Dealing with misinformation in media

An overview of current scientific findings and recommendations on dealing with misinformation about COVID-19

Key messages

- Most people in Germany have good knowledge and information behavior regarding COVID-19; they are most likely to trust science and science journalism.
- Misinformation is found in all media, is harmful, is often directed at governments and international bodies (e.g., WHO), and is not consistently deleted or corrected by the social media platforms.
- The correction of misinformation is presumably effective but possibly not for all target audiences; it did not show any undesirable effects in the studies.
- Corrections should be made by independent scientific and journalistic institutions. These institutions should be strengthened and supported in their work.

This paper is addressed at policy-makers, scientists, and media representatives.

Background

The WHO director-general coined the term “infodemic” within the context of COVID-19 to refer to the detrimental effects of widely disseminated misinformation.

Misinformation within the context of this paper is false, manipulated, or distorted statements about COVID-19 that are not intended as satire or parody [24]. Misinformation can only be described as such with certainty after it has been fact-checked.

During the coronavirus crisis, the dissemination of false and distorted information can be particularly harmful for two reasons:

1. Misinformation about supposed “remedies” can motivate people to take dangerous actions that can harm themselves or others (such as drinking disinfectant).
2. Many behavioral prevention measures for containing the pandemic only work if they are implemented by as large a portion of the population as possible. Misinformation can undermine public confidence in such measures and the institutions responsible for introducing them and carrying them through, endanger their implementation, and thus make it more difficult to control infections.

Many untrue statements with potentially fatal consequences originate on social media, such as the hype over the malaria drug hydroxychloroquine [10].

This paper describes the extent, content, and consequences of misinformation about COVID-19 as well as approaches for an effective response and formulates recommendations for dealing with the problem.

Methods

The basis is a rapid review on the frequency and content of misinformation about COVID-19, on the information behavior and trust of people searching for information, and on strategies for dealing with misinformation and their effectiveness. We searched different databases (Medline, Google Scholar) and other information sources. In addition, we identified studies from the German healthcare context on the use of and trust in information on COVID-19 via an internet search. The database search did not yield any studies on strategies for dealing with misinformation in the context of COVID-19. We therefore also considered indirect evidence from the context of other public health topics that may plausibly be transferred to COVID-19 (e.g., vaccinations, Zika virus infection).

Status Quo

Level of information and information behavior regarding COVID-19 in Germany

According to repeated representative surveys (conducted weekly since 10/3/20), approximately three-quarters of respondents inform themselves regularly about COVID-19 [4]. The majority of the respondents (88%) were able to correctly answer questions on the treatment, transmission, and incubation period of COVID-19 during the period covered by the survey [4]. Approximately 95% of the respondents were familiar with important protective measures. At the same time, over 90% of the respondents to another representative survey (conducted once in early April 2020) felt well or very well informed about the coronavirus pandemic [19]. The respondents trusted doctors, hospitals, the Robert Koch Institute, and scientists most in overcoming the crisis [4]. However, 56% were unsettled by the flood of information, and only 51% believed themselves capable of judging whether information about the novel coronavirus was trustworthy [19]. The degree of uncertainty corresponds to that of a representative survey on general health literacy in Germany conducted in 2016 [22]. Respondents in Germany and five other countries regard scientific institutions and traditional, research-based science journalism as having the most important role in the dissemination of trustworthy news [15].

However, current political and societal developments (i.e., demonstrations on the second weekend of May) give reason to believe that misinformation is playing an increasing role in the public debate, also due to the fact that it is being disseminated by well-known people [25].

Frequency of misinformation on the internet and in social media

Initial analyses show that false or distorted information about the COVID-19 crisis is disseminated via many media (information pages on the internet [9]; WhatsApp/Telegram [3]; Twitter [16]; Facebook [5]; Youtube [2]). At the same time, social media platforms responded in very different ways to reported misinformation: on Twitter, 59% of the posts that had received complaints remained available, while the number on Youtube was 29% and that on Facebook 24% [7]. Facebook, Twitter, and Youtube state that they direct users looking for information about coronavirus and COVID-19 to official sites with reliable information [13]. Nevertheless, the engagement with pieces of misinformation on these portals is high [7]. There seems to be a correlation between approval of COVID-19 conspiracy theories and unwillingness to follow health recommendations on COVID-19 [1].

