

# COVID-19 Mental Health Working Group concept paper series

## Topic – Fighting the infodemic to promote resilience in our shared online minds

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The COVID19 pandemic has affected us all. However, the effects on mental health have not been universal. Therefore, the road to recovery after COVID-19 is complex. This series of papers engages experts across multiple disciplines, addressing digital engagement and the need for information, and the unique mental health recovery challenges experienced by students, carers, older adults as well as stigmatised or marginalized communities. Each of the papers in this series is structured as follows: What we know, what we don't know and what we can do to map a nuanced path to effective creative recovery.

### What we know

The word “Infodemic” was coined as a mix of “information” and “epidemic” in 2003 by journalist and political scientist David Rothkopf [1] and has been used by the World Health Organisation Director-General Dr. Tedros Adhanom Ghebreyesus recently to refer to the fast spread of misinformation about COVID-19 [2]. In addition to creating confusion and even panic about the origin of a disease, infodemics can also spread misinformation about treatments and preventive measures, posing serious threats to public health [3]. The WHO established the Information Network for Epidemics (INE) in response to the COVID-19 infodemic, to provide access to timely, accurate and easy-to-understand advice and information from established medical research institutes on public health crises (<https://www.who.int/teams/risk-communication>).

Misinformation during a pandemic can be traced back to the Middle Ages. During the Black Death plague pandemic in Europe, it was believed that plague spread through poisons in the air, and doctors wore beaked masks as personal protective equipment [4]. At the present time, the WHO has stated that there are no known effective interventions for preventing or treating a SARS-COV2 infection. Unfortunately, misleading claims by some health professionals, as well as unsubstantiated home remedies to treat COVID19 abound on the internet, disseminated via both social media, as well as some traditional media outlets. For example, some Canadian chiropractors promoted their interventions as capable of boosting immunity against as SARS-COV2 [5], despite a statement by a Canadian chiropractic regulatory body that “the prevention and treatment of infectious disease is not within the scope of chiropractic practice” [6]. As another example, messages are spreading through social media naming garlic as a miracle remedy for treating COVID-19, despite a complete lack of evidence [7].

Is the public ready for the ramifications of the COVID-19 infodemic? Seeking health information online has become routine for many people during lockdown. Research

shows that most people are credulous and easily believe information on social media sites like Twitter [8]. The credulity in misinformation by the public can lead to severe and even lethal consequences. A report [9] released by the Iranian government showed that over 700 deaths from alcohol poisoning may be associated with a fake “alcohol remedy” which originated in social media accounts, suggesting “alcohol builds immunity against COVID-19”, without any supporting evidence.

### **What we don't know**

There is an immediate need to research the connection between consumption of COVID-19 related misinformation, and the emotional reactions and the behavioural patterns that eventuate for individuals, and at the population level. Exaggerated reports about the risks of the disease can trigger anxiety and unnecessary visits to hospital emergency departments, stressing the healthcare system. Conversely, a recent study in the UK warns of substantial increases in cancer diagnoses overall, as well as presentation at more advanced stages of cancer after the COVID-19 pandemic is over, due to decreased or postponed cancer screening tests [10]. Depending on their personality, some individuals may continue to avoid hospitals for medical screening tests for fear of being infected, even when it becomes safe to do so.

Repeated exposure to the misinformation such as exaggerated information on pandemic estimates [11] can cause persistent negative emotions, which may develop into clinical mental health conditions. It is important to establish whether particular types of misinformation may lead to longer-term cognitive changes, given the associated behavioural changes may promote further damage to the health of individuals. For example, misleading claims by some physicians during the pandemic may lead people to mistrust healthcare professionals in general, and resist critical medical interventions when these are required [11].

It may be especially important to determine and manage the psychological distress faced by vulnerable groups during the pandemic, as a result of misinformation about COVID-19. Individuals with pre-existing underlying mental health conditions such as anxiety and depression may be uniquely reactive to misinformation about a global health crisis. Research is needed to examine how health misinformation may trigger or deepen anxiety or depression. As such, it will be also important to understand what strategies could effectively mitigate infodemic-driven episodes of stress, anxiety and depression during crises like the COVID-19 pandemic.

