J. Defining and measuring scientific misinformation. ANNALS Am Acad Polit Soc Sci. 2022;700(1):98–111.
37. Van Der Meer TGLA, Hameleers M. Misinformation perceived as a bigger informational threat than negativity: a cross-country survey on challenges of the news environment. HKS Misinfo Review. 2024. Available from: https://misinforeview.hks.harvard.edu/?p=12338. [cited 2024 Aug 20].

Publisher's Note