Commentary

Fighting the Infodemic on Two Fronts: Reducing False Beliefs Without Increasing Polarization

Science Communication
1–9

DOI: 10.1177/1075547021102041 1
journals.sagepub.com/home/scx

Viorela Dan[1] and Graham N. Dixon[2]

Abstract

Actors aiming to remedy the effects of health misinformation often issue corrections focused on individual outcomes (i.e., promoting individual health behaviors) rather than societal outcomes (i.e., reducing issue polarization). Yet, for highly politicized health crises like the COVID-19 pandemic, such interventions run the risk of exacerbating societal cleavages, driving those holding opposing views further apart from one another. Interventions yielding individual benefits but causing societal harm are certainly not ideal. But is the design of such dual-focus corrections even possible? We believe this to be the case. Here, we delineate an agenda for future research that should help social scientists in identifying the characteristics of corrections that might reduce false beliefs without increasing polarization.

Keywords

misinformation, health communication, corrections, polarization

The novel coronavirus (COVID-19) pandemic has become one of the deadliest global disease outbreaks in a century, placing unprecedented strain on global health and economic systems. The pandemic's sudden emergence has been met with an equally rapid proliferation of false and misleading claims

[1]LMU Munich, Munich, Germany
[2]The Ohio State University, Columbus, OH, USA

Corresponding Author:
Viorela Dan, LMU Munich, Oettingenstr. 67, Munich D-80538, Germany.
Email: Viorela.Dan@ifkw.lmu.de

(i.e., misinformation)—especially on social media platforms, like Facebook, YouTube, and Twitter (see Southwell et al., 2018; Suarez-Lledo & Alvarez-Galvez, 2021). Such claims have spread doubt on the virus's origins, severity, and even existence while also discouraging preventive behaviors necessary to curb its spread (Barua et al., 2020). Recent research even linked COVID-19 misinformation to preventable death and hospitalization (Islam et al., 2020). Concerns about the impact of this misinformation at the individual and societal levels have been raised in response.

First, at the *individual level*, misinformation can increase the prevalence of false beliefs and promote attitudes and behaviors inconsistent with public health recommendations (Bridgman et al., 2020). It can reduce people's intention to get a COVID-19 vaccine, for example (Kantar, 2020). Second, at the *societal level*,[1] misinformation can exacerbate the gap between attitudes in society (i.e., issue polarization) and hostility among different-minded groups (i.e., affective polarization; Iyengar et al., 2012). COVID-19 misinformation, for instance, can cause people to arrive at different assessments of risk magnitude, thus fostering animosities between societal groups—be they liberals and conservatives, (information) haves and have-nots, or the young and the old (de Bruin et al., 2020; Hart et al., 2020; Motta et al., 2020; see #covidiot on Twitter). To the extent that they are considered to threaten identity, corrections could increase polarization (Hart & Nisbet, 2012). While these so-called backfire effects are less common than previously assumed, misperceptions often persist due to corrections' influence decaying overtime or by being drowned out by competing views that are more consistent with people's partisan or group identity (Nyhan, 2021).

The implication of all this is clear: Misinformation cannot be left unchallenged (see Southwell et al., 2018). In the COVID-19 pandemic, public health officials, politicians, fact checkers, and numerous other actors entered the fray in an attempt to fight the infodemic, defined as the viral spread of misinformation (World Health Organization, 2020). Currently, the main goal of such interventions, and the primary method in which their effectiveness is assessed, is by determining their capacity to reduce people's false beliefs and adopt preventive behavior (see Swire-Thompson et al., 2020). Given the urgency of the ongoing health threat, the decision to concentrate on individual outcomes made sense. Yet, as we are entering the second year of the pandemic, an exclusive focus on this level is insufficient. Of particular concern is how corrections to misinformation may embolden individuals to engage in downward social comparisons against those holding differing views—thus, how they may motivate people to embark on a high horse, what we call a high-horse effect of corrections to misinformation. This might lead to greater division between those passionately holding COVID-19-related

misperceptions and those with diametrically opposing viewpoints. This could occur when people feel extremely confident that they are in possession of the ultimate truth—a characteristic found in many who favor restrictive measures to curb the COVID-19 pandemic *and* in those who reject them. Corrections could then prompt defensive processing for some, and affirmation for others. But the result could call individuals' attention to outgroup comparisons, which could weaken the opportunity for reducing COVID-19 polarization. Thus, strategies to correct COVID-19 misinformation should consider a dual-focus approach that improves accuracy of individual-level beliefs, behaviors, and attitudes while also taking into account societal-level polarization.

