Social Science & Medicine xxx (xxxx) xxx

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Attributing public ignorance in vaccination narratives

Samantha Vanderslott [a,b], Luisa Enria [c,*], Alex Bowmer [c], Abass Kamara [d], Shelley Lees [c]

[a] Oxford Vaccine Group, Department of Paediatrics, University of Oxford, Oxford, Oxfordshire, UK
[b] NIHR Oxford Biomedical Research Centre, Oxford, Oxfordshire, UK
[c] Department for Global Health Development, London School of Hygiene and Tropical Medicine (LSHTM), UK
[d] Kambia District Health Management Team, Sierra Leone Ministry of Health & Sanitation, Sierra Leone

ARTICLE INFO

Keywords:
Vaccination
Outbreaks
Sierra Leone
India
Uganda
Ignorance

ABSTRACT

The notion of an 'ignorant public' is attributed in outbreak scenarios through vaccination narratives that are institutionally reinforced by governments and the media across different contexts. The ignorant public narrative is a discursive shift that reduces public concerns about vaccines to a lack of knowledge, obscuring how these concerns are indicative of mistrust and anxiety or efforts to counter the dominance of acceptable and legitimate knowledge. This narrative risks a deflection of challenges in the structural determinants of vaccine uptake and depoliticise rumours and mistrust that arise during vaccination campaigns. Examples from Sierra Leone, Uganda, and India show how 'ignorant public' framings are used as explanation for vaccine hesitancy through assigned roles for institutions and publics, and the consequences this narrative has for vaccination encounters. These examples are based on ethnographic fieldwork and media analysis carried out before, during, and after outbreaks, of newly introduced vaccines for both human and animal health. Drawing on science communication and development studies, we show how this narrative then positions governmental concern about vaccine hesitancy as being a (largely) imagined issue of public ignorance. We argue that when institutions tasked with strengthening vaccine uptake see public ignorance as the key problem, this can obscure other problems, such as competing interests and experiences, and also minority group treatment. As a result, public governance is rationalised by assigning the ignorance label to certain public groups that stand in contrast to scientific and government expertise, and so accountability for low vaccine uptake is transferred onto the public.

1. Introduction

Vaccine hesitancy—when someone is uncertain about vaccination, leading them to delay or refuse some or all vaccines—has become a growing policy concern for governments across the world (Dubé et al., 2013). During the COVID-19 pandemic, the focus on vaccine hesitancy has rested on concerns about public reactions to, and uptake of rapidly developed vaccines. Surveys to measure public attitudes and knowledge have been translated into sensational headlines that have emphasised the irrationality of fears and reflect a broader problem of ignorance in those refusing vaccines (The Times, 2020, Voice of America, 2020):

It is unprecedented that COVID-19 vaccines have been developed at such speed for a previously unknown pathogen during a global pandemic. Although a body of research on public attitudes, acceptance, and engagement, as well as long-term studies of vaccine hesitancy (de Figueiredo et al., 2020), highlight complex causes and manifestations, there is a need to explore the determinants of acceptance in this context. Such insights can be garnered from evidence about the introduction of investigational, experimental, and new vaccines in response to other recent outbreaks of (re)emerging diseases (Burns et al., 2020). It is important though to consider that vaccine hesitancy as a term is not neutral and is used by policymakers and other healthcare actors to situate the problem of current and potential vaccine uptake in the public. Discussions around vaccine hesitancy summon an image of defaulters as "not yet having acquired the knowledge, sentiments, and habits to qualify them to be modern citizens" (Leach and Fairhead, 2007, p.20). Such a narrative often associates hesitancy with ignorance because this offers simpler or more manageable explanations, deflecting political perspectives and supporting prevailing views about vaccinating publics. The discourse that attributes vaccine hesitancy in vaccinating publics as a matter of ignorance is (then simultaneously) reproduced across countries. The attribution of ignorance is thus aligned with

* Corresponding author.
E-mail addresses: samantha.vanderslott@paediatrics.ox.ac.uk (S. Vanderslott), luisa.enria2@lshtm.ac.uk (L. Enria), alexander.bowmer@lshtm.ac.uk (A. Bowmer), abassskamara1994@gmail.com (A. Kamara), shelley.lees@lshtm.ac.uk (S. Lees).

https://doi.org/10.1016/j.socscimed.2022.115152
Received 11 November 2021; Received in revised form 11 June 2022; Accepted 14 June 2022
Available online 20 June 2022

longer-standing narratives about communities that had been reluctant to accept health interventions in the past, often connected to political reasoning.

A narrative frame constitutes a critical device for social organisation through discursive practices. Adams et al. (2019) argue that, how we frame problems inspires different kinds of actions, particularly with global health programmes that more often rely on 'well-rehearsed languages' based on narrow problematisations, with social behaviour treated only as individual choice rather than resulting from systemic determinants. As Brunson and Sobo (2017) point out, framings of vaccination in the public discourse are starkly polarised, while Court et al. note how parents who refuse childhood vaccines are depicted as "ignorant and in need of informing" (Court et al., 2021 p.1). Focusing on how (lack of) knowledge around vaccines is portrayed as driving attitudes and behaviour, we show how 'ignorant publics' become an institutionalised narrative for public health authorities and the media. We aim to demonstrate this institutionalised narrative in governments' attributions of public ignorance and ignorance in acknowledging other reasons for low uptake, including their own role in low uptake. Other ways to understand hesitancy—highlighting mistrust and fraught relations between publics, governments and healthcare providers—have become marginalised within the 'ignorant public' frame. This 'ignorance narrative' around vaccine hesitancy limits the imagination of alternative solutions, obscuring the political salience of vaccination anxieties as a form of contestation to reinforce the marginalisation of communities identified as 'resistant'.

In this article, we investigate the use of an 'ignorant public' frame through a vaccine narrative in three vignettes from Sierra Leone, Uganda, and India, to explore how publics are represented within public discourse (see Table 1). In our examples, we assess how official explanations for low vaccination coverage reproduced by officials and the media contrast with the possibility for more complex socio-political issues underpinning vaccination challenges, in which local experience and expertise defy governmental monopolies of legitimate and credible knowledge (see Table 1). Our starting point, for the 'ignorant public' frame comes from official depictions in the media and in policy documents, as well as setting out the public discourses about ignorance from our country ethnographies. The framing of ignorance does not only specifically follow the intentional and directed process of attaching the ignorance to certain groups and explicitly pointing out ignorance. As Schneider, 1962 originally argued, the presumption of implicit ignorance is for theoretical assertions to 'make sense' and be systematic in character. Here ignorance is wherever knowledge or information is deemed lacking, and implied or assumed. Therefore, a policy of knowledge and information provision can hold an underlying assumption of ignorance coming from a lack of awareness, whether it be intentional or not.

Belonging to an oppressed, marginalised, or sidelined group can mean that knowledge of those members is ignored or denied by those in power—'the knowers'—as a perpetuation of systemic ignorance. Therefore, ignorance is a type of inverted epistemology (Sullivan and Tuana, 2007) which highlights the entanglements of structural exclusion, and social and political relations obscured by an ignorance framing. A concentration on 'ignorant public' narratives thus allows governments to avoid direct accountability for vaccination challenges, and in turn, this deflection of responsibility facilitates a dismissal or denial of the broader socio-political problems that vaccine hesitancy makes visible. We order this paper by setting out our conceptual framework, focused on the attribution of ignorance to vaccinating publics, and then present the three empirical vignettes to elucidate how these dynamics play out in practice, concentrating on narratives about vaccine hesitancy. Our core research questions are: How does the 'ignorant public' frame appear in public discourse about vaccine challenges in comparison with the possibility for more complex socio-political explanations? In what ways do local experience and expertise defy governmental monopolies of legitimate and credible knowledge?

1.1. *'Ignorant publics' and institutionalising ignorance*

Debates around public perceptions of vaccination have historically used the concept of ignorance to explain both acceptance and hesitancy, as Nichter (1995) and Millward (2019) highlight. In these debates, the public's ignorance is posited to be 'naïve' (i.e. reflecting an absence of knowledge) or 'passive' (i.e. a limitation on what they know or understand) (Proctor and Schiebinger, 2008; Vanderslott, 2019). Nichter (1995) proposes a contrast between informed publics who recognise the need and benefit of vaccination and therefore demand it, as opposed to passive publics whose acceptance of vaccination is a result of a yielding to authority. In this framing, ignorant publics may be those that accept vaccination without information because they trust health messaging and scientific authority. However, it has been more common to see the 'ignorance' label applied to segments of the population who are vaccine hesitant. As Millward has observed, during the UK government's diphtheria vaccination drives in the 1940s, an imagined public ignorance was determined by the government looking for an explanation for poor vaccine uptake requiring re-education (Millward, 2019).

