



Applications & critical reflections on the VANMaN taxonomy

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ABSTRACT

The VANMaN model provides social scientists with a parsimonious framework for understanding and addressing a wide range of fraudulent health claims, and their behavioral consequences. In this commentary, I demonstrate VANMaN's ability to generate testable corrective health communication messages by applying it to an emerging conspiracy theory; the idea that tick-borne illnesses are the result of failed military bio-terrorism research. I then offer critical reflections on VANMaN that social scientists ought to keep in mind when consulting the model. First, I discuss the possibility that VANMaN may have difficulty taxonomizing certain fraudulent claims that originate from well-intentioned sources. Second, I consider the possibility that some actors might exploit this taxonomy to further advance fraudulent claims. I conclude by noting that, while VANMaN is both intuitive and generative, it should nevertheless be seen as a "living" taxonomy; subject to adaptation in response to new public health challenges.

1. Introduction

The prevalence and acceptance of fraudulent health claims pose important public health challenges. People who accept disputed or untrue claims about health related topics may be more likely to adopt alternative medical treatments and behaviors not supported by the best available scientific evidence, or to forego treatment altogether. Consequently, learning how to devise communication strategies that deter the spread of false health information is a key challenge for social science research.

Take, for example, the public health consequences of vaccine skepticism. People who believe that vaccines administered in childhood can cause children to develop autism are more likely to adopt alternative (i.e., non-CDC recommended) vaccine administration schedules, and/or to forego vaccination altogether (Jolley and Douglas, 2014; Nyhan et al., 2014; Brewer et al., 2017; see also Callaghan et al., 2019). These alternative health behaviors pose a major threat to collective immunity – especially for immuno-compromised populations – if they cause vaccine compliance rates to dip below herd immunity levels (WHO 2019). Effectively communicating the safety of childhood vaccines is therefore an important and active area of research in health communication (Southwell et al., 2019).

In recent years, social scientists have done an excellent job documenting why it is that people come to accept fraudulent health claims. Social scientists are also beginning to devise and test many novel communication strategies for combating fraudulent health claims and

their impact on health behavior. Unfortunately, social scientists have lacked a single, cohesive, theoretical framework that we can consult when attempting to design new interventions to stop the spread of misinformation and alternative health behaviors. Until now, that is.

In their recent piece entitled *Protecting Consumers from Fraudulent Health Claims: A Taxonomy of Psychological Drivers, Interventions, Barriers, and Treatments*, MacFarlane, Hurlstone, and Ecker propose a much-needed taxonomy for understanding and responding to fraudulent public health claims. The VANMaN model they propose is both succinct and (reasonably) exhaustive. It is also both intuitive and generative in conceptual application; a point which I will demonstrate in detail, shortly. In this commentary, I begin by demonstrating the viability of the VANMaN model. I apply the taxonomy it to an emerging and salient fraudulent health claim with (potentially) important public health consequences – a conspiracy theory suggesting that tick borne illnesses are the result of government bio-weapon experimentation. I then introduce two conceptual critiques of the model that social scientists ought to keep in mind when consulting it in future research. First, I discuss the possibility that some fraudulent health claims might fall *outside* of the VANMaN framework – for example, those from which people derive social, cultural, and/or religious value. Second, I ask a reflexive about the VANMaN model: Could "fraudsters" *exploit* insights from the model in order to anticipate challenges to fraudulent claims? I conclude by characterizing the VANMaN model as a *living* taxonomy; one which social scientists may need to adjust, from time to time, in response to new public health challenges.

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1.1. Using VANMaN to combat conspiracy theories about Lyme Disease

To demonstrate that the VANMaN model is both intuitive in conceptual application, and generative in its ability to design interventions to preempt the effect of misinformation on health behavior, I apply the model to an emerging fraudulent claim related to public health – the belief that tick-borne illnesses like Lyme disease are the result of government bio-weaponry experimentation.

In July 2019, the US House of Representatives voted to pass a somewhat unusual amendment to the National Defense Authorization Act, introduced by Representative Chris Smith (R-NY). The amendment requires the US federal government to systematically study whether or not the military had attempted to transform “ticks and other insects” into “biological weapons” throughout the Cold War (Smith, 2019). Representative Smith, a fierce advocate for Lyme disease research, was apparently persuaded to draft this amendment after consulting research featuring disputed scientific claims (Tillett, 2019); like Kris Newby's popular book *Bitten: The Secret History of Lyme Disease and Biological Weapons*.

