Ianna Journal of Interdisciplinary Studies, Vol. 8, No. 2 (June 2026).

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

***IANNA JOURNAL OF INTERDISCIPLINARY STUDIES*, Vol. 8, No. 2 (June 2026).**
Journal's website: https://iannajournalofinterdisciplinarystudies.com
Article History: Received 23 December 2025; Revised, 26 March 2026; Accepted, 7 April 2026

Vaccine Scepticism in the Era of Short-Video Platforms: Political Signalling and Discourse Shifts on TikTok

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Abstract

Background: Short-video platforms serve as primary drivers of information dissemination within digital media ecosystems where public health configurations are continually developing. However, algorithmic content delivery and complex user communication patterns persist, heavily shaping how alternative health narratives circulate and profoundly influencing vaccine acceptance trends.

Objective: This study investigates vaccine-sceptic narratives on TikTok by evaluating sources, themes, trending hashtags, and unique platform features that facilitate the dissemination of public health misinformation.

Methodology: The empirical analysis utilises a dual-phased qualitative content analysis to capture fundamental operational realities. In the initial exploratory phase, a database search using designated hashtags generated a baseline sample of 200 posts from Nigerian TikTok. In the subsequent phase, a snowball sampling technique was deployed to isolate a specialised analytical sample of 100 vaccine-sceptic posts. Data were descriptively analysed to track recurring structural patterns, thematic categories, and algorithmic delivery dynamics.

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

Results: The findings indicate that vaccine-sceptic content is fundamentally absent from native, Nigerian-produced TikTok posts, with the retrieved dataset being heavily dominated by content of Western origin. Concurrently, the thematic mapping reveals a structural discourse shift from historic pandemic topics toward global vaccine conversations. Disseminators strategically construct alternative authenticity frames by highlighting the perceived health benefits of vaccine avoidance, promoting independent research tropes, and misappropriating authentic scientific data within 25% of the sampled posts. Furthermore, modern vaccine scepticism intersects closely with macro-level political events, relying on new strategic signifiers like political hashtags and exploiting platform features through trending background audio and complex linguistic evasion tactics, such as substituting sensitive keywords with symbolic codes.

Conclusion: The study concludes that algorithmic platform features and macro-political shifts function jointly in driving alternative health narratives. Structural focus on overtly medical misinformation terms yields suboptimal moderation outcomes when content is subjected to politically coded or disguised communication practices.

Unique Contribution: This research advances digital communication and public health literature by providing a contemporary empirical framework that explicitly demonstrates the evolution of post-pandemic health resistance, offering critical analytical insights into how geographical algorithm boundaries shield specific regional spaces from internal misinformation production.

Key Recommendation: It is recommended that platform trust and safety teams, public health authorities, and digital content moderation boards design strategic interventions that integrate medical fact-checking loops with political trend tracking. Additionally, algorithmic policymakers should implement targeted counter-messaging campaigns that leverage popular background music trends to enhance digital media literacy and safeguard global public health integrity.

Keywords: Vaccine, Politics, vaccine-sceptic, TikTok, information disorder, US, Nigeria

Introduction

In the post-truth era, anti-science and pseudoscientific narratives, particularly about health, circulate online. Vaccines, which have been responsible for saving 150 million lives in the last five decades (World Health Organisation et al., 2025), are some of the most targeted subjects of narratives, being the highest public health issue debunked in 2024 (International Fact-Checking Network, 2025). While health misinformation is not new, the modern society is arguably at greater risk than ever to its consequences (Council of Canadian Academies, 2023), which existing studies have shown to affect all facets of society at all levels- individual, community, societal (Spitzberg, 2025). Recent examples are seen in the outbreaks of vaccine-preventable diseases in the global north. Canada, for example, has lost its measles elimination status, while the US is witnessing the first major measles outbreak in three decades (Yousif, 2025).

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

The recent boldened spread of these narratives on social media might have been further exacerbated by recent political events, particularly the election of a new president in the United States and the subsequent appointment of a lawyer who is a vaccine critic (Fieldhouse, 2025) to head the US Department of Health and Human Services (HHS) in February 2026. The administration has lent voice to ending COVID-19 vaccine mandates as well as reviving debates around the long-debunked vaccine-autism link (CDC, 2025; Stolberg, 2025), in addition to Florida's announcement to end vaccine mandates for children (Mazzei, 2025). This political influence is a critical factor in current global antivaccine discourse as America still wields a great influence on global media and entertainment (Tandon, 2025), even in an increasingly multipolar world.

Multimedia social media platforms -YouTube shorts, Instagram reels, TikTok short videos- have increasingly become popular in the spread of antivaccine narratives, although existing studies have focused on text-based platforms (Alfred et al., 2025; Whitehead et al., 2023). Short video platforms provide an even more important platform to study, as the recent Reuters Institute Digital News Report shows the growing importance of videos as sources of information, with TikTok as the fastest-growing social and video network (Newman, 2025). The report further notes that TikTok, alongside Facebook, is the biggest threat to the circulation of misleading information, making TikTok studies critical.

Our study explores antivaccine sentiments in English on TikTok to ascertain the current circulating narratives, especially in the aftermath of the 2024 American elections. Past studies have explored antivaccine narratives on COVID-19 vaccines from the US (Lundy, 2023), in other languages – Italia (Parisi et al., 2023), COVID-19 vaccine in Filipino (Berdida et al., 2023), vaccine content in Arabic (Abdaljaleel et al., 2024; Sallam et al., 2025). The most comparable study to ours, (Lundy, 2023) was, however, focused on COVID-19 vaccines and before the 2024 US elections, hence the current study to update the evidence as well as generate insights about vaccines in general, with additional insights on the sources of the posts, given the rapidly changing landscape of vaccine misinformation in digital ecosystems.