Drawing on the 'knowledge deficit model' of the public (Sturgis and Allum, 2016) suggests that the lack of (scientific) knowledge lies at the core of vaccine hesitancy with the remedy being increased scientific literacy to improve public trust. However, this model has been repeatedly critiqued (Goldenberg, 2016). Such a view is still persistent with policymakers and media representation (Ward, 2016), to propagate the notion that ignorance rooted in scientific illiteracy explains hesitant publics. The view of publics as obstructors emerges from an idea that their fear may produce a 'public scare', with public engagement being seen as the remedy. Marris (2015) views such an emphasis on public engagement as problematic due to its basis in the discredited 'deficit--model', which proposes that non-acceptance be improved through information and education, as well as taken-for-granted techno-scientific promises. Rumours, misinformation and alternative expertise that accompany a view of non-acceptance are also often publicly portrayed as manifestations of ignorance—at best, a lack of information, or, at worst, an inability or unwillingness to engage with scientific fact (Geissler and Pool, 2006; Greenhill and Oppenheim, 2017). These types of corrective approaches have been critiqued by social scientists and

Box 1
Newspaper headlines about vaccine hesitancy

'One in five don't want coronavirus vaccine amid fears of side-effects'

The Times, 2020.

'Survey: Almost Half of Americans Say 'No' To COVID Vaccine If Available Today'

Voice of America, 2020.

historians who suggest that, for example, framing rumours as mere misunderstandings neglects contextual complexity and the deeper causes of mistrust. Dismissing misinformation as ignorance, rather than seeing it highlights local concerns, obscures the social commentaries and political critiques that the narratives reveal (White, 2000; Geissler, 2005; Molyneux et al., 2005a,b; Fairhead et al., 2006; Geissler and Pool, 2006). Similarly, others suggest that 'ignorance' in the absence of accepted and standardised scientific expertise can be described, in some instances, as lay expertise (Wynne, 1989; Epstein, 1996). This points to an uneasiness with viewing government knowledge as informed or credible, and public knowledge as not. In addition, the devaluation of alternative forms of knowledge and the positioning of western biomedical knowledge as universal, is increasingly being challenged (Harding, 2008; Gale, 2014).

How and in what ways then are these ignorance labels applied to publics? Uncovering the role of intentionality is challenging, when it is not entirely obvious who within the institutions is doing what, and why. This suggests a Foucauldian circulation of power in the relationship between institution and publics, in how rules and regulations are 'acted upon'(Foucault et al., 1991). Institutions, through the operation of governmental rationality or governmentality do not pursue one dogmatic goal but 'series of specific finalities' achieved through 'multiform tactics'(Foucault et al., 1991). If intentionality is hard to attribute, we might nonetheless ask what the consequences of discourses are and the effects of processes that establish narratives about 'ignorant publics' as institutionalised narratives. Indeed, even if narratives serve the purpose of mobilising and creating consensus across different interest, in order to produce simple but galvanising stories, it is important to trace the real impact they have on the world they purport to describe. Therefore, we draw on the work of Tania Li from development studies to understand the effects of specific problematisations of the vaccine hesitancy narrative (Li, 2007). Li argues that the 'will' in development programmes cannot be located to a particular source and one intention alone but is situated within heterogeneous assemblages or, as she terms it, 'dispositifs'. Rather than identifying the 'who', she concentrates on the 'what', and the 'will to improve' inherent in the development project becomes an object of study in itself, especially in terms of identifying the key practices that convert will into actionable development programmes. Inspired by Li's use of Foucaultian dispositifs we concentrate on the 'what' to vaccinating publics. We take the perspective of *dispersed ignorance* through a narrative and through our empirical analysis view dispersed action and causation, institutionalised to be a widely accepted viewpoint.

Table 1
Focus and methods for three vignettes.

	Focus	Methods	Detail
Sierra Leone	Political and economic factors determining emergency vaccine deployment	Empirical material comes from the AViD project, which included 12 months of ethnographic research and 22 key informant interviews at District level.	Key informant interviews with District-level public health officials and civil society representatives. Two research assistants undertook a year (March 2019–March 2020) of ethnographic observations at the District Health Management Team (DHMT) and in Peripheral Health Units (PHUs). This also built on ethnographic research in the district over five years across different projects, including the authors' involvement in the Ebola vaccine trials (EBOVAC).
Uganda	Acceptability of previous and ongoing responses to the control of notifiable epizootic diseases such as ASF.	96 semi-structured interviews in Bwindi Impenetrable National Park (BINP) and Kyamulibwa, Kalungu District. In Southern Uganda as part of the AViD project.	In addition also drew on secondary data analysis of previous research conducted in Uganda and Zimbabwe.
India	Health system and public reactions to a controversy concerning the introduction of a new campaign for MR vaccination.	Online media data sample of news stories for one year and in-country research involving nine informal interviews with policy actors involved with the campaign for the AViD project.	Media data collected between 1st January 2017 and 31st Dec 2017, using the monitoring software 'Meltwater', totalled 1520 posts corresponding to the search terms.

2. Materials and methods

We collected data based on an initial research interest about how vaccines are deployed during outbreaks across different low- and middle-income countries (LMICs). In the course of that research, it became apparent that there were similarities between countries in how the vaccinating public were being depicted. The data collection was part of a wider project, 'AViD', which provides anthropological perspectives on vaccine deployment outbreaks, using geographical case studies (https://www.paveresearch.org/avid). The project case studies were chosen to understand different perspectives about vaccines and outbreaks, including the political and economic factors, health system perspectives, human-animal health and community experiences surrounding vaccination. We have drawn on the three case studies to create vignettes that we believe show the production of perceptions and representations of ignorance in vaccinating publics in LMICs. The case study on Sierra Leone focuses on the political economy of vaccine deployment; Uganda on the acceptability of previous and ongoing responses to the control of notifiable epizootic diseases; and India on health system responses to vaccination controversies.

The research questions addressed in this paper were not identified at the outset of this research project but were arrived at through a process of regularly sharing updates and results in the team. On a quarterly basis a whole-team meeting was held to discuss progress, findings, and challenges, which also included two workshops in years one, two, and four of the project, as well as steering group meetings with a wider advisory board (for feedback and input of in-country external advisors). During the second-year workshop we identified the 'ignorance frame' as a unifying feature across the case studies of Sierra Leone, Uganda, and India, in how the frame contrasts with socio-economic determinants and social meanings. We then constructed our vignettes to provide a compelling illustration of how ignorant publics were being depicted in our countries. From there we conducted a literature review and developed our theoretical argument further, paying particular attention to the existing literature on vaccine hesitancy but also with the intention of bringing perspective to the LMIC outbreak setting.

Through these vignettes, it is possible to situate vaccination efforts in the broader context of developmental ambitions, which as Li highlights relies on specific framings of publics as in need of improvement. In LMICs, public framing contains development ideals of a compliant public to country 'progress'. This is not to say the framing of publics of high-income countries is dissimilar, it is the wider country vision and the view of a place internationally that differs. Much more attention has

been applied to, for example, vaccine hesistancy surrounding measles, mumps, and rubella (MMR) vaccines in high-income countries rather than LMICs (Torracinta et al., 2021). Both settings identify 'problem publics' but for slightly differing reasons. The vignettes concentrate on particular outbreak scenarios: the aftermath of Ebola in Sierra Leone and a subsequent measles outbreak, a promising new animal vaccine candidate in Uganda for African Swine Fever (ASF) following multiple outbreaks, and a new Measles-Rubella (MR) vaccination campaign in India in response to ongoing outbreaks. Note that the Uganda vignette explores an animal vaccine which allows for an insight into the overlap between human and animal health and how ideas of hesitancy also extend to animals. We have been able to identify lessons from the three vignettes, through similar tensions between frames of 'ignorant publics' for vaccination. Our methods for the vignettes are varied but all use qualitative approaches: a long span of ethnographic fieldwork; semi-structured interviews with key informants; and a media analysis and interviews carried out before, during and after outbreaks.