The High-Horse Effect and Polarization

To understand why corrections to misinformation might have unintended effects, it is helpful to put oneself in the situation of an individual holding false beliefs at the time the correction is encountered, and that of one holding accurate beliefs, respectively.

First, defensive processing is a likely outcome to a person hearing that what they think to be true is in fact false. After all, being informed that one's belief is untrue often creates unpleasant psychological dissonance. In a highly politicized context like the COVID-19 pandemic, it seems unlikely that people would simply abandon their version of reality, especially when their reality is built to support a deep-rooted identity. Sticking to one's truth is, cognitively speaking, easier and more pleasant (Major & Jankowski, 2020). Indeed, a person convinced to be in possession of the ultimate truth, but who is frequently informed that they are wrong, might engage in downward social comparisons with those who reject and challenge their beliefs. This may involve derogation of the source of the correction and, with it, all those who subscribe to the version of reality presented in the correction.

In contrast, how would those who never fell for misinformation but still received a correction[2] feel about their fellow citizens who were less resilient? By less resilient, we mean both those who bought into misinformation in the first place *and* those who have done so and rejected the correction provided to them. In the current pandemic, for instance, it may not even have occurred to a person that drinking bleach does not cure COVID-19 until having encountered a corrective message stating so. Certainly, anxiety about the well-being of those falling for such claims would be a natural response. But, as social beings, people also have a natural tendency to compare themselves with one another (Suls & Wills, 1991). In this case, people might feel superior to those who fall victim to misinformation, perhaps even gloat over the

naiveté of less resilient others—a process that may further divide an already polarized populace.

Having proponents of both sides of an argument embark on a "high horse" is certainly not a welcome development, as it can exacerbate already existing deep societal divides. It would be helpful if there would be more dialogue between these polarized groups. How then can corrections increase understanding for the other side and the way they perceive the world while also correcting the misguided belief? Careful attention must be paid to how to correct the individual-level effects of misinformation such that polarization is not increased. The aim of this article then is to make specific recommendations for future research seeking to identify how corrections should be designed to accomplish the dual focus of reducing false beliefs while without increasing polarization.

Two Propositions for Future Studies

Proposition 1: Increase the Appeal of Corrective Messages

Currently, the most common way in which health communicators attempt to correct misinformation is through factual elaboration on why something was wrong and by stating the facts—often in a fact-checking format (see van der Meer & Jin, 2020). We argue that other formats may be more courteous (and perceived as less offensive) toward those taken in by misinformation, thus potentially decreasing both these individuals' reactance and others' contempt toward them (see Hart et al., 2009).

We provide two specific suggestions with regard to alternative formats. First, instead of just-the-facts accounts, corrections should consider telling stories about likeable individuals who realize they fell for a false or misleading claim (see also Dan, 2021). A recent study by Sangalang et al. (2019) demonstrated that corrections employing this storytelling technique were very successful in correcting false beliefs. To our knowledge, no study to date has contrasted people's views of the outgroup when the correction was provided as facts only versus using a human-interest story. However, related research on narratives suggests that a more lenient judgment will be passed on understanding the circumstances that led to a person's gullibility (see Green & Donahue, 2018). Also, those in need of this correction may experience less reactance to it and resent the fact-checking entity less.

Our second suggestion concerns the use of visuals in corrections. Given that the human brain is attracted to images and hardwired to trust that which they record as reality (Coleman, 2010), it seems advisable to support corrective messages with visual cues and evidence (Dan, 2018, 2021). Existing

research found verbal and visual corrections to be more enjoyable and more convincing than purely textual corrections (Amazeen et al., 2016; Garrett et al., 2013; Hameleers et al., 2020), especially those employing a video format (Young et al., 2018).