Initially, our research interest was in leveraging TikTok algorithms to generate vaccine-sceptic narratives produced and circulating on Nigerian TikTok. However, during the preliminary data collection phase, it was quickly realised that antivaccine content produced by Nigerians does not circulate on Nigerian TikTok; we, however, continued with other procedures (see methods) to generate a final sample of vaccine-sceptic content, which did not originate from Nigeria. It was based on this that the data for the current study show a wide spread of countries, and they can be cautiously taken as content that is easily accessible to Nigerians on TikTok. This study, therefore, characterises English antivaccine content on TikTok, paying specific attention to the avenues through which these narratives spread. Specifically, the study investigates the prevalence of antivaccine narratives on TikTok, identifies coded hashtags employed for dissemination, and characterises the sources of antivaccine TikTok posts. The analysis further examines platform features and evasion tactics that facilitate the spread of these messages, alongside the dominant frames underpinning antivaccine discourse.

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

Method

This study adopts content analysis to explore antivaccine discourses in English on TikTok. The study included all antivaccine discourse types across different hashtags. Manifest content analysis, which has been used in previous comparable studies (Berdida et al., 2023; Lundy, 2023), was adopted.

A two-phased complementary approach was adopted to generate data by conducting hashtag searches on TikTok. Previous studies have adopted hashtag search to generate data on vaccine content on TikTok (Basch et al., 2021; Sallam et al., 2025). We conducted a sparse content analysis in the initial phase, which served as the foundation for generating the hashtags that were used in conducting the search for the second phase, consistent with the literature (Lundy, 2023).

Initial exploratory phase

This phase operationalises methods adopted in a previous study (Lundy, 2023) to generate a hashtag bank regarding antivaccine narratives while also evaluating the presence of antivaccine narratives in vaccine discourse on TikTok. Consequently, a search using *#vaccine* and *#antivax* was conducted in late September 2025 from Nigeria, with a subsequent manual screening of the posts to collect the top 100 as arranged by TikTok's algorithms, not necessarily by content interaction data. The first 200 posts (100 each from *#vaccine* and *#antivax*) from the initial search were analysed to determine the ratio of antivaccine narratives to neutral and pro-vaccination narratives.

The initial analysis included English content; however, we did not find antivaccine sentiments in Nigeria-originating posts. The hashtag bank for the second phase was built from posts that did not originate from Nigeria.

Algorithm training

After the initial search using a new TikTok account in Nigeria, TikTok's recommendation algorithm was leveraged to train the account with vaccine and antivaccine content for an average of 90 minutes daily for one week to ensure that recommendations of posts from subsequent search results aligned with the subject matter of study. At this point, the consideration was to generate posts produced and circulated in Nigeria. Measures were taken (ensuring not to follow and excessively engage with antivaccine content) to ensure that they are not further amplified on the platform as a result of the training.

Hashtag development- Snowball sampling

We adopted snowball sampling to develop a hashtag bank from the comments of refuters of scientifically accurate vaccine information under the antivaccine posts coded from the initial search. The top ten comments under antivaccine posts were explored, and the comments that did not agree with scientifically established facts were traced to the profiles of the posters from where their ten most popular posts were viewed to generate recurring hashtags in antivaccine posts. This enabled us to create hashtags that foster the dissemination of antivaccine narratives. Hashtags were

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

considered relevant if they overly contain claims that refute reliable vaccine information, as was adopted in a previous study (Lundy, 2023).

Beyond users (top commenters), the audio trends used in antivaccine posts, including the ones used in videos discovered from users' profiles, were explored for more hashtags (up to 50 hashtags in all), as has been used elsewhere(Lundy, 2023).

TikTok collection

A predetermined sample of 100 posts was adopted, consistent with comparable TikTok vaccine studies (Basch et al., 2021; Lundy, 2023). Hashtags identified during the exploratory phase were ranked by engagement frequency, and searches were conducted in early October 2025, sequentially beginning with the most frequently used hashtag and proceeding to the least. For each hashtag, the first 20 search results were manually reviewed, and all eligible posts were selected based on the inclusion criteria before proceeding to the next hashtag. This sequential process continued until the predetermined sample size of 100 posts was reached, ensuring systematic coverage of the most prominent antivaccine hashtags on TikTok.

For this study, vaccine-sceptic and antivaccine narratives are used interchangeably and are defined as information that speaks against vaccination and discourages people from taking it using different reasons. Information from (CDC, 2024; European Centre for Disease Prevention and Control, 2025; WHO, 2024) served as guiding authorities in determining the scientific accuracy of posts.

Coding

A code book developed using previous studies was adapted, and two coders (the first author and a public health worker who had worked on a Sabin vaccine institute-funded vaccine misinformation study in Nigeria) coded 20% of the sample to clarify definitions and ensure the reliability of the codebook. The first coding of the 20% produced a low agreement between the coders, who later met and discussed areas of discrepancies and recoded the sample, which eventually yielded a reliable intercoder agreement of 85%. The generated posts were viewed at least twice before coding, following the detailed instructions and definitions included in the codebook. The coding guide was developed deductively and inductively, using previous studies and an initial pilot analysis of posts to ensure that no meaning was lost during analysis.

Content parameters for coding

The content categories included antivaccine narrative type, sources (of the posts and in the posts), TikTok affordances that drive spread, and antivaccine theme. These categories are further defined:

Antivaccine narrative

This refers to the type of antivaccine sentiments in the post, including *misinformation* (all vaccine-opposing and scientifically inaccurate facts with or without intent, given that intent cannot be expressly deciphered from manifest content); and *conspiracy theories* (sinister plans by the establishment of public consequence that is unknown by the public).