The Sierra Leone example (led by Author 2 and 4) involved a year of ethnographic observations (arch 2019–March 2020) (summarised in daily ethnographic reports) with the Kambia District Health Management Team, observing vaccine deployment and outbreak response, and contributing operational research for the development of new vaccine deployment strategies at District level (see also Enria et al., 2021). An additional research assistant also conducted observations and power-mapping exercises at Peripheral Health Units (PHUs). The team also conducted 22 in-depth interviews with district-level stakeholders, which were analysed in NVivo12. Findings from the ethnographic research and in-depth interviews was presented regularly to District Health Management Team (DHMT) public health officials to be validated. This work also built on five years of previous research in the District on vaccine confidence and epidemic response across different projects (Enria et al., 2016). For the Ugandan example, Author 3 conducted six months of fieldwork between January and June 2020, resulting in 96 semi-structured interviews collected from livestock farmers in Bwindi Impenetrable National Park (BINP) and Kyamulibwa, Kalungu District, Southern Uganda. For the Indian example, Author 1 conducted one month of fieldwork in the states of Kerala and Karnataka in January 2019 for informal interviews, and media data was collected and analysed from 2017 onwards. Each of the case studies gained ethical approval from the Sierra Leone Ethics and Scientific Review Committee, Uganda National Council for Science and Technology (A 613) and LSHTM Ethics Committee (16636). Note that local institutional review board approval was not required for the India media and social media data.

The vignettes present a heterogenous collection of stories portraying vaccinating publics. Grouping these examples together allows us to identify commonalities in the use of ignorance framing. Such comparative social science has the 'potential to detect and analyse ways of thought and practice and situate them in the context of both localised and world-historical events, contexts, histories and discourses' (Marcis et al., 2019). As Elisa Sobo argues, vaccine refusal begins "before said utterance or act, and extends far beyond the moment of behavioral or verbal proclamation" (Sobo, 2016, p.342). Governments recognise the importance of vaccination for the health of their populace and also how it is important to address public reactions to vaccine deployment (Bowmer et al., 2020). However, the relevant literature about vaccine hesitancy is mostly centred on research on high-income settings (Goldenberg, 2016; Sobo, 2016) and previous research on LMICs is now outdated (Nichter, 1995; Streefland et al., 1999). Therefore, we also draw on research critiquing development in lower income settings—particularly in Sub-Saharan Africa and South Asia—to explore the ignorant public framing for perceived ignorance through three empirical country vignettes.

2.1. Sierra Leone: 'Ignorance' and vaccination challenges in the Ebola aftermath

Sierra Leone established their national Expanded Programme on Immunisation (EPI) in 1978, which today includes 11 diseases. Vaccine coverage was significantly affected by the 1991–2002 civil war and then again by the 2014-16 Ebola outbreak (Feldstein et al., 2020).

In November 2019, stakeholders from all chiefdoms in Sierra Leone's Kambia District were invited to a meeting organised by the Ministry of Health's EPI programme. In a busy District Council Hall, where chiefs were given a presentation about the district's vaccination coverage. This, as members of the District Health Management Team (DHMT) later emphasised, was disappointingly amongst the lowest in the country. Earlier that year, they had been one of the two border districts to experience a measles outbreak, at least partly as a consequence of missed vaccinations during the Ebola outbreak.

The presentation included a range of challenges to effective immunisation, including faulty cold-chain equipment and transportation challenges. Alongside these supply side issues, which were harder to address at district level, community stakeholders had been invited to address a 'demand side' problem, namely, the fact that in some communities, vaccination teams encountered refusal or hesitancy around vaccination. As the 'mouth of [their] people', chiefs were encouraged to 'talk to their communities to take the *marklate* [vaccine]'. Strategies were identified to improve coverage, including intensifying defaulter tracing, holding community meetings and radio discussions. The organisers of the stakeholder meeting urged chiefs to act as 'opinion leaders' and 'agents of change' to improve coverage in the district, in an effort to win the hearts and minds of reluctant citizens. These discussions highlighted common refrains about the need to engage communities around vaccination, but what kind of problem was hesitancy understood to be? What kind of public did public health officials imagine?

In this vignette, we concentrate on district public health officials' narratives about public engagement with vaccination to explore how assumptions and uncertainties about the nature and causes of hesitancy contributed to reproduce the imagination of an ignorant public as a significant barrier to effective immunisation. At the stakeholder meeting, emphasis on community engagement reflected preoccupations that vaccine hesitancy played an important role in the district's poor immunisation performance. In our discussions, engagement efforts were often justified by pointing to a posited lack of biomedical knowledge amongst the district's largely rural population. Border communities were particularly identified as 'problem' areas—politically and economically marginalised, and often portrayed as disloyal and hard to govern (Enria, 2020). In these places, ignorance was portrayed through low education or 'awareness', that were thought to be the key problems. For example, Mr M, who had been involved in the planning of vaccination campaigns argued in Box 2 below:

The public's ignorance about the benefit of vaccines and, more generally, in terms of their low education was assumed to be the cause of hesitancy, without other options being further explored. An ignorant public was invoked in discussions about 'misconceptions' around vaccination, which were associated with poor knowledge, for example when in the aftermath of the Ebola epidemic, vaccines were rumoured to contain the virus. Health education campaigns were therefore designed to impart knowledge on recalcitrant communities to address these misconceptions and educate. Whilst not making accusation of ignorance, the premise of social mobilisation for vaccination was that messaging was needed to ensure people had more knowledge about vaccines. For example, posters that concentrated on stating that 'Vaccines are Free and Safe' place emphasis on affirming the straightforward message. Assumptions about the public's lack of knowledge as a barrier to development and public health is not new to Sierra Leone as shown by the Ebola outbreak. Between 2014-16, Sierra Leone and its neighbouring countries experienced an outbreak of Ebola virus that took the lives of over 4000 people and affected the livelihoods of countless more. The

Box 2
Mr M on planning vaccination campaigns

"If you look at the under-aged children, [if] 70% of them are immunized, and 50% of them will be people who are educated, like teachers, like nurses and other people. But you will find out that, what the farmer is thinking about is if he has workers to go and work on his farm. There are times when his wife says she want to attend an immunisation, he will shout at her to go and cook for his workers, because he doesn't know the value of immunisation.[…] We really need people to understand what immunisation is all about.[…] I take my child and my wife to the hospital for [vaccines] because I know the importance of immunisation, but the farmer does not know."

health system, weakened by over a decade of civil war (1991–2002) and piecemeal post-war healthcare financing, faced significant challenges in confronting the crisis, exacerbated by difficulties in gaining trust for public health measures.

In our discussions with public health officials, they often evoked memories from the Ebola outbreak as evidence for the challenge posed by 'community resistance'. During the epidemic, social practices such as caring for sick relatives, burial rites and traditional healing were identified as key sites of infection (Abdullah and Rashid, 2017). The continuation of these practices, often in secret, in combination with avoidance of health centres and rumours about the nature of the epidemic, were seen as key barriers. The problem, at least initially, was therefore presented as a lack of knowledge that could be addressed by providing education and information. Anthropologists of the region, who were directly involved in supporting the development of context-appropriate interventions (Lees et al., 2020), critiqued these framings for three main reasons. Firstly, these approaches painted social practices as exotic; for example in the case of bushmeat consumption, betraying a particular politics of disgust and apportioning of blame (McGovern, 2014), often with unintended consequences (Bonwitt et al., 2018). Secondly, critics pointed out that 'biomedical information on risk might hold limited relevance to people when trying to care for sick loved ones or attend to the dead'; in other words, a focus on imparting knowledge fails to account for people's diverse priorities or for the local innovations that communities put in place to respond to context-specific challenges posed by the epidemic (Chandler et al., 2015; Richards, 2016). Thirdly, framing rumours or behaviours such as avoidance or resistance as resulting from 'ignorance' conceals the deeper foundations of mistrust that these community-level responses make visible (Wilkinson and Leach, 2015; Abdullah and Rashid, 2017; Enria, 2019).

A similar analysis can be applied to narratives around vaccine hesitancy in the district, in how the notion of public ignorance in public health officials' narratives served to cloak a more complex challenge. Field staff tasked with outreach and 'sensitisation' reported difficult encounters, but the reasons for vaccine refusals or delays were strikingly unknown and remained that way. Therefore, ignorance served as a 'catch all' explanation to characterise these encounters. A social mobilisation officer, for example, asserted his belief that lack of knowledge was a problem, whilst simultaneously suggesting he did not in fact know the reasons for community reluctance. See Box 3:

Narratives that construct publics as ignorant can be seen as persistent across time and type of interventions: they are easily reproduced as a simple explanation for vaccine challenges. This ignorance framing is not politically neutral either in its origins or its effects: as we have seen, the portrayal of communities as deficient and in need of sensitisation is part of a long-standing discursive repertoire that is steeped in histories of marginalisation. These problematisations also dictate possible solutions: framing hesitancy as an issue of ignorance meant that district responses had primarily involved sensitisation campaigns aimed at increasing knowledge around vaccination. Undoubtedly, these interventions are also within reach of an underfunded district public health workforce, unlike the plethora of other challenges facing vaccinators in Kambia, ranging from cold-chain issues, the fact that nurses had to pay for their own transport to collect vaccines (and therefore only did so sporadically) or inaccurate population data leading to inadequate vaccine supplies.