From the above, it follows that researchers should work toward the identification of such alternative formats and testing their effects on individual and societal outcomes. We would expect that video corrections in a human-interest format would yield best results. An indispensable component of these efforts are partnerships with fact-checking entities, as research must ensure that the alternatives tested meet these actors' normative expectations and thus have a real-life relevance.

With regard to methodology, we recommend embracing selective-exposure designs (Knobloch-Westerwick, 2015). Indeed, while available misinformation research has a predilection for forced-exposure designs (Walter & Tukachinsky, 2020), we must factor in our designs the high probability that—considering the high number of stimuli competing for attention—people are unlikely to delve into corrections on all topics in their daily lives. This would allow scholars to test how to increase the appeal of corrections, for instance, through the use of different formats (see also Swire-Thompson et al., 2020).

Proposition 2: Join Forces With Scholars of Polarization

Research into how the noxious effects of health-related misinformation can be contained has been typically addressed by cognitive psychology and communication research (Swire-Thompson et al., 2020; Walter & Tukachinsky, 2020). In order to expand the focus to include societal effects, we argue that work in polarization, conducted mostly in political science, should be incorporated into the existing body of knowledge (e.g., Iyengar et al., 2012).

Such a collaboration with polarization scholars would have methodological ramifications, such that larger samples than usual would have to be used. This is because, when assessing the effects of corrections at the individual level, we focus on their ability to bring about *mean change* typically through a pretest-posttest design. For example, a study might record whether people's level of agreement with a statement such as "Drinking bleach will cure those infected with COVID-19" can be reduced following exposure to a corrective message designed in a specific way. If pre-post mean change achieves statistical significance in the hypothesized direction, evidence would suggest that corrections might bring individual benefits (i.e., improved health attitudes and beliefs). However, in a study examining polarization, this type of insight would be insufficient. Rather, we would *also* be interested in uncovering evidence of potential societal-level effects (i.e., *the distribution of values on a*

continuum). We would want to know whether the correction increased or decreased the number of people located at the extremes. Analyses of this type will require careful consideration of statistical power such that the potential effects of corrections on polarization can be reliably assessed.

Conclusion

In addition to contributing to social science by conducting basic research on effective ways to fight the infodemic on two fronts, the perspective suggested here would also deliver social value by substantially improving the state of knowledge in such a way as to enable a society that is better informed and less divided on issues related to public health. The insights of effective message design strategies will prove relevant to fact-checking entities. As the most efficient corrections are those that are delivered rapidly (Walter & Tukachinsky, 2020), and given that opinion on emerging issues tends to be highly malleable, building an arsenal of ready-to-use techniques will improve actors' ability to act fast in fighting the infodemic in the current and future pandemics on both fronts.

Yet no one form of messaging acts as a panacea to misinformation surrounding this pandemic or future health crises. The problems that have surfaced during the pandemic may be symptoms of larger trends, some of which could have also been noticed before. For instance, some actors may choose to spread false and misleading claims while knowing very well that what they are stating is not accurate—perhaps to advance their own political agendas, consequences be damned. In any case, regardless of whether actors spread such claims knowingly (i.e., disinformation) or unknowingly (i.e., misinformation), as news consumers and social media users, we are obliged to work even harder to confront attempts of undue influence.

Acknowledgments

The authors are grateful to Dr. Briony Swire-Thompson for her careful read of an earlier version of this commentary and her thoughtful suggestions for improvement.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Viorela Dan https://orcid.org/0000-0002-5248-2502

Notes

1. Our focus here is on the societal effects of *misinformation surrounding the pandemic*. Certainly, a much broader range of societal effects than described here can be observed when focusing on those caused by the *pandemic itself*. For instance, public health measures that restrict business and in-person education/training might disproportionately affect economically disadvantaged countries, making them less competitive on the global market, leading to greater global divides. Moreover, measures such as lockdowns and enforced social distancing may worsen public mental health if these measures are enacted for lengthy periods of time (see Arendt et al., 2020).
2. As corrections are distributed widely, this scenario is likely. For instance, Facebook notifies all contacts of those who have spread misinformation that the claim at hand was false or misleading, and embeds a journalistic fact-check for details.