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

Source
This category was coded using two different measures- the posters and the sources cited in the posts/videos.

Source of the post/content creators: This is the originator of the post. In this study, the classification in previous studies about vaccines on TikTok (Abdaljaleel et al., 2024; Sallam et al., 2025) is adopted, namely, self-identified healthcare professionals (HCPs), media, laypeople (including influencers). An additional category of political activists or figures was added based on the slant of the incumbent study towards antivaccine narratives.

*Sources cited/heard in the post***:** We analysed the sources cited in the post. This study adapts the classification of sources used in a previous study (Parisi et al., 2023). The sources were coded as many times as they appear for the current study, as against coding only the dominant source. The sources adopted for the study include Other social media posts, Mainstream media, Scientific institutions, Alternative healthcare professionals, Non-scientific institutions, Unspecified source of information, No mention of information source, Personal anecdote, or anecdote from associates/family (see supplementary material for definitions).

Platform affordances and evasion tactics that drive spread
This is about the TikTok functionalities used in disseminating antivaccine content on TikTok to gain wider reach. Platform features adopted for spread as well as evasion tactics have been adapted from a previous study (see (Lundy, 2023) with additions based on an initial pilot analysis. Platform features included stitch spread, duet, reply to comments, audio trend (speech), audio trend (music), other social media, news, talk shows, original misinformation. Evasion tactics included Lexical variation (misspellings, disguised language, and the use of emojis) and lip-syncing. Added categories included links to other misinformation posts, interpreting other languages, No affordance used, and traditional media insert (see supplementary material for definitions).

Antivaccine topics on TikTok
This refers to the antivaccination issues raised in the posts. We also coded multiple items per post here, as many posts covered multiple topics. The categories mirror those of a previous study (Lundy, 2023), and they include- Alt health/herbal, Plandemic, Vaccine content, Experiment with vaccines, Disease not dangerous, Harmful to children, Government conspiracy, Vaccine side effects, Global reset or new world order (see supplementary material for definitions). For this study, we included two new categories- Immunity without vaccines and need for knowledge acquisition about vaccines- based on our pilot analysis.

Data analysis
Generated data was quantitatively analysed (with an unstructured qualitative analysis) using descriptive statistics on SPSS version 31.

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

Inclusion criteria

The inclusion criteria for the study are TikToks in English, publicly available content, less than 10 minutes, and human vaccine related. The thematic area -vaccines- has been left broad without specifying a specific vaccine to generate data about different vaccines, seeing that existing studies have dwelt on COVID vaccines.

Ethical consideration

The study was approved by the ethical committee (Comité de Ética de Investigación- CEI) of the Universidad Carlos III de Madrid as part of a broader National Health Communication project with reference number: CEI-25-02-COMSALUD. Additionally, we ensured that only public posts were included in the sample.

Results

Preliminary phase

Out of the 100 results from the #*vaccine* search, there were 89 pro-vaccine content, eight neutral, and three antivaccine posts, while there were 66 pro-vaccine, 19 neutral, and 15 antivaccine posts from the #*antivax* search. However, there was a relative absence of Nigerian-produced vaccine-sceptic content on TikTok, which makes the final sample skewed away from Nigerian-produced to a more Western sample.

Our sample shows different hashtags used in the dissemination of antivaccine messages on TikToks and reveals the continued use of similar hashtags in previous studies, which reveals that the algorithms have been slow in catching up with trends in vaccine disinformation dissemination. Additionally, new hashtags such as #rfk, #rfkjr, and #maha also mirror the recent political landscape in the US, which is the country with the most TikTok users (Statista, 2025). The hashtags generated from our exploratory analysis are shown in Table 1 below**.**

Table 1: Hashtags used in disseminating vaccine-sceptic narratives

#5g	#maha	#Modernavaccine	#sids
#autism	#mindcontrol	#hpvvaccine	#antivaxxer
#awakening	#nontoxicmom	#shots	#jibbyjab
#billgates	#nopoke	#vaccinechoice	#jabs
#dontcoparentwithgovernment	#pureblood	#empoweredparents	#thejab
#enlightenment	#rhnegative	#vaccinedebate	#vaccinefree
#freedom	#saynotoglobalists	#informedparenting	#rfk
#holisticParenting	#vaxfacts	#antivaccine	#rfkjr
#itsnotabouthealth	#wakeup	#vaccinerisks	#sahm
#naturalparenting	#covidvaccinecard	#vaccinemandate	#chemtrails
#protectourchildren	#stayathomemom	#unvaccinated	#jab
#suddeninfantdeathsyndrome	#informedchoices	#vaxfree	#truth
#momempowerment		#crunchymom	

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

Main phase

Description of sample

From our final sample of 100 TikTok posts, most of the posts (43%) were 2025 posts, signifying that posts from 2025 are trending and this might have been due to the recent reinforcement of antivaccine narratives by politicians' statements or that TikTok moderation has been able to take down offensive posts from earlier years. However, if this is the case, how come were there more posts from 2022 among the other years covered? Additionally, our sample showed a gradual departure from emphasis on COVID-19 vaccines to general vaccine conversations with an emphasis on childhood vaccines. Figure 1 below shows the details.