The mobilisation officer's considerations, above, however also point to a potential opening for the narrative to be challenged by shifting the lens onto communities' experiences and perspectives of vaccination. Our research with community members highlighted various reasons for vaccination hesitancy, ranging from practical challenges such as the timing of vaccination coinciding with farming obligations to a lack of trust in national and district authorities, built on experiences of marginalisation (Enria 2021). Significantly, lack of trust was exacerbated by experiences at the health centres, where community members felt patronised, as they were treated as uneducated and 'uncivilised'. When read against the backdrop of long-term social, political, and economic exclusion in rural border communities, concerns about vaccination programmes—including rumours about the government's potentially nefarious intentions hiding behind vaccination campaigns—can be seen as a form of political commentary. This analysis of vaccination challenges would require interventions that engage directly with the structural dimensions of mistrust in vaccination efforts, including confronting fraught relations between service providers and rural communities, rather than simply providing more information about the uses and safety of vaccines. In this sense, the 'demand side' issues require paying attention to similarly larger health system challenges as the 'supply side' issues that tended to be kept separate from the hesitancy question. This makes it financially, logistically, and politically more challenging, in practice, for public officials to engage with challenges to the narrative about ignorant publics.

The November meeting of the District Council signalled an important commitment to engaging citizens in efforts to improve vaccination coverage in the district. However, in unpacking some of the assumptions

Box 3
Social mobilisation officer views on reasons for community reluctance.

"Well, if you talk about challenges, look at the educational level of the people in this community, it is very low and the way they look at things is different, their perception, the way they see things is different, sometimes when you talk to them, they just ignore … They will know that they have to take their child for [vaccines] but there is something which hinders [their] movement to take the child [to the clinic]. So, this a big challenge that we have. We do not actually know what the barriers are, we do not actually know impedes them to bring their children. We also do not know what makes them refuse the health services."

and uncertainty underpinning problematisations of vaccine hesitancy, this vignette aimed to show implications of the ignorant public imagery in public health officials' narratives. Narratives that associated hesitancy with ignorance were accepted because they offered simpler or manageable explanations, aligned with longer-standing narratives about rural communities as deficient or in need of 'being sensitised' to offer manageable solutions and deflect the political salience of concerns surrounding vaccination. Inadvertently, marginalisation is reinforced by perpetuating the framing of rural publics as uneducated. Challenges to this narrative are possible, but politically charged.

2.2. Uganda: Attitudes to disease control in livestock farming

Next, in this vignette, we explore how the perception of an ignorant public—specifically, subsistence pig farmers in rural Uganda—has had a detrimental effect on uptake of, and attitudes towards, response efforts to control notifiable infectious diseases such as African Swine Fever (ASF) in pigs. This is predominantly owed to the Government's perception that farmers are often ignorant towards control measures, increasing transmission as a result. However, as Kansiime et al. (2015) have argued in communities where livelihoods depend on domestic animals and their products, human-animal interaction is intimate, and there is a need to recognise that animal health and human health are closely linked, and that health decision-making is dependent on a range of factors specific to the farmer, community and environment. One farmer noted: "What the people say about vaccination, most of the time, the people say that you put in a lot of money; but at the end of the day, you get very little money back when you sell them. People have that perception because, when they find you vaccinating your pigs, they say that the money you use to buy the drugs and the vaccines is too much, but you end up getting very little money from it".

Continued economic challenges mean the Ugandan government has historically adopted a reactive approach to veterinary service delivery (Rwakakamba, 2008). Vaccinations are typically conducted when there is an outbreak rather than routinely (FAOSTAT, 2013a). As a result, many actors of varying capacities are involved in providing routine veterinary services without being effectually regulated (FAOSTAT, 2013a). Each of these actors has different interests and as a result, the veterinary medicine market is inundated with untested medical products, especially antimicrobial agents and vaccinations; even licensed medications promoted by the Ministry of Agriculture, Animal Industry and Fisheries are misused, leading to hesitations regarding their administration (Joloba et al., 2001; Byarugaba, 2004; Byarugaba et al., 2011; Bosco et al., 2012; Mbowa et al., 2012). In light of a promising new vaccine candidate for ASF, we sought to understand what effect the unregulated veterinary medicine market has had on attitudes towards vaccination, health-seeking behaviours, and adherence to disease control policies such as culling; and why an understanding of farmers' negative experiences with vaccines can better help us to understand hesitancies beyond a perceived ignorance.

Pig farming is one of the fastest growing livestock industries in rural areas of Uganda. According to reference Atuhaire et al. Uganda has the largest and fastest-growing pig population in Eastern Africa, with an estimated 3.2 million pigs on farms (FAOSTAT, 2013). Most pigs are kept in smallholder or subsistence farms in rural areas of Uganda, and outbreaks of notifiable infectious diseases such as ASF can have devasting effects (Dione et al., 2014). ASF is a highly contagious haemorrhagic viral disease that affects domesticated and wild pigs. It is responsible for serious economic and production losses across Africa, Eastern Europe, India, and China (Costard et al., 2009). The disease is an epizootic (temporarily prevalent), causing widespread and often dramatic consequences in livestock. It is characterised by high fever, anorexia, loss of appetite, haemorrhages in the skin, abortion in pregnant sows, vomiting, and diarrhoea. Mortality rates are as high as 100% (Schulz et al., 2019). Attempts to control ASF have been varied and geographically specific, but priority has been given to developing new vaccines. Previous control attempts have been largely unsuccessful, as vaccine efforts have failed in their intended purposes and culling schemes prove problematic at community level. This failure has been perceived as a problem of ignorance, rumours, poor veterinary infrastructure, and the complex nature of the virus.

In Uganda, farmers are informed to cull infected or suspected pigs, report cases to district veterinary officers, and thoroughly disinfect areas where the pigs have been reared. However, farmers are not often compensated for loss of animals and as a result become unwilling to cooperate with campaigns. There were also reported concerns regarding the intentions of the government's response to outbreaks of livestock diseases such as ASF. As one farmer noted in Box 4.

As our study found, some farmers hid their pigs indoors and in forests, and sold on their infected animals to market (Chiduwa et al., 2008). A denial of adequate compensation and veterinary assistance forced farmers whose sole income relied on their animals to hide them or sell them, leading to increased transmission of this disease, and others. To the Ministry of Health, this was understood as a problem of ignorance, as farmers did not acknowledge their role in the transmission of disease and so were viewed as lacking in knowledge. However, rather than being ignorant, farmers felt that the government was being inconsiderate in their methods. Governments were culling their animals without adequate compensation or sustainable solutions to loss of livelihood, without acknowledging farmer methods of managing disease, and farmers were unsure of government intentions and had reduced confidence in the ability to respond to outbreaks. Box 5

Farmers' knowledge of vaccines or infection control methods are often developed through observations of their use, local knowledge, experiences of other farmers, and from their limited interactions with veterinarians, veterinary technicians, and chemists. A lack of faith in the efficacy of infection control techniques, such as culling or vaccination, are therefore often measured by what farmers knew about the response and its observed effects. As a result, many farmers often self-manage the initial signs of infection before resorting to contacting veterinarians as a last resort . This is behaviour would be too simplistically explained by ignorance, but instead the rationales and systems of knowledge farmers draw upon when presented with animal ill-health.

2.3. India: Measles and rubella vaccines and minority publics

The final vignette is set in India. Since 1985 the Indian Ministry of Health and Family Welfare has overseen a Universal Immunisation Programme (UIP) with support from international institutions such as the World Health Organization (WHO) (Lahariya, 2014). Despite being a leading producer and exporter of vaccines, India still holds a large share of the world's unimmunised children, due to issues that are often separately attributed to problems with the 'supply side': lack of investment, and supply chain issues. More recently, the 'demand side' has gained attention, with slow vaccine acceptance rooted in ignorant anti-vaccine beliefs being blamed for poor vaccine coverage (Lahariya, 2014). As the Hindustan Times clearly expressed in their 2019 headline: 'Vaccines saves lives, ignorance jeopardises them', stating: 'Rumours, falsehoods and blatant fabrications about the side effects of vaccination spread faster than the common cold' (Sharma, 2019).

However, a longer history of public interaction with health policy, including vaccination can also be traced, for which a diverse collection of religious, social, political, and cultural beliefs deeply impacts upon vaccine attitudes and uptake. Most prominent was the Pulse Polio campaign, launched in 1995—a public health intervention where Muslims were described to be at the 'sharp end' (Jeffery and Jeffery, 2011). The reaction to vaccination resistance was to better inform the problem public through the 'Underserved Strategy', a high-profile communication effort using celebrities, community leaders, and local volunteers to increase public awareness (Jeffery and Jeffery, 2011). Local Muslim leaders, celebrities, and religious schools were engaged with, materials published in Urdu, and female health workers recruited (Hussain et al.,

Box 4
Farmers' distrust of government.