A report by the European External Action Service (EEAS) points out that misinformation may be used and disseminated deliberately for geopolitical purposes [11].

Content and nature of misinformation on the internet and in social media

In the analysis of a sample of fact-checked pieces of misinformation, about two-thirds of the cases investigated did not contain completely made-up information, but rather the content was distorted, recontextualized, and incorrectly abridged [7,15]. This is confirmed by an analysis of German posts on Facebook [5]. The most frequent were false or distorted claims about plans or measures of governmental or international authorities such as the UN and the WHO (39% of the cases investigated) [7,15]. Pieces of misinformation from celebrities about COVID-19, although small in number, have a high impact because they are disseminated frequently and increasingly [7], especially in the current situation (early May 2020) [25].

Response

Is it worth the effort to correct misinformation?

Regarding COVID-19, we could not identify any evidence for this question. A number of experiments in other public health contexts, some of them randomized, show the following:

a) misinformation on health topics has a negative impact on attitudes toward particular solidary and preventive behaviors and on the intention to adopt them, and
b) the correction of misinformation can partly reverse this negative impact [6,23].

The effects of corrections are not consistent throughout [8], but most of them show a positive effect [6,23]. Adverse effects of the correction of misinformation were not observed in any of the studies found. Above all, the experiments did not provide any evidence of the so-called “backfire effect,” that is, the confrontation with facts did not lead to reactance in the investigated groups and did not strengthen their belief in the misinformation [23]. This may apply only to a limited extent to people with strong preconceptions regarding conspiracy theories.

How should misinformation be corrected?

There are various techniques for correcting misinformation (e.g., contextualizing, exposing sources, linking to serious sources). Their use depends, among other things, on where the misinformation appears: They include general fact-checks published on one's own platforms as well as—in the case of misinformation posted on social networks—an immediate response by individuals or organizations. It cannot be deduced from the literature whether certain techniques are more effective than others [27]. The strategy of correcting facts and the analysis of argumentation patterns in cases of misinformation both seem to have an effect [23]. Initial data indicate that general questions about the trustworthiness of messages that pop up automatically before a user shares a news item can reduce the amount of misinformation shared [20]. Experts also suggest identifying sources that systematically or frequently spread misinformation [12]. This seems plausible even without any data regarding its effectiveness.

The data do not allow any conclusions to be drawn as to whether there are differences in effectiveness between specific target audiences and which target audiences can best be reached with which measures. It is possible that people with strong convictions/preconceptions regarding conspiracy theories are more difficult to reach.

Who should fact-check misinformation?

A few experiments indicate that a reply or a correction has a greater effect if it is made by a trustworthy scientific organization rather than by an individual [26]. At the same time, surveys suggest that people in Germany show the most trust in scientific institutions [4] and science journalism organizations [15].

Implementation

Who is currently correcting misinformation about COVID-19 in Germany?

An internet search we conducted via a search engine in late April 2020 established that, in the German-speaking countries, different institutions perform fact-checks aimed especially at false statements in connection with COVID-19. These include journalistic organizations (e.g., correctiv.org), public broadcasting institutions (e.g., Tagesschau.de), scientific institutions (e.g., Cochrane Austria: medizin-transparent.at), and government institutions (e.g., the German federal government, the German Federal Ministry of Education and Research). As yet, however, there is no neutral platform on which all fact-checks may be accessed, there is no consistent methodology, and there are no consistent transparency criteria. Several journalistic organizations that maintain blogs also react directly on social networks and respond to posts with false statements (e.g., "Volksverpetzer," "uebermedien"). The paid service offered by Newsguardtech marks pages already in the browser according to whether they are reliable or frequently disseminate information that has been shown to be false.