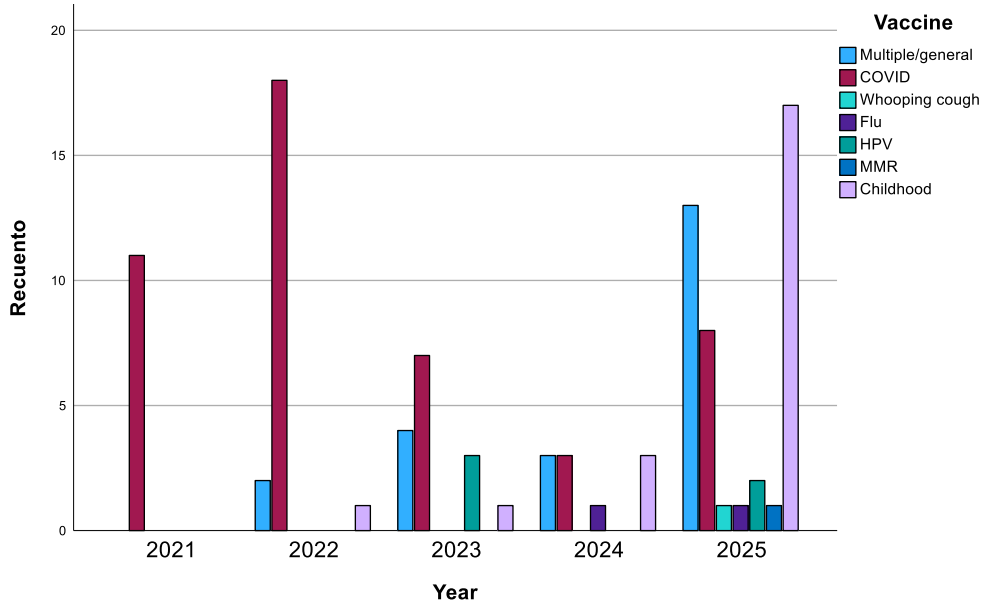

Figure 1: Distribution of the different vaccine types per year

Antivaccine narrative type

Antivaccine narrative types in our sample were predominantly misinformation (70%), with conspiracy theories being 30% of posts.

Sources of posts

Lay people (81%) predominantly shared antivaccine content on TikTok with activists (12) who feel the need to *fight* for the masses, being more prominent than the remaining categories of posters- HCP (4) and legacy media (3).

The voices heard and cited in the posts were those of family members or personal stories, further making the content more convincing, as narratives have been seen to increase the persuasion potency of messages. As shown in Figure 2, we also observed the significant mention of the scientific institutions, studies, or scientists (25 posts) showing elements of pseudo-scientific antivaccine content on TikTok, where legitimate scientific materials or illegitimate scientific materials are cited to mimic science to drive circulation. One post interviewed Dr Paul Thomas, a

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

co-author of a since-retracted study claiming better health outcomes for unvaccinated than vaccinated children — lending the post an air of scientific legitimacy despite the study's retraction and Dr Thomas's subsequent loss of his medical licence.

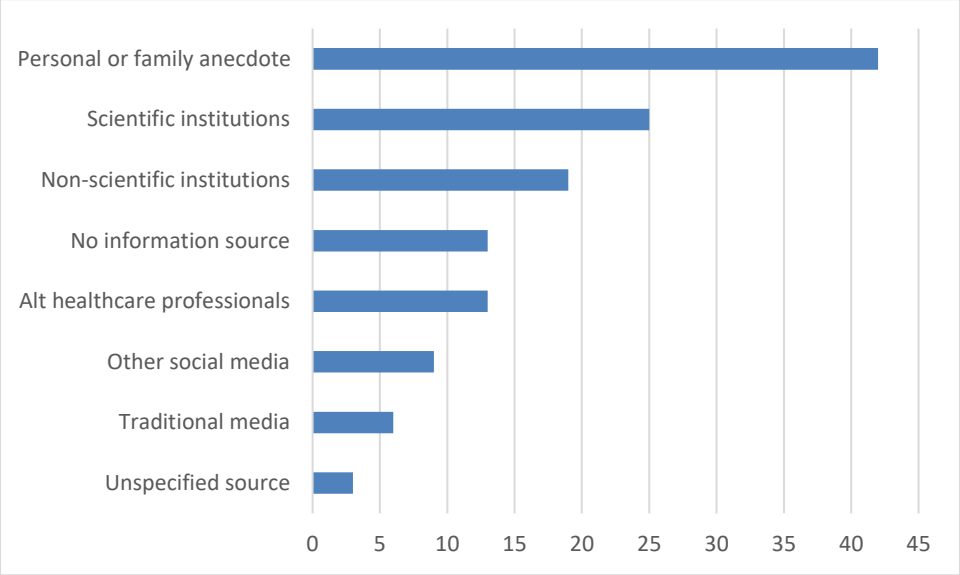

Figure 2: Sources cited in vaccine-sceptic TikTok posts

Platform affordances

Findings in Figure 3 below suggest a continued use of platform affordances and evasion tactics to disseminate antivaccine content on TikTok, where audio music trends were observed in 35 posts, and lexical variation in 30 posts.