"On vaccinating the animals, there is a belief the people have that when they vaccinate them, their animals die. They say that the government realises that the number of the animals is now too big, and they destroy the environment and disturb the people very much, and when you take your animals there, you know that in three years' time, we will not have any cattle here.

And they say that the vaccination of the children, people have a belief that the children who are vaccinated, they will be producing less kids in ten years' time. And there was a time when the government experienced a problem, that some of the children who were vaccinated, after a short time, some of them died in this area, and would say that, ''have you seen, the government vaccines', and there was no one to explain. The vaccines that were used were not fit or were expired.

At the sub county headquarters people used to go there and get the vaccines, but I heard that, the way they used to store them was not up to the required standards, and some of the people who picked it from there, said that their animals died, because I think that their dosage, and that the vaccines used to be brought, and the people who used to pick it from there were very few, and the vaccines used to be there in storage until they expired. And in our area, when the vaccine or the drug has expired, in most of the cases, the people don't know."

Box 5

For notifiable infectious diseases where vaccines are currently available, hesitancies towards vaccinations—especially those approved by the government—are associated with a lack of trust, concerns over their efficacy, and fear that they (much like culling) will kill animals. From our extensive interviews, it was clear that many farmers distrusted the government and their intentions, rather than an ignorance of government messaging.

2012; Jeffery and Jeffery, 2011). Still, even when resistance subsided, the media and popular depiction of Muslims were as irresponsible, selfish, and 'anti-national', causing continued polio clusters that threatened the wider population (Jeffery and Jeffery, 2011). The narrative attached to this particular minority group perpetuated even after the end of the polio campaign.

Progress has been made with polio, with India being declared polio-free in 2014; but other childhood diseases that can be prevented by vaccination—particularly measles and rubella—are still endemic. Measles outbreaks kill nearly fifty thousand children each year in India, amounting to over one-third of the global measles deaths. Moreover, rubella infection causes birth defects in almost forty thousand children annually (WHO, 2019a). These preventable deaths and disabilities are why the WHO and the Indian government set a target for the elimination of measles and control of rubella before 2020 (Vaidya et al., 2016). A state-sponsored mass measles-rubella (MR) vaccination drive ran from 2017 to 2018 and is the focus of this vignette. Even though the MR vaccine was already licensed to India in 1983, it was only administered through private hospitals (WHO, 2019a) The government has since integrated the vaccine into the national immunisation schedule, free of cost, starting with a campaign run by the Union Health Ministry of vaccinating in five states and union territories (UTs)—Tamil Nadu, Karnataka, Goa, Lakshadweep, and Puducherry. This first phase was carried out in schools, community centres, and health facilities. As a result, more than 33 million children were vaccinated, and the campaign was initially a success, reaching out to 97% of the intended age group (Kaul, 2017). The campaign also encompassed ten other WHO South East Asia Region member countries who were aiming to eliminate measles and rubella (Vaidya et al., 2016).

Our analysis identified that media stories during the campaign year concentrated on raising awareness about the diseases and the campaign. Stories referred to numbers suffering disease, the uptake ambitions, and which states or districts and age groups would be covered. The majority of the media and social media coverage announced the start of the vaccination drive, and the move from the first to second phase. A competitive spirit was evident as well as how the campaign was a marker of development and progress, and reference was made to disease incidence in different states and unfavourable comparisons to Africa (Mallapur, 2017). Also, the results of a government survey on national family health reported a decline in infant mortality rates (The Economic Times, 2017). Other references described the percentage of vaccination and deaths: "Only 62 per cent of children between the ages of 12 and 23 months were fully immunized—for BCG, measles, and three doses each for polio and diphtheria and tetanus" (Salve and Yadavar, 2017). Many of the media outlets referred to the first phase of the MR campaign, where it was reported that the government planned to eliminate measles by 2020.

From August 2017, when the campaign moved to the second phase to include eight states, the ambition scaled up with the aim of vaccinating 41 million children (aged 9 months to 15 years) across the country (eight states and UTs—Andhra Pradesh, Chandigarh, Dadra and Nagar Haveli, Daman and Diu, Himachal Pradesh, Kerala, Telangana, and Uttarakhand). The bar was set high as one of the biggest worldwide vaccination campaigns—following the campaign, the MR vaccine would replace the measles-only vaccine in routine immunisation. A pre-launch 'Regional Media Workshop' was held by The Ministry of Health and Family Welfare, in association with UNICEF, WHO and partners for the launch of the second phase. The motivation to engage with the media as a critical stakeholder was in effort to "create trust in vaccines and address myths around immunisation to ensure every child in the country gets a fair start" (The Hindu, 2017).

The media has been a long-standing partner in Indian vaccination policies since the fight against polio (Jeffery and Jeffery, 2011). Similarly, the 'Muslim opposition' to the MR vaccination was identified in news reports early on. The characterisation of opposition was based on a portrayal of age-old prejudices which deemed immunisation as un-Islamic. One headline, on a leading news channel, read: 'Vaccination Drive Extended After Hitting a Wall in Muslim Pockets' (Tripathi, 2017). The story described how 'anti-vaxxers' were "using a statement by Union Minister of State Kiran Rijiju to further their propaganda against the very idea of vaccination" via misinformation on WhatsApp groups, claiming that the vaccine was an imported and untried vaccine, causing

impotency and autism. The reports referenced how paranoia about vaccines has been a long-standing problem in India ever since the Pulse Polio campaign. In that case, despite ultimately being a success, poor communication about the need for repeated vaccination, as well as about the circulation of the polio virus through open defecation, monsoons, and poor water treatment, led to parents being sceptical about whether the vaccine worked (Hussain et al., 2012). The absence of other free healthcare also raised suspicions and rumours that the vaccine caused infertility. Therefore, there were practical and supply-side reasons for scepticism, not captured in a demand-side view of vaccine hesitancy rooted in ignorance. The problem with the 'demand' side in hesitancy to vaccinate and ongoing supply-side issues continue to be treated separately.

As a Hindu-majority country where Muslims are a significant minority, community membership and identity continue to be reshaped and is of repeated relevance to understanding vaccinating publics. Lower vaccine coverage among religious minorities is frequently presented as a threat to the immunity of the nation-state, which pits the minority groups against nationalist ideals (Kasstan, 2019). Within this mix, intra- and inter-faith divisions are compounded by politics and other local constituencies that contribute to views on vaccination. In addition, the circulation of myths and rumours are reflective of anxieties and concerns, while community leaders are sometimes promoters or antagonists of public health messaging. These minority-state issues are evident both through public health programmes and in the responses to public health programmes. The issue at hand may appear to be about vaccine hesitancy based on religious beliefs but instead speaks more about the will of the government to have compliance, as well as the resistance of minority publics. Kasstan points out that such a view is also compounded by state attempts to enforce vaccination policies, that then, "play into entrenched minority-state tensions" (Kasstan, 2021, p.2).

Similar to the reasons for unease with polio vaccination, for the MR vaccination this sector of the population was focused upon for blame, rather than, for instance, addressing a history of discriminatory treatment in health services. Furthermore, the opposition to the MR vaccine took on a political dimension as a way to voice dissatisfaction with and signal distrust with the ruling Bharatiya Janata Party (BJP). Elected in 2014, the BJP has been accused of a 'Hindu-first agenda' to the detriment of Muslims in India and attacks on minorities, has increased to be more systematic and banal (Anderson and Jaffrelot, 2018). 35-year-old Abdul Razzak (name changed) of Kondotty, directly addressing Prime Minister Modi, exemplified the anti-government sentiment: 'This is Modi-RSS vaccine. You are doing this to control our population. Please go away. I will not allow my children to be vaccinated' (Nair, 2017) RSS stands for Rashtriya Swayamsevak Sangh, a right-wing Hindu nationalist organisation that operates as a volunteer paramilitary group.

Those opposing the vaccination were referred to as trolls: 'Tamil Nadu government to take on trolls against Measles-Rubella vaccine drive' (Jane, 2017). The state government warned 'trolls' that they could face criminal action for spreading 'canards' (unfounded rumours or stories) about the vaccination drive, and the vaccination campaign was extended due to low coverage. Therefore, the government's most negative reference to the vaccinating public was directed to those who spread misinformation or disinformation and the ignorance of those who believed them in the Muslim minority. The government worried about the spread of false information intended to harm the vaccination campaign that might influence the ignorant, which is why they took a strong stance on those disrupting a high-profile, politically important campaign. Traditional healers offered explanations to a suspicious public through rapid and widespread means.

