



**COVID-19 Misinformation in Canada: Report on
Survey Findings to Date**

31 MAY 2020

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This report synthesizes preliminary findings of several Canadian-focused surveys relating to COVID-19 and misinformation. It focuses on two specific areas:

- the extent to which Canadians are exposed to COVID-19 misinformation online, and
- the extent to which Canadians are believing misinformation.

Survey methodologies

At the time of writing we identified five publicly released national surveys on COVID-19 and misinformation in Canada. These are shown and linked in Table 1. With the exception of the survey by Pennycook et al., they were weighted according to Canadian census data. Bridgman et al. also analyzed a dataset of 2.5 million tweets and 9,000 news articles mentioning COVID-19, but this report is focused on the results of their survey. The primary differences between the five surveys are the areas of misinformation-specific focus, the number of respondents, and the time at which data were collected.

While these five surveys were all directed towards misinformation-related topics, each emphasized a different aspect of COVID-19 misinformation. Gruzd and Mai focused on information literacy and behavior, and so examined how often respondents consciously perceived misinformation and what they did about it. Such a focus is quite different from Bridgman et al., Pennycook et al., Waddell et al., and Canseco, all of whom focused on whether respondents had encountered and believed specific misinformed claims. Pennycook et al. and Bridgman et al. further focused on measuring beliefs in misinformation against various factors including political ideology, cognitive sophistication, use of social media, and adoption of preventative behaviors.

Table 1. Surveys relating to COVID-19 misinformation

Authors	Link to survey findings	Survey respondents	Date of survey
Pennycook, G., McPhetres, J., Bago, B., and Rand, D.	Predictors of attitudes and misperceptions about COVID-19 in Canada, the U.K., and the U.S.A.	644	24 March 2020
Canseco, M.	Fake claims tainting stream of COVID-19	1000	30 March - 1 April, 2020

	information in Canada: poll		
Bridgman, A., Merkley, E., Loewen, P.J., Owen, T., Ruths, D., Teichmann, L., and Zhilin O.	The Causes and Consequences of COVID-19 Misperceptions: Understanding the Role of News and Social Media	2500	2- 6 April 2020
Gruzd, A., and Mai, P.	Inoculating against an Infodemic: A Canada-wide COVID-19 News, Social Media, and Misinformation Survey	1500	9-17 April, 2020
Waddell, C., Everts, S., Greenberg, J., and Popplewell, B.	New Carleton Study Finds COVID-19 Conspiracies and Misinformation Spreading Online	2000	5-8 May, 2020

Encountering misinformation

Bridgman et al., Gruzd and Mai, and Canseco each sought to measure exposure levels to COVID-19 misinformation. Gruzd and Mai asked respondents whether they knowingly encountered misinformation on social media in general, and 68% of them responded that they had.

This finding is significant not only because of the high proportion of Canadians who encounter misinformation, but also because it may actually underestimate the prevalence of misinformation. Relying on respondents to recognize misinformation means that individuals who encountered misinformation but did not recognize it as such would not report encountering it. Further, this value may not account for those individuals who believe certain pieces of misinformation and would therefore not report encountering it. For example, this may be the case for someone who believes a certain conspiracy theory and may therefore not report it as misinformation. This case is made evident by Waddell et al. They found that 58% of respondents who believed in a 5G conspiracy expressed confidence that they could easily identify misinformation, demonstrating that respondents' perceptions of misinformation do not always reflect reality.

Canseco asked respondents whether they had been exposed to three specific discredited claims, and 44% of respondents reported that they had been exposed to at least one of those claims. Specifically, he found that the following proportions of people were exposed to specific misinformation claims.

- COVID-19 is an artificially created biological weapon 27%
- COVID-19 originated in the United States 14%
- Getting more sunlight can protect against COVID-19 10%

Providing respondents with specific discredited claims avoids the issue of relying on respondents knowingly recognizing misinformation. Yet focusing on only three claims presents a limited snapshot of overall exposure to COVID-19 misinformation. There are far more than four misinformed COVID-19 claims circulating to date. For instance, Brennen et al. analyzed a corpus of 225 pieces of COVID-19 misinformation,¹ and Gruzd and Mai identified 12 COVID-19 claim types based on a corpus of 2,595 discredited claims.² Thus, Canseco's finding that 44% of respondents had encountered 1 of 3 claims is likely also under representing the rate of exposure to misinformation in Canada.