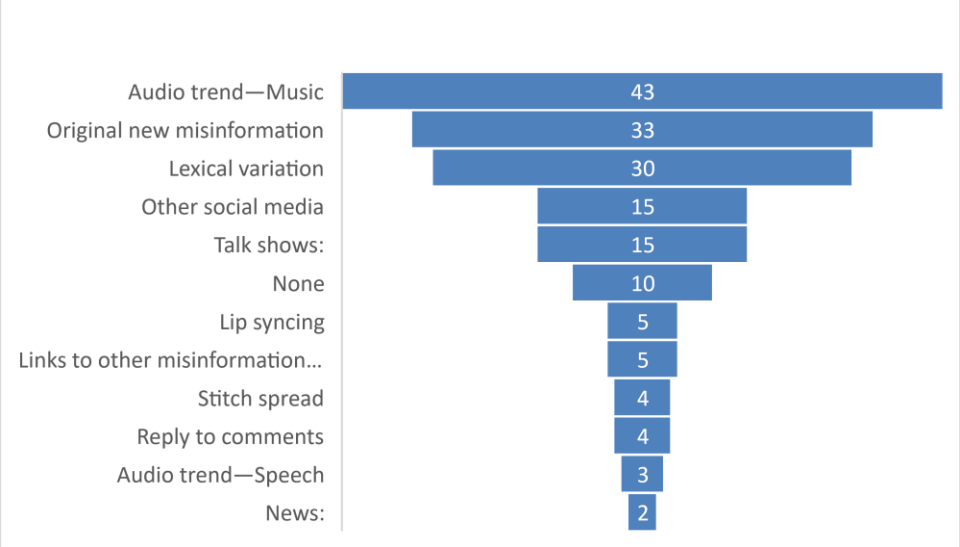

Figure 3: Platform affordances used in disseminating vaccine-sceptic messages

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

Topics in vaccine-sceptic posts

While there were significant concerns about the side effects of vaccines, vaccine content, and government conspiracy theories, our findings suggest an increasing prominence of other older antivaccine narratives, relatively new in the post-pandemic era. In Figure 4, the framing of issues around "conducting your research to gain freedom from mandates" and the testimonies of "unvaccinated, yet healthy" were the most dominant in our sample, signifying a changing landscape in the narratives presented by antivaccine content spreaders, further enacting a pseudoscientific stance. These emerging topics were additions to those adapted from (Lundy, 2023) due to their prominence.

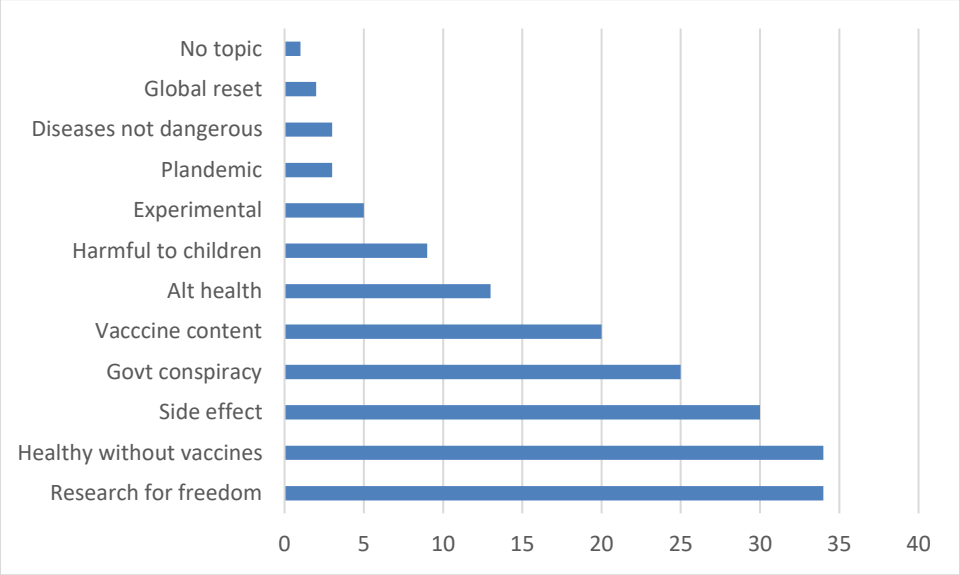

Figure 4: Antivaccine topics on TikTok

Discussion

Our study provides insights from one of the first characterisations of English antivaccine content on TikTok that focuses on general vaccine discourse, rather than solely on COVID-19 vaccines. We characterised novel avenues and narratives employed in disseminating antivaccine messages. Our results suggest that antivaccine sentiments on Nigerian TikTok are not primarily Nigeria-originated, but Western-originated. Our findings reveal that laypeople predominantly share antivaccine content through a variety of strategic tactics. A key feature of this content is the perpetuation of pseudoscience, as a significant percentage of posts cite scientific sources, intending to make the messages appear "science-backed". This narrative strategy is coupled with a gradually changing thematic landscape, demonstrating a shift away from the dominance of COVID-19 vaccine scepticism towards general vaccine conversations and childhood vaccinations. The discourse is increasingly framed around new themes, including testimonies of being "unvaccinated, yet healthy" and more usual calls to "do your research" for freedom and empowerment. Moreover, the results highlight a link between vaccine scepticism and the political realm, revealing the use of new coded hashtags (#rfk, #rfkjr, #maha) that mirror the recent political landscape in the US. These findings underscore the influence that political landscapes can have on

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

public health discourses on social media and emphasise the need for platforms to continuously update algorithms to detect vaccine-related misinformation, especially considering the use of complex evasion tactics like disguised language and the leveraging of music trends to drive spread. This discussion section further situates these results in the literature, discussing their implications for public health messaging, science communication literacy, and platform governance.

Exploratory phase

Vaccine-sceptic narratives are absent on Nigerian TikTok

Our exploratory phase, among others, showed Nigerian TikTok to be saturated with pro-vaccine messages, with antivaccine content largely absent from initial searches, with the predominant representation in antivaccine search results being Western in origin. Given that TikTok's location algorithm drives content visibility (Boeker & Urman, 2022) and that the search was conducted on a new account without Nigerian engagement history, this pattern may reflect several intersecting factors: the documented inequality in health content visibility between developed and underdeveloped regions in TikTok's algorithmic architecture (Li & Shi, 2025), the comparatively higher organisation of Western antivaccine communities whose content has been shown to dominate even local digital spaces in other African contexts such as South Africa on Facebook (Connoway et al., 2022), and the possible absence of local antivaccine content indexed under English-language antivaccine hashtags. How these factors interact to shape Nigerian users' exposure to Western antivaccine narratives, their potential influence on trust in local health authorities remains a critical question beyond the scope of this study, but one that future studies, including algorithmic audit using sock puppet accounts, data donation methods, and institutional trust surveys, would be well-positioned to address.