Conclusion and recommendations

Misinformation is found in all social media, is harmful, is directed particularly often at governmental agencies and international bodies, and is not consistently deleted or corrected by the platforms. The correction of misinformation is presumably effective but possibly not for all target audiences; it shows no undesirable effects.

We therefore recommend promptly working out and implementing a national strategy for dealing with misinformation. Policy-makers, scientists, and journalists should be involved in this process. This strategy should include the following:

- guarantee of easy access and better dissemination of high-quality news and fact-checks.
- definition of minimum requirements regarding the methodology applied in identifying and correcting misinformation
- definition of minimum requirements regarding transparency and documentation for fact-checks
- concept for a service providing protection against or correction of misinformation, stratified by target audience
- definition of requirements for the providers/"tech companies" regarding monitoring and dealing with misinformation

Scientific and science journalism organizations, which are perceived as independent, should play a key role in the correction of misinformation. Their work should be supported and expanded. In the German-speaking countries, for example, the fact-checking services of correctiv (correctiv.org) or Cochrane Austria (medizin-transparent.at) could serve models for the design of a joint service.

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Sources

1. Allington D, Dhavan N. The relationship between conspiracy beliefs and compliance with public health guidance with regard to COVID-19. London: Centre for Countering Digital Hate. King's Research Portal. 2020. Internet: https://t1p.de/h25c
2. Basch CH, Hillyer GC, Meleo-Erwin ZC, Jaime C, MohlmannJ, Basch CE. Preventive behaviours conveyed on youtube to mitigate transmission of COVID-19: Cross-sectional study. JMIR Public Health Surveill 2020;6(2):e18807.
3. Bastani P, Bahrami MA. COVID-19 related misinformation on social media: a qualitative study from Iran. JMIR 2020 (preprint, March 27).