The claim that Lyme disease is the result of government experimentation is at odds with the best-available scientific research. Scientists attribute increases in tick-borne illness to conditions that allow deer ticks to live in new environments; including increased average global temperatures and changing deer population dynamics (Krakow, 2019). Additionally, fossil evidence from ancient Egypt suggests that the Lyme bacterium infected people several dozen millennia before the Cold War (Keller et al., 2012). This evidence does not necessarily *negate* the possibility that, at some point, the US federal government may have expressed an interest with experimenting with deer ticks. However, it strongly casts doubt on the idea that Lyme disease is the result of a flawed military research.

This fraudulent claim can be regarded as a *conspiracy theory*, as it alleges malicious intent on behalf of powerful and secret government actors (Uscinski and Parent, 2014; Miller and Saunders, 2016). This conspiracy theory could have dangerous health consequences. For example, public acceptance of misinformation about the Lyme vaccine (which prevents Lyme disease) is often credited with drug manufacturers' decision to pull it from the market in the late 1990s (Resnick, 2019). This move prevented millions of Americans living in areas where Lyme disease is common from protecting themselves against the disease. If people accept the premise that Lyme is nothing more than a military experiment gone awry, then they might *again* reject (or hold suspicion toward) an evidence-based and government-approved Lyme vaccine.

The VANMaN model can help social scientists better understand why some people might accept this conspiracy theory about Lyme disease, and help us design interventions to preempt its pernicious effects. Turning to Element 1 in Fig. 1 in MacFarlane and colleagues' article, VANMaN asks us to identify the *motivations* underlying public acceptance of this conspiracy theory. To do so, we will need to conduct descriptive public opinion that assesses not only how many Americans accept this theory, but that probes *why* they might be motivated to do so. For the time being, using Representative Smith as a guide, we might suspect that people accept misinformation about Lyme in order to make sense of why more Americans are contracting the disease.

Next, Element 2 in Fig. 1 asks us to identify the *drivers* of misinformation acceptance and *barriers* to correction. Why do some people accept Lyme conspiracies, instead of Lyme facts? Misinformation (the “M” in VANMaN), enabled by conspiratorial ideation (see: Table 1 in MacFarlane and colleagues' piece) offers a promising answer. Some people are simply more likely to attribute a wide range of health-related subjects as being the result of nefarious action on behalf of powerful people (Klofstad et al., 2019; Oliver and Wood, 2014, 2018).

While this explanation is intuitive, VANMaN invites us to consider relevant alternative drivers of misinformation acceptance. Some might note, for example, that conspiracy theory acceptance (and misinformation more generally) is enabled by directionally motivated reasoning (Kunda, 1990; Miller et al., 2016) – i.e., the tendency to accept misinformation that bolsters one's partisan, cultural, or other loyalties (Kahan, 2013, 2017). VANMaN anticipates this possibility (again, see Table 1 under the “Misinformation” sub-heading).

Motivated reasoning, however, implies some level of social or political polarization about Lyme disease and its causes. Relevant groups – like Democrats and Republicans in Congress, for example – might stake out clear positions on the issue, leading the public to hold views on Lyme disease that are polarized on the basis of political partisanship. At this point, however, it is simply not clear that such polarization exists. Moreover, while Rep. Smith (who introduced the aforementioned amendment to the National Defense Authorization Act) is a Republican, it is important to note that his amendment succeeded in a Democratically held House of Representatives (House Rules Committee, 2019).

After properly taxonomizing Lyme conspiracies and considering relevant alternatives, we can proceed to VANMaN's final steps – designing and piloting interventions aimed at *reducing* misinformation about the disease. Again consulting Table 1, VANMaN offers a number of evidence-based corrective strategies for combating the barriers to accurate information acceptance that conspiratorial ideation poses.

For example, health communicators hoping to (hypothetically) increase Lyme vaccine compliance could design messages that highlight “query mismatches” between the feasibility of conspiratorial actions – that is, recognizing that there is *some* chance of government interest in bio-weaponizing ticks – and the harms posed by failing to take action support by evidence based medicine (e.g., the continued spread of Lyme disease). One benefit of this approach is that it does not expressly negate the conspiracy theory, but aims instead to alter the mix of considerations people bring to mind when rendering a judgment about the vaccine. This approach could therefore allow individuals high in conspiratorial ideation to *retain* their conspiratorial suspicions, while nevertheless entertaining the possibility that alternative health behavior (foregoing vaccination) poses dangerous risks to public health.