While the lack of antivaccine content from the initial search is a welcome development that should be sustained, it raises a further question of ‘where and how does antivaccine content spread in Nigeria?’ This is because vaccine misinformation is not absent in Africa where poor socio-economic factors are dominant, leading to a lack of trust in government (Njoga et al., 2022), which implies that vaccine misinformation spreads, but might not be through TikTok. Hence, the need to further explore the avenues through which vaccine misinformation spreads in Nigeria, which may most likely be through closed groups, associations, and face-to-face media. The lack of such public expression of vaccine scepticism could also be linked to a broader dynamic in which fundamental rights conditions shape the circulation of health misinformation in ways that platform-focused research cannot fully capture, which future survey studies can explore.

Coded hashtags remain relevant in disseminating vaccine-sceptic messages

Although outright antivaccination hashtags are used in disseminating vaccine-sceptic messages, spreaders continue to hide under coded hashtags to circulate such messages. A previous study (Lundy, 2023) has highlighted hashtags used to disseminate such information; however, our study reveals new insights as to how political events shape the propagation of scepticism about vaccines on TikTok. RFK, RFKJr, as well as MAHA (Make America Healthy Again) are linked to the current US administration and further buttress this link, which might have also further boldened users to spread antivaccine narratives. Notably, these hashtags were absent from Lundy's (2023)

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

comparable study of antivaccine TikTok content, suggesting their emergence reflects a distinctly post-2024 political dynamic rather than a pre-existing feature of antivaccine discourse on the platform, even though Robert Francis Kennedy Jr (RFKJr) has been noted previously to be a vaccine sceptic (Fieldhouse, 2025). The appointment of RFKJr to lead the American HHS led to various vaccine policy shifts through updated vaccine recommendations, which might have been linked to the increased antivaccine discourses on TikTok in 2025. Additionally, the planned removal of vaccine mandates in Florida announced in September 2025 further amplified the political dimension of this spread.

Other hashtags with coded themes pointed to natural and empowered parenting, signalling a desire for 'freedom' and the continuous call for people to 'wake up' from their slumber. The use of these coded hashtags further makes it difficult for the platform algorithms to track such messages, raising the need for continuous updates of these hashtags through similar studies to enable platform administrators to update algorithms that are tailored to emerging changes in tactics by spreaders.
Although our study design did not incorporate how these coded hashtags are used in different online communities, the findings align with antivaccine literature where political and other coded hashtags are employed to circulate antivaccine narratives online (Lundy, 2023), usually through dog whistling (coded expressions that hold different meanings to the general audience and a narrower audience), which performs a dual function- alerting a narrow group through codes to evade both political repercussions and algorithmic content moderation (Mendelsohn et al., 2023). This holds significant implications for platform governance as the findings suggest that moderation strategies focused narrowly on overtly medical misinformation terms will miss politically coded antivaccine content, suggesting that effective intervention requires coordination between health misinformation and political content moderation.

Antivaccine discourses gradually move from COVID-19 vaccines

The findings indicate a temporal shift in TikTok Antivaccine discourse from overwhelmingly COVID-19-specific content in earlier years to a more dispersed pattern by 2025, with childhood vaccinations becoming particularly prominent. While this aligns with the COVID-19 vaccine belief spillover hypothesis — where pandemic-era sentiments translate to broader vaccine opposition (Lunz Trujillo et al., 2024) — it also mirrors pre-pandemic antivaccine discourse patterns on social media, where general and childhood vaccines dominated (Wawrzuta et al., 2021). This suggests that TikTok is reflecting and amplifying a pre-existing antivaccine ideological repertoire rather than generating novel sentiment, implying that intervention efforts should address deep-rooted ideological concerns about childhood vaccines alongside newer narrative frames discussed in subsequent sections.

The increased prominence of vaccine-sceptic content in 2025 compared to previous years is likely driven by a combination of platform, political, and contextual factors. Platform-level dynamics, including TikTok's evolving moderation practices may have reshaped the visibility and amplification of vaccine-related content over time. However, political factors appear especially influential. While existing studies have linked political ideologies to vaccine-scepticism (Clarkson & Jasper, 2022), studies after the 2024 American election have described how recent high-profile political actors and events can shape vaccine policy and (mis)information in the US, and across

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

the world (Greer et al., 2025; Sharfstein et al., 2025), and our study reflects this pattern. In this context, the amplification of remarks by figures such as RFK Jr—evidenced by the prominence of related hashtags—suggests that political signalling played a key role in expanding vaccine-sceptic narratives in 2025 on TikTok. This discourse was further fuelled by contentious political and institutional developments, including new vaccine recommendations, vaccine advisory committees (Greer et al., 2025), state-level announcements to roll back vaccine mandates (Mazzei, 2025), and renewed attention to alleged vaccine–autism links (Stolberg, 2025).

This shift is significant because it suggests that vaccine scepticism on TikTok is increasingly shaped by political discourse. As discourse moves from COVID-19 vaccines to vaccines more broadly, political actors and policy debates appear to play a growing role in sustaining and legitimising these narratives.

Personal narratives and pseudoscientific content disseminate vaccine misinformation

On TikTok, misinformation spread as personal narratives largely dominate the vaccine-sceptic discourse. Scientifically inaccurate messages are spread by laypeople who tell stories or share personal information on TikTok, further confirming that health misinformation spreads significantly as emotional narratives and personal stories (Rodrigues et al., 2024). Given that narratives are seen as having potential for spreading misinformation, they could also be adopted in future interventions to disseminate positive and scientifically accurate messages online. If narratives of personal events or a close relative support the spread of vaccine misinformation, how better can it be employed to disseminate positive vaccine stories or vaccine success stories?