Believing misinformation

Beyond asking Canadians whether they encountered misinformation, Bridgman et al., Pennycook et al., Waddell et al., and Canseco all asked respondents whether they believed a range of discredited COVID-19 claims. The claims examined by each group, along with associated findings, are listed below.

Credulity of claims investigated by Canseco

- COVID-19 is an artificially created biological weapon 12%
- COVID-19 originated in the United States 6%
- Getting more sunlight can protect against COVID-19 4%

Credulity of claims investigated by Waddell et al.

- COVID-19 is an artificially created biological weapon 26%
- Unproven drugs like hydroxychloroquine are effective 23%
- Rising your nose can prevent infection 17%
- COVID-19 is related to 5G technology 11%

¹ J. Scott Brennen et al., "Types, sources, and claims of COVID-19 misinformation" (working paper, Reuters Institute for the Study of Journalism, University of Oxford, 2020), <https://reutersinstitute.politics.ox.ac.uk/types-sources-and-claims-covid-19-misinformation>.

² Anatoliy Gruzd and Philip Mai, "COVID-19 Claim Types Coding Schema, Version 2.0" (working paper, Social Media Lab, Ryerson University, 2020), <https://covid19misinfo.org/covid-19-claim-types/>.

Credulity of claims investigated by Pennycook et al.

• The coronavirus is not airborne	21.12%
• Dogs and cats can contract and spread the coronavirus	12.73%
• The seasonal flu is just as dangerous as the coronavirus	11.8%
• The vast majority of people who contract the coronavirus will need to be hospitalized	11.2%
• Most people are very likely to contact the coronavirus simply from leaving their house and going for a walk	8.07%
• Warm weather effectively stops the coronavirus from spreading	7.3%
• The coronavirus was created in a lab	6.99%
• Coronavirus symptoms are short lived	6.52%
• Holding your breath for 10 seconds without discomfort is an effective way to test if you have coronavirus	6.52%
• Coronavirus was created to be a bioweapon	4.66%
• The coronavirus only stays alive on your hand for about 5-10 minutes	4.49%
• The virus is relatively large, so any type of mask can filter it out	4.19%
• A cure for the coronavirus has already been discovered but is being suppressed by people who want the pandemic to continue	3.57%
• You can only spread the coronavirus if you feel sick	2.95%
• The coronavirus does not survive on plastic or steel for longer than a few minutes	2.95%
• The coronavirus will kill most people who contract it	2.17%
• You can tell almost immediately (within a day) if you have contracted the coronavirus	1.71%
• Vitamin C can cure the coronavirus	1.24%
• If one gargles with warm water and salt or vinegar it eliminates the coronavirus	1.24%
• Eating garlic cures the coronavirus	0.62%
• The coronavirus is probably a hoax	0.62%

Bridgman et al. also investigated misinformation claims, but did not report on their credulity.

- The coronavirus is no worse than the seasonal flu
- Drinking water every 15 minutes will help prevent the coronavirus
- The Chinese government developed the coronavirus as a bioweapon
- Homeopathy and home remedies can help manage and prevent the coronavirus
- The coronavirus was caused by the consumption of bats in China

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- The coronavirus will go away by the summer
 - Vitamin C can ward off the coronavirus
 - There is a vaccine for the coronavirus that national governments and pharmaceutical companies won't release
 - High temperatures, such as from saunas and hair dryers, can kill the coronavirus