The individual states and UTs worked on a response, with the advocacy of doctors proving instrumental. Doctors enlisted their students to help, worked with district health officers, writers and journalists, and broadcast radio programmes about the benefits of immunisation—even using magicians to bust myths (Tripathi, 2017). In Tamil Nadu, a group of doctors also took legal means to lodge a formal complaint via Chief Minister's Grievance Cell against a Coimbatore-based 'healer' (Jane, 2017) who had claimed in messages circulated on social media and instant messaging platforms, that the vaccine contained disease-causing organisms. India continues to make progress towards measles elimination and rubella control, and by July 2018, 92 million children had been successfully vaccinated, edging closer to the target to cover 405 million children (WHO, 2019). The ignorance label has persisted amongst vaccine decision-makers, as Dutta et al. (2021) found in their recent study on their perceived barriers, which were outlined at: "communities' vaccine resistance, ignorance, lack of literacy, misinformation, confusion between vaccination and immunisation, logistics (remembering to get the vaccine), and relationships with the local health provider." (p.18).

2.4. Using the ignorance frame

The ignorance frame we have identified relates to diverse publics that have been othered in a narrative that contrasts public concerns with legitimate government knowledge. Public concerns have not been acknowledged—dismissed as 'traditional beliefs', resistance, or irrelevant lay expertise. In Sierra Leone, it is problems with access and mistrust by border or rural communities; in Uganda, experiences and views of livestock farmers on vaccination through knowledge of their animals; and in India, it is Muslim minority mistrust which manifests in opposition. In each case, complex issues are explained away, through perceptions and representations of ignorant publics. Not only is hesitancy just one of many challenges for vaccine uptake, but the public's reasons for their concerns or the historical and political contexts of their mistrust are sidelined, resulting in a shift of accountability. The ignorancece framing does not effectively explain or account for historical resistance to colonial immunisation campaigns nor high levels of vaccination in LMICs since the introduction of the WHO's Expanded Programme on Immunisation (EPI). Narratives of public ignorance, therefore, detract from other interpretations of hesitancy. For an alternative frame to replace that of ignorance is a challenge, because it will mean an acceptance by institutions of deficiencies in contributing to vaccine hesitancy or problems with uptake in ways that are often highly politicised. In the vignettes, we show how across different socio-political contexts, the narrative production of ignorant publics serves to deny concerns and displace government accountability for challenges to vaccination coverage. In this way, these concerns of sections of the public that challenge public health knowledge and strategies are further marginalised. This is particularly relevant in post-colonial contexts where the problematisations of particular communities identified as being in need of improvement, as Li highlights (2007), has longer historical roots in projects that justified imperial expansion through appeals to civilising missions.

Each of the vignettes differs in precise use and positioning of the ignorance frame. In Sierra Leone, public health authorities' concerns about low vaccination coverage are centred on the role of communities and their perceived lack of education and understanding of the significance of vaccines. This frame is not new; during outbreaks, communities' concerns about outbreak response measures are also dismissed as a lack of understanding. Such narratives obscure the fact that public health authorities did not actually know the reasons for possible hesitancy. The blanket explanation of 'community ignorance' evaded thornier questions of mistrust and health system weaknesses that undermined public confidence. The effect is a redirected blame onto community members that obscures the political significance of concerns underpinning hesitancy in contexts of marginalisation. This is counterproductive, as blame narratives further erode trust in the health system and encourage avoidance of health centres around vaccination.

In Uganda, systems of knowledge that farmers draw upon to understand and respond to disease are an important consideration. Decisions are often founded on empirical traditions that have guided farmers in their interactions with livestock health across decades.

Systems represent the interplay between cultures and local environments, constituting a collective of actors that inform, construct, and disseminate insights that are transferred into practice. Empirical traditions often influence the construction of scientific knowledge regarding disease behaviours and experienced effects of products such as vaccines, which are then acknowledged by vaccine producers, modified, and sold back to them. Farmers therefore become experts in their own right, as their observations and recommendations directly influence the development of vaccines. However, there is a disconnect between those who promote vaccines and those who receive and test them. What does and does not count as expertise and knowledge relies on singling out the ignorant, to strengthen the knowledge hierarchy and commercial viability of vaccine producers.

In India, the ignorance framing in the media emphasised issues of vaccine hesitancy through assigned roles of both governments and publics in responding to disease outbreaks. The ignorance of certain publics is reflected, while the aspects of government dissatisfaction against historical treatment of groups is not. Opposition to vaccination has longer roots in opposition to colonialism, but the post-colonial era of nation-building and a revival of Hindu nationalism has seen minority publics labelled as ignorant. The so-called ignorance of minorities may also be a way to protest, or is a symptom of dissatisfaction and mistrust of a government based on treatment in other areas. Thus, vaccine hesitancies are often attributed to the ignorance of the individuals or particular communities, understood through a singular lens by governments. As a result, little attention has been given, especially in LMICs, to understanding the underlying motivations for hesitancy employed by certain groups. The rhetoric of portraying people as ignorant in refusing vaccination is more palatable to governments and the media than addressing the complex, less controllable entity of public concerns that often becomes aggravated—but also deprioritised—during outbreaks.

3. Conclusion

How the issue of vaccine hesitancy is conceived and in which places is of crucial importance for global public health. Our examples show that, across different countries, vaccine narratives frame ignorant publics. While descriptions about framing ignorant publics may have been attempted in high-income settings (Goldenberg, 2016; Sobo, 2016), consideration of LMICs is lacking. We examined discursive work of narratives that act to depoliticise mistrust and rumours by labelling them as 'ignorance' or 'traditional and lay beliefs' to reduce the political commentary embedded in resistance to vaccination, which might be explained through both 'supply' issues and a more nuanced conception of 'demand' issues. Here, uptake is reduced to the overarching hesitancy label, which in turn is generalised as a problem of limited knowledge. We do not argue that ignorance of information and knowledge of vaccination does not exist and cannot be problematic: our contention is that the problematising of ignorant publics effectively closes the discussion to more complex determinants of hesitancy. Implications of using the ignorance frame for public accountability is therefore substantial in locating the problem of vaccine hesitancy or low vaccine uptake most strongly on the public side. In order to improve vaccination uptake at a national and international level, we argue for more meaningful engagement with public opinion, community experiences, and the complex challenges to immunisation coverage.

We conclude that the frame of an 'ignorant public' must be challenged to understand and address the complex intersecting factors which influence health decision-making. We suggest three steps for policymakers to avoid this over-simplistic framing: (1) In analysing vaccine hesitancy avoid a focus on demand for vaccination and instead address the ways in which supply also influences hesitancy; (2) Formative social science research before, during, and after outbreaks to build a more complex and detailed picture of vaccinating publics and their perspectives; (3) Public engagement integrated into all vaccine deployment programmes in order to understand, build trust, and develop ongoing dialogue and not only information provision alongside deployment. As we confront a global vaccination challenge to address COVID-19, these lessons will be paramount in addressing inequity in access to vaccination and understanding of why publics may not vaccinate. This is crucial to ensure for the deployment and uptake of safe and effective vaccines, worldwide.

Author contribution

SV, LE, AB, and AK conducted the data collection and analysis. SV and LE led on the interpretation and writing, with input from SL, AB, and AK. SL acted as PI for the project. All authors contributed to writing, reviewing, and approving the final version of the paper.

Acknowledgements

We would like to thank many colleagues and reviewers for their detailed comments, as well as the rest of the AViD team for their support and intellectual exchange throughout the project. We received early input into the paper from Katharina T Paul, Matthias Gross, Ben Kasstan, and Michael Deml for which we are grateful. The anonymous reviewers also provided us with useful suggestions for improvements to the paper. This work was supported by the National Institutes of Health grant PR-OD-1017-20003 (AViD: Anthropological Exploration of Facilitators and Barriers to Vaccine Deployment and Administration During Disease Outbreaks).

References

Abdullah, I., Rashid, I.O.D., 2017. Understanding West Africa's Ebola Epidemic: towards a Political Economy. University of Chigaco Press, Chicago.

Adams, V., et al., 2019. Re-imagining global health through social medicine. Global Publ. Health 14 (10), 1383–1400. https://doi.org/10.1080/17441692.2019.1587639.

Anderson, E., Jaffrelot, C., 2018. Hindu nationalism and the 'saffronisation of the public sphere': an interview with Christophe Jaffrelot. Contemp. S. Asia 26 (4), 468–482. https://doi.org/10.1080/09584935.2018.1545009.

Bonwitt, J., et al., 2018. Unintended consequences of the 'bushmeat ban' in West Africa during the 2013—2016 Ebola virus disease epidemic. Soc. Sci. Med. 200, 166–173.