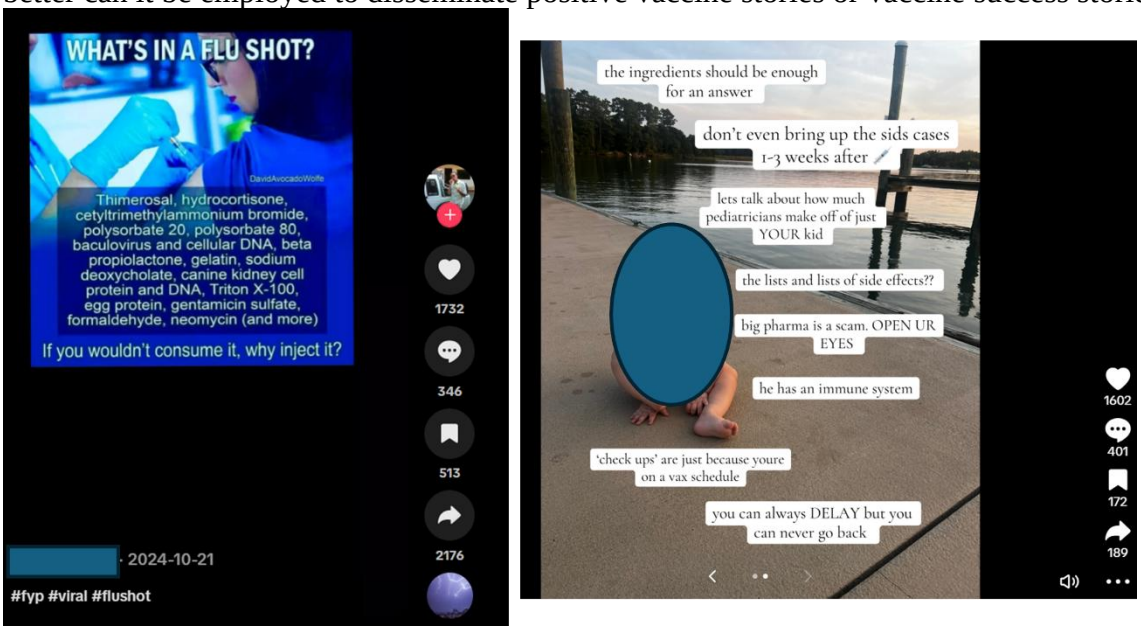

Figure 5: Examples of arguments presented vaccine-sceptic discourse on TikTok

Although personal narratives are used more in our sample, scientific sources were cited in a significant percentage of our sample. This might have been with a goal to make it look scientific to boost persuasive ability, just as the source credibility theory emphasises the relevance of sources

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

in driving persuasion (Hovland & Weiss, 1952). This pattern has been noticed in broader antivaccine literature where sources are cited to legitimise claims by citing fake experts or selecting (cherry-picking) evidence out of context (Di Domenico et al., 2022; WHO Regional Office for Europe, 2017). In the example cited earlier in the results section from our sample, despite the study's retraction and Dr Thomas's loss of medical licence, his credentials as a physician and researcher were mobilised to confer scientific legitimacy on antivaccine claims. This further suggests that spreaders do not only present information, but actively construct an appearance of epistemic authority, leveraging TikTok's immersive full-screen interface, which minimises contextual cues and external references, thereby increasing the likelihood of content being accepted as credible — consistent with the trust paradox in the social media age (Ienca et al., 2026).

The quest to make the messages appear 'science-backed' further opens a pathway that raises the question of how interventions can incorporate aspects of science communication literacy that teach how to decipher *science-appearing* messages from real science. Further studies can explore measures to mirror this into pilot interventions among young people given that media literacy at an early age is plausible for better outcomes (Sandoval et al., 2025). This finding also calls for a shift from basic media literacy to ensuring that media literacy interventions cover areas such as science media literacy. These literacy interventions are better adapted into short video formats through prebunking or attitudinal inoculation using experts, which have shown significant potential in improving fact-checking and vaccine-promoting intentions among people on TikTok (Li et al., 2025). Since prebunking derives its effectiveness from pre-emptively exposing audiences to the rhetorical techniques used in misinformation, the narrative and affordance patterns documented in our study provide applicable evidence for designing platform-native prebunking interventions.

Changing landscape of prominent antivaccine topics since the pandemic

Although the issues of government conspiracies and vaccine side effects were a bit prominent, our sample reveals evolved framings of existing antivaccine narratives, such as issues around personal freedom, are further linked to a call for users to 'do their own research' and natural immunity linked to 'healthy without vaccines' were dominant frames given to the antivaccine discourse on TikTok. These framings, though not new, are shifting the landscape from government conspiracies and side effects in the pandemic era (Lundy, 2023), to existing patterns in the post-pandemic era. This emerging shift further buttresses the dynamism of the changing landscape as discussed earlier, where conversations are shifting from COVID-19 vaccines to childhood and generic vaccines. This shift, however, emphasises the need to go beyond cognitive interventions (such as media literacy, inoculation, fact-checking), which, though, reduce belief in false information, can increase scepticism about true information (Pfänder & Altay, 2025). The call to 'do your research' already comes with the presumption of ignorance that undermines agency, and the need to be liberated by knowledge. While this is not new in vaccine misinformation literature, its re-emerging prominence is worrying and calls for intermittent updates of media literacy intervention modules since it can be used to activate affordances to favour the circulation of misinformation (Tripodi et al., 2024).