1.2. When “fraud peddlers” are not fraudsters

Throughout this piece, MacFarlane and colleagues often refer to those – particularly, social and political elites – who share misinformation as “fraudsters.” Implied in the VANMaN taxonomy is the idea that some individuals deliberately aim to mislead the public, and that it is incumbent on us as social scientists to consider how it is that they might plan to do so. The authors make this point in the piece's conclusion, writing:

“The primary goal of the present taxonomy is to provide a framework to combat the weapons of persuasive influence that health fraudsters exploit by considering the psychological mechanisms by which those weapons operate, and then using these insights to craft treatments to help consumers resist such exploitation.”

In my view, the VANMaN taxonomy does an excellent job diagnosing and treating instances of fraud that originate from nefarious sources – that is, individuals motivated by profit, political gain, and so on. Nonetheless, what is less clear to me is how the taxonomy might classify fraudulent claims originating from sources motivated by less pernicious sets of considerations.

Take, for example, the traditional use of tobacco and psychedelic substances (e.g., peyote, ayahuasca) in Native American communities to address a wide range of medical ailments. While these traditions have immense social significance for those who practice them, and

are thought to be medically beneficial (see Horgan, 2017a for a detailed participant-observational account of this point), they are nevertheless “alternative” forms of medicine. With the exception that microdoses of psychedelic substances might have some medical benefits for treating addiction (Horgan 2017b), it stands to reason that the medical community would not recommend smoking tobacco or ingesting psychedelics as a solution to myriad and commonplace health problems.

It is not immediately clear where traditional medicine rituals fit into the VANMaN taxonomy, in part because it is difficult to ascribe malicious intent to those who share and participate in them. One could perhaps make the argument that participation in these traditions is driven by affective appeals to tradition (the “A” in VANMaN) – that is, the idea that, because something has been practiced for a long time, it must therefore be effective (see section 2.5.2 in MacFarlane et al., 2020). Appeals such as this one are certainly *logically* fallacious. However, it could nevertheless be true that practitioners of traditional medicine derive important social, religious, and psychological benefits from these rituals. Thus, to use VANMaN parlance, these rituals are propagated not by “fraudsters,” but by well-intentioned people living out religious and cultural tradition. Moreover, even if we were to make an effort to debunk logical fallacies – VANMaN’s prescribed treatment for affective appeals like this – it is unclear that they would be effective; as changing health behavior would require individuals to abandon tenants of important religious and cultural significance. Consequently, when consulting the VANMaN model in future research, social scientists should take caution to note that some fraudulent claims and alternative health behaviors they hope to study might fall outside of the taxonomy’s conceptual framework.

2. Conclusions: thinking reflexively about VANMaN

In conclusion, although the stated goal of the VANMaN model is to provide a cohesive framework for designing interventions that address fraudulent health claims, it is important to consider the possibility that some individuals might *abuse* the VANMaN framework to further the spread of fraudulent claims. Could a tool designed to help facilitate *our research* (as social scientists) potentially have the adverse consequence of enabling the work of fraudsters? Consider, for example, the application of inoculation messages – that is, warning the public about the tactics that fraudsters use to deliberately deceive – to combat misinformation (e.g., Compton et al., 2016; Cook et al., 2017; van der Linden et al., 2017). In theory, making fraudsters privy to how social scientists understand their messaging strategies might enable them to *adjust* their tactics in response. Fraudsters, much like the viruses that mutate in response to medically-induced inoculation, could use VANMaN to preempt and adapt to corrective messaging attempts. Of course, the possibility of abuse does not nullify the VANMaN model’s usefulness for social scientific research. Nor does it imply that attempts to correct misinformation are not worth doing. Even though efforts to study and implement evidence-based efforts to address misinformation could nevertheless be abused, failing to take corrective action allows misinformation to pervade, spread, and continue to influence health behavior. Instead, my hope is to draw attention to that fact that, as social scientists, we must be vigilant to the possibility that fraudsters adapt in response to messaging tactics informed by our research. Doing so might mean that we, as a scholarly community, must prepare to continually refine and update the VANMaN model in response to new challenges to med-

ical and scientific expertise. I ask us, then to think about VANMaN as a *living* taxonomy; one that is capable of incorporating new insights into its sub-taxa, and adjusting to new and pressing public health challenges.

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