Bosco, J., K, et al., 2012. Antimicrobial drug resistance and plasmid profiles of Salmonella isolates from humans and foods of animal origin in Uganda. Adv. Infect. Dis. 2 (4), 151–155. https://doi.org/10.4236/aid.2012.24025.

Bowmer, A., Lees, S., Marchant, M., 2020. Social science research for vaccine deployment in epidemic outbreaks. UNICEF, IDS and anthrologica. SSHAP prac. Available at: https://www.socialscienceinaction.org/resources/social-science-research-for-vaccine-deployment-in-epidemic-outbreaks/. (Accessed 27 October 2020). Accessed.

Brunson, E.K., Sobo, E.J., 2017. Framing childhood vaccination in the United States: getting past polarization in the public discourse. Hum. Organ. 76 (1), 38–47. https://doi.org/10.17730/0018-7259.76.1.38.

Burns, R., et al., 2020. Clinical and Vaccine Trials for COVID-19: Key Considerations from Social Science. SSHAP. Available at: https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/15687. (Accessed 4 November 2020). Accessed.

Byarugaba, D.K., 2004. A view on antimicrobial resistance in developing countries and responsible risk factors. Int. J. Antimicrob. Agents 24 (2). https://doi.org/10.1016/j.ijantimicag.2004.02.015, 105—10.

Byarugaba, D., Kisame, R., Olet, S., 2011. Multi-drug resistance in commensal bacteria of food of animal origin in Uganda. Afr. J. Microbiol. Res. 5 (12), 1539–1548. https://doi.org/10.5897/AJMR11.202.

Chandler, C., et al., 2015. Ebola: limitations of correcting misinformation. Lancet 385 (9975), 1275–1277. https://doi.org/10.1016/S0140-6736(14)62382-5.

Chiduwa, G., et al., 2008. Herd dynamics and contribution of indigenous pigs to the livelihoods of rural farmers in a semi-arid area of Zimbabwe. Trop. Anim. Health Prod. 40 (2), 125–136. https://doi.org/10.1007/s11250-007-9071-8.

Costard, S., et al., 2009. African Swine Fever: How Can Global Spread Be Prevented? Philosophical Transactions of the Royal Society B: Biological Sciences. Royal Society, pp. 2683–2696. https://doi.org/10.1098/rstb.2009.0098.

Court, J., et al., 2021. Labels matter: use and non-use of 'anti-vax' framing in Australian media discourse 2008-2018. Soc. Sci. Med. (1982), 291. https://doi.org/10.1016/J.SOCSCIMED.2021.114502.

de Figueiredo, A., et al., 2020. Mapping global trends in vaccine confidence and investigating barriers to vaccine uptake: a large-scale retrospective temporal modelling study. The Lancet 396 (10255), 898–908.

Dione, M.M., et al., 2014. Participatory assessment of animal health and husbandry practices in smallholder pig production systems in three high poverty districts in Uganda. Prev. Vet. Med. 117 (3—4), 565—76. https://doi.org/10.1016/j.prevetmed.2014.10.012.