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

A similar development is also observed in the other framing, which highlights children and adults 'being healthy' or, in some instances, 'healthier' without the vaccines. With personal narratives being the best way through which people believe misinformation (Rodrigues et al., 2023), the continued spread of these antivaccine 'success stories' portends further disbelief among the platform users if relevant interventions are not implemented.

Affordances are exploited to drive circulation

Social media technology affordances have been shown to influence the spread of false messages on social media; the platforms, hence, are critical elements in the dissemination and amplification of misinformation (Tripodi et al., 2024). Regarding affordances, our findings show that vaccine misinformation is spread most by the *music audio trends* feature of TikTok with lexical variation as the most prevalent evasion tactic. Spreaders of vaccine misinformation jump on music trends to spread vaccine-sceptic messages and given that music has an emotional connection to users, it provides an avenue for continued spread on the platform. Our findings not only further confirm how platform affordances enable misinformation sharing (Wu et al., 2025), but also show how the complex mix of the affordance theory (platform) and flow theory (affective involvement-music) (Wu et al., 2025) drive vaccine-sceptic content on TikTok. If the audio affordance can constitute a part of the problem, it can also be seen as part of the solution, audio- music has been previously found to be effective in combating health misinformation on TikTok (Li et al., 2024). Hence, prebunking and debunking videos as earlier suggested can also use music, particularly high tempo music to drive the circulation of counter-messages or literacy videos on TikTok, leveraging platform affordance to drive circulation of vaccine-promoting content on the platform and not depending on moderation efforts alone.

Previous studies have shown how users try to beat misinformation-detection algorithms on social media by varying the spellings of 'flaggable' words such as *vaccines* in our context (Lundy, 2023; Moran et al., 2022). While this is not generally new, platforms ought to have tools that also flag and detect some of these variations, which include v*ccines, vaceenes, Big C (COVID-19), jabbyjab. Even though these were present, we noticed a more complex use of variations, which would require a more complex approach that captures the contextual meaning of the statements. For example, our sample showed the use of *Big C* for COVID-19, the *syringe symbol* in place of vaccines, *the Schmovitvh machine for the* COVID vaccine, *Juice* for vaccines, *experimental drug* and *drug* for vaccines. These findings highlight a need for platform administrators to design complex algorithmic interventions that not only detect specific words but also identify the context of discourse.

Limitations and future studies

This study comes with some limitations that readers should bear in mind while interpreting and using the findings, which also create room for further exploration. First, the sample of 300 TikTok videos (200 in the exploratory phase and 100 in the main phase) may not fully represent the breadth of the content on the platform, limiting the generalisability of the findings. However, the sample size is consistent with prior studies using manual content analysis on TikTok, which have relied on similarly sized datasets to examine vaccine-related content (Basch et al., 2021; Lundy, 2023),

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

supporting its adequacy for the purposes of this study. Second, conducting the searches in English might have hindered insights from other languages. Further studies could make comparisons between content in English and other languages.

Additionally, manual generation and coding of TikTok video content is prone to human limitations in the coding of the sample, making it susceptible to human errors. Further studies can transcribe videos and explore the use of natural language processing to minimise human errors. Similarly, this study did not conduct a detailed multimodal discourse analysis of the specific visual elements and audio trends used in spreading antivaccine narratives, nor did the data collection protocol systematically capture the in-post hashtags associated with each retrieved post. These omissions may have limited some of the practical insights generated, particularly regarding the intersection of political signalling and health misinformation. Future studies should methodologically factor in the systematic collection of in-post hashtag metadata at the point of data collection, alongside a dedicated analysis of specific audio and visual elements, to generate a more granular understanding of how these platform features function as vehicles for antivaccine narratives. Even though these limitations exist, the study followed standard protocols to address them and generated critical insights relevant to vaccine information disorder discourse on social media.

Conclusion

Our study showed critical insights from the characterisation of vaccine-sceptic content on TikTok and revealed that there is a gradual shift in the framing of antivaccine narratives as people are increasingly concerned about *gaining more knowledge* to promote the removal of vaccine mandates and showing that they are healthy without vaccines. Additionally, vaccine-sceptic narratives are on the rise on TikTok partly due to recent political events in the US, and they spread more as misinformation that narrates either personal stories and/or cites scientific sources while leaning into platform features, particularly music trends. This shows that moderation mechanisms focusing on only health-related terms or content might not be adequate seeing the interplay between political-related hashtags and antivaccine discourse and the use of general music trends in the analysed posts. In a different development, Nigerian-produced vaccine-sceptic content does not circulate on TikTok in Nigeria, creating an avenue for further exploration of how these narratives spread in the country.

Acknowledgements: The authors wish to acknowledge Sharon Uzoma for her support in coding a percentage of the generated posts for reliability analysis.

Declarations

AI Use Statement: The authors declare the use of Artificial Intelligence tools (ChatGPT-5.5 and Claude Sonnet 4.6) for grammatical and text refinement in the production of this manuscript. After using these tools, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.20391957

Data Availability Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.
Funding Statement: This study was supported by funding from the Ministerio de Ciencia, Innovación, y Universidades of Spain for the National Health Communication project under reference number 2023/00427/001.
Conflict of Interest: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.
Ethical Approval: The study was approved by the ethical committee (Comité de Ética de Investigación- CEI) of the Universidad Carlos III de Madrid as part of a broader National Health Communication project with reference number: CEI-25-02-COMSALUD. Although the study did not formally require ethical approval, ethical clearance was nevertheless obtained to ensure rigorous ethical compliance and oversight throughout the research process.
Authors' Contributions: OGA conceived and designed the study, performed the data collection, and analysed the data; CEP and DCM reviewed, edited, and critically revised the manuscript for intellectual content. All authors have read and agreed to the published version

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