4. Betsch C: COVID-19 Snapshot Monitoring (COSMO). Wissen, Risikowahrnehmung, Schutzverhalten, Vertrauen. Stand 27.4.2020 (Version 08-02). Internet: https://projekte.uni-erfurt.de/cosmo2020/cosmo-analysis.html
5. Boberg S, Quandt T, Schatto-Eckrodt T, Frischlich L. Pandemic populism: Facebook pages of alternative news media and the corona crisis – a computational content analysis. Muenster online research (MOR) working paper 4/2020. Internet: https://arxiv.org/abs/2004.02566
6. Bode, L. & Vraga, E. K. (2018) See Something, Say Something: Correction of Global Health Misinformation on Social Media, Health communication doi:10.1080/10410236.2017.1331312.
7. Brennen JS, Simon F, Howard PN, Kleis Nielsen R. Types, sources and claims of COVID-19 misinformation. Factsheet. Apr. 2020. University of Oxford. Internet: https://t1p.de/fqqs
8. Carey, J. M., Chi, V., Flynn, D. J., Nyhan, B. & Zeitzoff, T. (2020) The effects of corrective information about disease epidemics and outbreaks: Evidence from Zika and yellow fever in Brazil, Science advances doi:10.1126/sciadv.aaw7449.
9. Cuan-Baltazar JY, Munoz-Perez MJ, Robledo-Vega C, Perez-Zepada MF, Soto-Vega E. Misinformation of COVID-19 on the Internet. Infodemiology study. JMIR public health surveill 2020:6(2):e18444.
10. Donovan J. Social Media companies must flatten the curve of misinformation. Nature 4/2020. Doi: 10.1038/d41586-202-01107-z
11. Europäischer Auswärtiger Dienst (EAD) (2020.) EAD Sonderbericht. Update: Kurzbewertung der Narrative und disinformation der COVID-19-Pandemie (Aktualisierung 2.-22. April 2020). https://euvsdisinfo.eu/ead-sonderbericht-update-kurzbewertung-der-narrative-und-desinformation-zur-covid-19-pandemie-aktualisierung-2-22-april/
12. Fischer, S. What experts say works for combating coronavirus misinformation, 2020. https://www.axios.com/what-experts-say-works-for-combating-coronavirus-misinformation-146084b8-1312-403d-b948-3e190f16b7f3.html (abgerufen: 1.5.2020)
13. Jamieson, Kathleen H., Albarracin, Dolores (2020). The Relation between Media Consumption and Misinformation at the Outset of the SARS-CoV-2 Pandemic in the US, The Harvard Kennedy School (HKS) Misinformation Review, Volume 1, Issue 2
14. Jolley, D., & Douglas, K. M. (2017). Prevention is better than cure: Addressing anti-vaccine conspiracy theories. Journal of Applied Social Psychology, 47, 459–469. doi:10.1111/jasp.12453
15. Kleis Nielsen R, Fletcher R, Newman N, Brennen SJ, Howard PN. Navigating the infodemic: How people in 6 countries access and rate news and information about coronavirus. Reuters Institute. https://reutersinstitute.politics.ox.ac.uk/infodemic-how-people-six-countries-access-and-rate-news-and-information-about-coronavirus
16. Kouzi R, Jaoude JA, Kraitem A, El Alam MB, Karam B, Adib E, Zarka J, Traboulsi C, Akl EW, Baddour K. Coronavirus goes viral: Quantifying the COVID-19 Misinformation Epidemic on Twitter. Cureus 2020. Doi 10.7759/cureus.7255.
17. Larson H. Blocking Information on COVID-19 can fuel the spread of misinformation. Nature 580, 306 (2020). Internet: https://t1p.de/alaq
18. Mian A, Khan S. Coronavirus: The spread of misinformation. BMC Medicine 2020 18:89. Internet: https://t1p.de/1vp8
19. Okan O, de Sombre S, Hurrelmann K, Berens EM, Schaeffer D. Gesundheitskompetenz der Bevölkerung im Umgang mit der Coronavirus-Pandemie. Bielefeld & Berlin, April 2020. Internet: https://t1p.de/4p54
20. Pennycook, G., McPhetres, J., Zhang, Y., & Rand, D. (2020). Fighting COVID-19 misinformation on social media: Experimental evidence for a scalable accuracy nudge intervention.
21. Rosenberg H, Syed S, Rezaie S. The Twitter pandemic: The critical role of twitter in the dissemination of medical information and misinformation during the COVID-19 pandemic. Canad J Em Phys 2020:1-4. Doi 10.1017/cem.2020.361.

22. Schaeffer, D., Vogt, D., Berens, E.-M. & Hurrelmann, K. (2017) Gesundheitskompetenz der Bevölkerung in Deutschland: Ergebnisbericht (Universität Bielefeld, Fakultät für Gesundheitswissenschaften). Internet: https://t1p.de/ggnw
23. Schmid, P. & Betsch, C. (2019) Effective strategies for rebutting science denialism in public discussions, Nature human behaviour doi:10.1038/s41562-019-0632-4.
24. Tandoc, E. C., Lim, Z. W. & Ling, R. (2018) Defining "Fake News", Digital Journalism doi:10.1080/21670811.2017.1360143.
25. Volksverpetzer: Faktenchecks zu Attila Hildmann, Ken Jepsen, Thomas Kemmerich, Xavier Naidoo: https://www.volksverpetzer.de/social-media/naidoo-hildmann-kenfm-co/; https://www.volksverpetzer.de/bericht/gera-kemmerich-afd/ (Abruf am 10.05.2020)
26. Vraga, E. K. & Bode, L. (2017) Using Expert Sources to Correct Health Misinformation in Social Media, Science Communication doi:10.1177/1075547017731776.
27. Walter N & Murphy S. (2018). How to unring the bell: A meta-analytic approach to correction of misinformation. Communication Monographs. 1-19. 10.1080/03637751.2018.1467564.

Link to a more detailed document

Methods: https://www.public-health-covid19.de/images/2020/Ergebnisse/20200511_Recherche_Fake_Corona-1.pdf

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