References

Amazeen, M. A., Thorson, E., Muddiman, A., & Graves, L. (2016). Correcting political and consumer misperceptions: The effectiveness and effects of rating scale versus contextual correction formats. *Journalism & Mass Communication Quarterly*, *95*(1), 28-48. https://doi.org/10.1177/1077699016678186

Arendt, F., Markiewitz, A., Mestas, M., & Scherr, S. (2020). COVID-19 pandemic, government responses, and public mental health. *Social Science & Medicine*, *265*, 113532. https://doi.org/10.1016/j.socscimed.2020.113532

Barua, Z., Barua, S., Aktar, S., Kabir, N., & Li, M. (2020). Effects of misinformation on COVID-19 individual responses and recommendations for resilience of disastrous consequences of misinformation. *Progress in Disaster Science*, *8*, 100-119. https://doi.org/10.1016/j.pdisas.2020.100119

Bridgman, A., Merkley, E., Loewen, P. J., Owen, T., Ruths, D., Teichmann, L., & Zhilin, O. (2020). *The causes and consequences of COVID-19 misperceptions*. OSF Preprints. https://doi.org/10.31219/osf.io/6tcdn

Coleman, R. (2010). Framing the pictures in our heads. In P. D'Angelo & J. A. Kuypers (Eds.), *Doing news framing analysis* (pp. 233-261). Routledge.

Dan, V. (2018). *Integrative framing analysis: Framing health through words and visuals*. Routledge. https://doi.org/10.4324/9781315171456

Dan, V. (2021). Von Fehlinformationen lernen: Ein unkonventioneller Vorschlag zur Konzeption von Richtigstellungen [Learning from misinformation: Fresh suggestions for correcting false and misleading claims]. *Publizistik*, *66*(2). https://doi.org/10.1007/s11616-021-00667-y

de Bruin, W. B., Saw, H.-W., & Goldman, D. P. (2020). Political polarization in US residents' COVID-19 risk perceptions, policy preferences, and protective

behaviors. *Journal of Risk and Uncertainty*, *61*, 177-194. https://doi.org/10.1007/s11166-020-09336-3

Garrett, R. K., Nisbet, E. C., & Lynch, E. K. (2013). Undermining the corrective effects of media-based political fact checking? *Journal of Communication*, *63*(4), 617-637. https://doi.org/10.1111/jcom.12038

Green, M. C., & Donahue, J. K. (2018). The effects of false information in news stories. In B. G. Southwell, E. A. Thorson & L. Sheble (Eds.), *Misinformation and mass audiences* (pp. 109-123). University of Texas Press.

Hameleers, M., Powell, T. E., Van Der Meer, T. G. L. A., & Bos, L. (2020). A picture paints a thousand lies? The effects and mechanisms of multimodal disinformation and rebuttals disseminated via social media. *Political Communication*, *37*(2), 281-301. https://doi.org/10.1080/10584609.2019.1674979

Hart, P. S., Chinn, S., & Soroka, S. (2020). Politicization and polarization in COVID-19 news coverage. *Science Communication*, *42*(5), 679-697. https://doi.org/10.1177/1075547020950735

Hart, P. S., & Nisbet, E. C. (2012). Boomerang effects in science communication. *Communication Research*, *39*(6), 701-723. https://doi.org/10.1177/0093650211416646

Hart, W., Albarracín, D., Eagly, A. H., Brechan, I., Lindberg, M. J., & Merrill, L. (2009). Feeling validated versus being correct. *Psychological Bulletin*, *135*(4), 555-588. https://doi.org/10.1037/a0015701

Islam, M. S., Sarkar, T., Khan, S. H., Mostofa Kamal, A.-H., Hasan, S. M. M., Kabir, A., Yeasmin, D., Islam, M. A., Chowdhury, K. I. A., Anwar, K. S., Chughtai, A. A., & Seale, H. (2020). COVID-19–related infodemic and its impact on public health: A global social media analysis. *American Journal of Tropical Medicine and Hygiene*, *103*(4), 1621-1629. https://doi.org/10.4269/ajtmh.20-0812