Waddell et al. reported a significantly higher rate of credulity in these claims than either Pennycook et al. or Canseco. On the overlapping claim that COVID-19 is an artificially created bioweapon, Waddell et al. found credulity to be between 2 and 5 times more common, at 26% of respondents compared to 12% (Canseco) and 4.66% (Pennycook et al.). The significant difference in their findings can likely be partially explained by the different types of claims they evaluated. For instance, the claims that sunlight can protect against COVID-19 and that garlic is an effective cure have been thoroughly disproven, while the claim that hydroxychloroquine is an effective cure was still under study at the time of the surveys. Thus, it is quite understandable that Waddell et al. found a much higher credulity rate in hydroxychloroquine (23%) than Pennycook et al. found in garlic (0.62%) and Canseco found in sunlight (4%). However, the elapsed time between the two surveys should also be kept in mind. According to Michela del Vicario, online misinformation spreads slower yet lasts longer than scientifically-informed information.³ Thus, it might be possible that Waddell et al. found a much higher credulity in the bioweapon conspiracy than Pennycook et al. and Canseco in part because their survey was conducted in May rather than in March. This reveals that misinformation claims and credulity rates vary over time, meaning that health officers' and researchers' efforts to address them need to be ongoing and evolving to respond to the changing misinformation landscape.

Waddell et al. and Canseco also found contradictory patterns in credulity across demographics. Across age groups, Waddell et al. found that respondents aged 18-29 were between 25% and 360% more likely to believe discredited claims than respondents aged 60+, depending on the claim in question. Canseco's report, while only releasing the demographic credulity of one claim, found that respondents aged 55+ were 336% more likely to believe the discredited claim than respondents aged 15-34. The disparity between Waddell et al. and Canseco also extends to gender demographics. Canseco found that women were decidedly more likely than men to believe in discredited information, while Waddell et al. found no significant differences across genders. As of yet there is no clear reason why their findings are contradictory.

³ Michela del Vicario et al., "The spreading of misinformation online," *Proceedings of the National Academy of Sciences of the United States of America*, 113, no. 3 (2016): 554–559, <https://doi.org/10.1073/pnas.1517441113>.

Bridgman et al. and Pennycook et al. further sought to determine if credulity was connected to various factors. Pennycook et al. looked at credulity of misinformation in relation to political ideology and cognitive sophistication. They found little correlation between credulity and political ideology in Canada, albeit their survey was not weighted and so one political ideology was over-represented (of the 644 respondents, 415 identified as Liberal and only 93 identified as Conservative). They did, however, find a negative relationship between cognitive sophistication - measured by testing for scientific knowledge, numeracy, analytical thinking - and "bullshit receptivity". They suggest that the respondents were less likely to believe COVID-19 misinformation if they possessed basic scientific knowledge and higher analytical reasoning.

Meanwhile, Bridgman et al. looked at credulity of misinformation in relation to exposure to social media and adoption of COVID-19 preventative behaviors. They did not provide credulity rates for the claims they investigated, but they did find that credulity in misinformation was higher for those respondents who often used social media than for those who did not. They also found that those who believed in misinformed claims were less likely to have adopted prevention behaviors. This finding emphasizes the real-world impact of misinformation, suggesting that credulity in false claims can actively contribute to the spread of COVID-19.

Conclusion

These five studies shed some light on various issues surrounding COVID-19 misinformation in Canada.

Three CIHR-funded research projects are currently researching COVID-19 misinformation in Canada: the University of Alberta's *Coronavirus Outbreak: Mapping and Countering Misinformation*, York University's *COVID-19's Informational Virus: Analyzing the Viral Character and Effects of Social Media Misinformation*, and Royal Roads University's *Inoculating Against an Infodemic: Microlearning Interventions to Address CoV Misinformation* (with which Gruzd and Mai are partnered). Waddell et al. will be conducting a second phase of their survey in June, with a report to follow. The BC CDC is also currently conducting a survey of COVID-19 misinformation in BC. Each of these projects will be sharing the findings of their research as they become available.

Methodology

The studies synthesized in this report were accessed on 31 May 2020. They were found using the search terms "COVID-19," "Canada," and "misinformation" on Google and Google Scholar, as well as through [CORD-19](#) and through the Royal Roads University library.

Acknowledgements

Inoculating Against an Infodemic: Microlearning Interventions to Address CoV Misinformation is a research project supported by a grant from the [Canadian Institutes of Health Research \(CIHR\)](#).



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