Dubé, E., et al., 2013. Vaccine hesitancy ([Preprint]). https://doi.org/10.4161/hv.24657.
Dutta, T., et al., 2021. Perceived enablers and barriers of community engagement for vaccination in India: using socioecological analysis. PLoS One 16 (6), e0253318. https://doi.org/10.1371/JOURNAL.PONE.0253318.
Enria, L., 2019. The Ebola crisis in Sierra Leone: Mediating containment and engagement in humanitarian emergencies. Dev. Change. 50 (6).
Enria, L., 2020. Unsettled authority and humanitarian practice: reflections on local legitimacy from Sierra Leone's borderlands. Oxford Dev. Stud. 48 (4), 387–399. https://doi.org/10.1080/13600818.2020.1828325. ISSN 1360-0818.
Enria, L., Bangura, J.S., Kanu, H., Kalokoh, J., Timbo, A.D., Kamara, M., et al., 2021. Bringing the social into vaccination research: Community health worker-led Ethnography and trust-building in immunization programs in Sierra Leone. PLoS One.
Enria, L., Lees, S., Smout, E., Mooney, T., Tengbeh, A.F., Leigh, B., et al., 2016. Power, fairness and trust: understanding and engaging with vaccine trial participants and communities in the setting up the EBOVAC-Salone vaccine trial in Sierra Leone. BMC Publ. Health 16 (1), 1140.
Epstein, S., 1996. Impure Science: AIDS, Activism, and the Politics of Knowledge. University of California Press. Available at: https://books.google.com/books?hl=en&lr=&id=kZOso0FMsrMC&pgis=1. (Accessed 11 August 2015). Accessed.
Fairhead, J., Leach, M., Small, M., 2006. Public engagement with science? Local understandings of a vaccine trial in The Gambia. J. Biosoc. Sci. 38 (1), 103—116. https://doi.org/10.1017/S0021932005000945.
FAOSTAT, 2013a. Available at: http://www.fao.org/faostat/en/#home. (Accessed 27 October 2021). Accessed.
Feldstein, L.R., et al., 2020. Access, demand, and utilization of childhood immunization services: a cross-sectional household survey in Western Area Urban district, Sierra Leone, 2019. J. Glob. Health 10 (1). https://doi.org/10.7189/JOGH.10.010420.
Foucault, M., et al., 1991. The Foucault Effect : Studies in Governmentality : with Two Lectures by and an Interview with Michel Foucault. University of Chicago Press.
Gale, N., 2014. The sociology of traditional, complementary and alternative medicine. Sociol. Compass 8 (6), 805–822. https://doi.org/10.1111/soc4.12182.
Geissler, P.W., 2005. ' kachinja are coming!': encounters around medical research work in a Kenyan village. Africa 75 (2), 173–202. https://doi.org/10.3366/afr.2005.75.2.173.
Geissler, P.W., Pool, R., 2006. Editorial: popular concerns about medical research projects in sub-Saharan Africa — a critical voice in debates about medical research ethics. Trop. Med. Int. Health 11 (7), 975–982. https://doi.org/10.1111/j.1365-3156.2006.01682.x.
Goldenberg, M., 2016. Public misunderstanding of science?: reframing the problem of vaccine hesitancy. Perspect. Sci. 24 (5), 552–581. Available at: https://muse.jhu.edu/article/628781/pdf. (Accessed 10 October 2020). Accessed.
Greenhill, K.M., Oppenheim, B., 2017. Rumor has it: the adoption of unverified information in conflict zones. Int. Stud. Q. 61 (3), 660–676. https://doi.org/10.1093/isq/sqx015.
Harding, S., 2008. Sciences from below: Feminisms, Postcolonialities, and Modernities. Duke University Press, Durham, NC.
Hussain, R.S., et al., 2012. In: Bhutta, Z.A. (Ed.), Fatigue and Fear with Shifting Polio Eradication Strategies in India: A Study of Social Resistance to Vaccination, vol. 7. PLoS ONE, e46274. https://doi.org/10.1371/journal.pone.0046274 (9).
Jane, S., 2017. Tamil Nadu government to take on trolls against Measles-Rubella vaccine drive. The New Indian Express. Available at: https://www.newindianexpress.com/states/tamil-nadu/2017/jan/31/tamil-nadu-government-to-take-on-trolls-against-measles-rubella-vaccine-drive-1565378.html. (Accessed 27 October 2021). Accessed.
Jeffery, P., Jeffery, R., 2011. Underserved and overdosed? Muslims and the Pulse polio initiative in rural north India. Contemp. S. Asia 19 (2), 117–135. https://doi.org/10.1080/09584935.2010.537744.
Joloba, M.L., et al., 2001. High prevalence of carriage of antibiotic-resistant Streptococcus pneumoniae in children in Kampala Uganda. Int. J. Antimicrob. Agents 17 (5), 395–400. https://doi.org/10.1016/s0924-8579(00)00345-9.
Kansiime, C., et al., 2015, 7. In: Switzer, W.M. (Ed.), Community Perceptions on Integrating Animal Vaccination and Health Education by Veterinary and Public Health Workers in the Prevention of Brucellosis Among Pastoral Communities of South Western Uganda, vol. 10. PLOS ONE, p. e0132206. https://doi.org/10.1371/journal.pone.0132206.
Kasstan, B., 2019. Making Bodies Kosher : the Politics of Reproduction Among Haredi Jews in England.
Kasstan, B., 2021. 'If a rabbi did say "you have to vaccinate," we wouldn't': unveiling the secular logics of religious exemption and opposition to vaccination. Soc. Sci. Med. 280, 114052 https://doi.org/10.1016/j.socscimed.2021.114052.
Kaul, R., 2017. Second phase of measles-rubella vaccination drive launched in eight states, UTs, the Hindustan Times. Available at: https://www.hindustantimes.com/health/second-phase-of-measles-rubella-vaccination-drive-launched-in-eight-states-uts/story-poDkt1oIQpOfoF0hmPD3ZL.html. (Accessed 27 October 2021).
Lahariya, C., 2014. A brief history of vaccines and vaccination in India. Indian J. Med. Res. 139 (4), 491–511. Available at: http://www.ncbi.nlm.nih.gov/pubmed/24927336. (Accessed 16 December 2020).
Leach, M., Fairhead, J., 2007. Vaccine Anxieties : Global Science. child health and society, Earthscan.
Lees, S., et al., 2020. Contested Legitimacy for Anthropologists Involved in Medical Humanitarian Action: Experiences from the 2014-2016 West Africa Ebola Epidemic," *Anthropology and Medicine*, pp. 1–19.
Li, T., 2007. The Will to Improve : Governmentality, Development, and the Practice of Politics. Duke University Press.
Mallapur, C., 2017. 2015 India lost 2 children below age 5 every minute, India spend. Available at: https://archive.indiaspend.com/cover-story/in-2015-india-lost-2-children-below-age-5-every-minute-47511. (Accessed 27 October 2021). Accessed.
Marcis, F.L., Enria, L., Abramowitz, S., Saez, A.M., Faye, S.L.B., 2019. Three acts of resistance during the 2014–16 West Africa Ebola epidemic. J. Humanit. Affairs 1 (2), 23–31.
Marris, C., 2015. The construction of imaginaries of the public as a threat to synthetic biology. Sci. Cult. 24 (1), 83–98. https://doi.org/10.1080/09505431.2014.986320/SUPPL_FILE/CSAC_A_986320_SM0001.JPG.
Mbowa, S., Shinyekwa, I., Mayanja, M.L., 2012. The challenges of the private sector driven veterinary extension services delivery in the dairy sector in Uganda (22). Available at: https://ideas.repec.org/p/ags/eprcpb/150232.html. (Accessed 27 October 2021).
McGovern, M., 2014. Bushmeat and the Politics of Disgust. Cultural Anthropology, Hotspots [Preprint], (Ebola in Perspective).
Millward, G., 2019. Vaccinating Britain: Mass Vaccination and the Public since the Second World War. Manchester University Press, Manchester.
Molyneux, C.S., et al., 2005a. Even if they ask you to stand by a tree all day, you will have to do it (laughter). Commun. Voices Notion Pract. Inform. Consent Biomed. Res. Develop. Count. Soc. Sci. Med. 61 (2), 443–454. https://doi.org/10.1016/j.socscimed.2004.12.003.
Molyneux, C.S., Peshu, N., Marsh, K., 2005b. Trust and informed consent: insights from community members on the Kenyan coast. Soc. Sci. Med. 61 (7), 1463–1473.
Nair, N., 2017. Won't take Modi-RSS vaccine": myths, quacks derail Malappuram vaccination drive putting lakhs of children at risk, Firstpost. Available at: https://www.firstpost.com/india/wont-take-modi-rss-vaccine-myths-quacks-derail-malappuram-vaccination-drive-putting-lakhs-of-children-at-risk-4236543.html. (Accessed 27 October 2021).
Nichter, M., 1995. Vaccinations in the third world: a consideration of community demand. Soc. Sci. Med. 41 (5), 617–632. https://doi.org/10.1016/0277-9536(95)00034-5.
Proctor, R., Schiebinger, L.L., 2008. Agnotology: the Making and Unmaking of Ignorance. Stanford University Press.
Richards, P., 2016. Ebola: How a People's Science Helped End an Epidemic. Zed Books, London.
Rwakakamba, M., 2008. Challenges Facing the Agricultural Sector in Uganda. Presentation at the Uganda National Farmers Dialogue.
Salve, P., Yadavar, S., 2017. Poor pay, training impede India's health workers, Prokerala. Available at: https://www.prokerala.com/news/articles/a741277.html, 2017. (Accessed 27 October 2021).
Schneider, L., 1962. The role of the category of ignorance in sociological theory: an exploratory statement. Am. Socio. Rev. 27 (4), 492. https://doi.org/10.2307/2090030.
Schulz, K., et al., 2019. African swine fever: fast and furious or slow and steady? Viruses 11 (9). https://doi.org/10.3390/v11090866.
Sharma, A., 2019. Vaccines Saves Lives, Ignorance Jeopardises Them [Preprint]. Available at:. Hindustan Times. Accessed: March 9, 2022). https://www.hindustantimes.com/fitness/vaccines-saves-lives-ignorance-jeopardises-them/story-YygCYbOEDZS45AxZZfvZHJ.html.
Sobo, E.J., 2016. Theorizing (vaccine) refusal: through the looking glass. Cult. Anthropol. 31 (3), 342—350. https://doi.org/10.14506/ca31.3.04.
Streefland, P., Chowdhury, A.M.R., Ramos-Jimenez, P., 1999. Patterns of vaccination acceptance. Soc. Sci. Med. 49 (12), 1705–1716. https://doi.org/10.1016/S0277-9536(99)00239-7.
Sturgis, P., Allum, N., 2016. Science in Society: Re-evaluating the Deficit Model of Public Attitudes, 13(1), pp. 55–74. https://doi.org/10.1177/0963662504042690.
Sullivan, S., Tuana, N., 2007. Race and Epistemologies of Ignorance. State University of New York Press.
The Hindu, 2017. MR vaccine drive: a call to immunise one and all. Available at: https://www.thehindu.com/news/national/mr-vaccine-drive-unicef-reaches-out-to-islamic-civil-society-organisations/article17930240.ece. (Accessed 27 October 2021). Accessed.
The Economic Times, 2017. Govt survey shows improved sex ratio, decline in infant mortality rate. Available at: https://economictimes.indiatimes.com/news/politics-and-nation/govt-survey-shows-improved-sex-ratio-decline-in-infant-mortality-rate/articleshow/57399024.cms, 2017. (Accessed 27 October 2021). Accessed.
The Times, 2020. One in five don't want coronavirus vaccine amid fears of side-effects. Available at: https://www.thetimes.co.uk/edition/news/one-in-five-don-t-want-coronavirus-jab-amid-fears-of-side-effects-0kggv7f22. (Accessed 24 September 2020). Accessed.
Torracinta, L., Tanner, R., Vanderslott, S., 2021 Apr 19. MMR vaccine attitude and uptake research in the United Kingdom: a critical review. Vaccines (Basel) 9 (4), 402. https://doi.org/10.3390/vaccines9040402. PMID: 33921593; PMCID: PMC8073967.
Tripathi, A., 2017. Vaccination drive extended after hitting a Wall in Muslim Pockets, News18.com. Available at: https://www.news18.com/news/india/vaccination-drive-extended-as-campaign-hits-propaganda-wall-in-muslim-pockets-1352897.html, 2017. (Accessed 27 October 2021). Accessed.
Vaidya, S., et al., 2016. Measles rubella outbreaks in Maharashtra State, India. Indian J. Med. Res. 143 (2), 227. https://doi.org/10.4103/0971-5916.180214.
Vanderslott, S., 2019. Exploring the meaning of pro-vaccine activism across two countries. Soc. Sci. Med. 222, 59–66.
Voice of America, 2020. Survey: almost Half of Americans say 'No' to COVID vaccine if available today. Available at: https://www.voanews.com/covid-19-pandemic/survey-almost-half-americans-say-no-covid-vaccine-if-available-today, 2020. (Accessed 27 October 2021) (Accessed.

Ward, J.K., 2016. Rethinking the antivaccine movement concept: a case study of public criticism of the swine flu vaccine's safety in France. Soc. Sci. Med. 159, 48–57. https://doi.org/10.1016/J.SOCSCIMED.2016.05.003.

White, L., 2000. Speaking with vampires: rumor and history in colonial Africa. Stud. History Soc. Culture 37. https://doi.org/10.2307/220669.

WHO, 2020. Against all odds, India set to make history yet again. Available at: https://www.who.int/india/news/feature-stories/detail/against-all-odds-india-set-to-make-history-yet-again. (Accessed 27 October 2021). Accessed.

Wilkinson, A., Leach, M., 2015. Briefing: Ebola-myths, realities, and structural violence. Afr. Aff. 114 (454), 136–148. https://doi.org/10.1093/afraf/adu080.

Wynne, B., 1989. Sheepfarming after chernobyl: a case study in communicating scientific information. Environment 31 (2), 10–39. https://doi.org/10.1080/00139157.1989.9928930.