Iyengar, S., Sood, G., & Lelkes, Y. (2012). Affect, not ideology: A social identity perspective on polarization. *Public Opinion Quarterly*, *76*(3), 405-431. https://doi.org/10.1093/poq/nfs038

Kantar. (2020). Zurückhaltung gegenüber COVID-19-Impfstoff wächst [Reluctance to COVID-19 vaccine grows]. *kantardeutschland*. de/zurueckhaltung-gegenuber-covid-19-impfstoff/

Knobloch-Westerwick, S. (2015). *Choice and preference in media use advances in selective exposure theory and research*. Routledge. https://doi.org/10.4324/9781315771359

Major, L. H., & Jankowski, S. M. (2020). *Health news and responsibility*. Peter Lang. https://doi.org/10.3726/b16213

Motta, M., Stecula, D., & Farhart, C. (2020). How right-leaning media coverage of COVID-19 facilitated the spread of misinformation in the early stages of the pandemic in the U.S. *Canadian Journal of Political Science*, *53*(2), 335-342. https://doi.org/10.1017/S0008423920000396

Nyhan, B. (2021). Why the backfire effect does not explain the durability of political misperceptions. *Proceedings of the National Academy of Sciences of the United States of American*, *118*(15). https://doi.org/10.1073/pnas.1912440117

Sangalang, A., Ophir, Y., & Cappella, J. N. (2019). The potential for narrative correctives to combat misinformation. *Journal of Communication*, *69*(3), 298-319. https://doi.org/10.1093/joc/jqz014

Southwell, B. G., Thorson, E. A., & Sheble, L. (2018). Introduction. In B. G. Southwell, E. A. Thorson & L. Sheble (Eds.), *Misinformation and mass audiences* (pp. 1-11). University of Texas Press.

Suarez-Lledo, V., & Alvarez-Galvez, J. (2021). Prevalence of health misinformation on social media: Systematic review. *Journal of Medical Internet Research*, *23*(1), e17187. https://doi.org/10.2196/17187

Suls, J. E., & Wills, T. A. E. (1991). *Social comparison*. Lawrence Erlbaum.

Swire-Thompson, B., DeGutis, J., & Lazer, D. (2020). Searching for the backfire effect. *Journal of Applied Research in Memory and Cognition*, *9*(3), 286-299. https://doi.org/10.1016/j.jarmac.2020.06.006

van der Meer, T. G. L. A., & Jin, Y. (2020). Seeking formula for misinformation treatment in public health crises. *Health Communication*, *35*(5), 560-575. https://doi.org/10.1080/10410236.2019.1573295

Walter, N., & Tukachinsky, R. (2020). A meta-analytic examination of the continued influence of misinformation in the face of correction. *Communication Research*, *47*(2), 155-177. https://doi.org/10.1177/0093650219854600

World Health Organization. (2020). *Novel coronavirus (2019-nCoV)*. Situation Report 1.

Young, D. G., Jamieson, K. H., Poulsen, S., & Goldring, A. (2018). Fact-checking effectiveness as a function of format and tone. *Journalism & Mass Communication Quarterly*, *95*(1), 49-75. https://doi.org/10.1177/1077699017710453

Author Biographies

Viorela Dan, Dr. phil., is *Akademische Rätin* (postdoctoral researcher) at the Department of Media and Communication of the LMU Munich. She received her PhD in communication studies from the Free University of Berlin in 2016. Her most recent research focuses on fact checking and the effective correction of misinformation and disinformation, with a special focus on rectifying misperceptions resulting from exposure to deepfakes. She is the author of *Integrative Framing Analysis. Framing Health Through Words and Visuals* (Routledge, 2018).

Graham N. Dixon, PhD, is an assistant professor of communication at The Ohio State University. His research centers on science and risk communication with a specific focus on persuasion, information processing, and motivated reasoning. Recent work of his explores how diverse audiences process and react to messages on polarizing and controversial science and risk topics, including vaccination, self-driving cars, climate change, nuclear power, and public health measures related to COVID-19.