### **What we can do**

In the internet age where the public can easily generate and share information online, health misinformation will exist well beyond the current COVID-19 pandemic. The spread of misinformation will remain one of the grand challenges of the 21<sup>st</sup> century [12]. We advocate for cross-disciplinary joint research efforts to understand the impact of health misinformation on the mental status of the population during the crisis, and its impact on the mental wellbeing of individuals beyond the crisis period.

To directly counteract the infodemic, we call for establishment of an agile, inclusive, national information network as the authoritative information source to disseminate evidence-based information and behavioural guidelines about COVID19. While there are government or health organization websites, they have a limited focus, and are not curated to provide information to diverse vulnerable groups, for example those with mental mood disorders. By providing sensitively real-time information, this network could prevent needless mental distress.

Software tools for monitoring media contents and automatic detection of harmful misinformation about pandemics are also needed to effectively combat the spread of misinformation on social media platforms. For example, algorithms have been developed to automatically detect rumours about COVID-19 on Twitter (<https://xiuzhenzhang.github.io/rmit-covid19/>). Additionally, education tools on the credibility of information and guidance to public fact-based sources, should be co-developed by researchers, governments, minority and disadvantaged groups and others.

Advanced technologies such as big data and artificial intelligence (AI) can be integrated into other disciplines to achieve digital transformation for mental health care. Online misinformation attracts reactions from the public, resulting in large volumes of natural language text data from users expressing their feelings and emotions. Such big data enables the development of AI tools to analyse and monitor the mental health status of the nation in relation to generating and accessing misinformation. Moreover, social science researchers could exploit and further fine-tune such AI tools for focused analysis of different community groups. Results from such large-scale analysis will ultimately drive mental health researchers develop novel, evidence-based diagnosis and treatment of mental health issues triggered by misinformation.

To address a grand challenge at the population scale like the COVID-19 pandemic, concerted efforts from multiple disciplines including information technology, biology, mental health science and social science are required [13], to help sustain the mental wellbeing of society, by reinforcing healthy online information channels and enabling society to react appropriately and confidently to any future global health challenges.

## References:

1. <https://www.merriam-webster.com/words-at-play/words-were-watching-infodemic-meaning>. Accessed on 10 July 2020.
2. Zarocostas, J., 2020. How to fight an infodemic. *The Lancet*, 395(10225), p.676.
3. Mian, Areeb, and Shujhat Khan. "Coronavirus: the spread of misinformation." *BMC medicine* 18.1 (2020): 1-2.
4. Black, Winston. *The Middle Ages: Facts and Fictions*. ABC-CLIO, 2018, pp. 169-190.
5. Kawchuk, G., et al., 2020. The use of internet analytics by a Canadian provincial chiropractic regulator to monitor, evaluate and remediate misleading claims regarding specific health conditions, pregnancy, and COVID-19. *Chiropractic & Manual Therapies*, 28, pp.1-7.
6. <https://www.chirobc.com/ccbc/wp-content/uploads/2020/06/CCBC-Professional-Conduct-Handbook-JUNE-2020.pdf>. Accessed on 20 July 2020.

7. " Coronavirus 'cure' involving boiled garlic water appearing on WhatsApp, Facebook".  
<https://7news.com.au/technology/coronavirus-cure-involving-boiled-garlic-water-appearing-on-whatsapp-facebook-c-703797>
8. Shariff, S.M., Zhang, X. and Sanderson, M., 2017. On the credibility perception of news on Twitter: Readers, topics and features. *Computers in Human Behavior*, 75, pp.785-796.
9. <https://www.abc.net.au/news/2020-04-28/hundreds-dead-in-iran-after-drinking-methanol-to-cure-virus/12192582>. Accessed on 10 July 2020.
10. Maringe, C. Spicer J., Morri M., Purushotham A., Nolte E., Sullivan R., Rachet B., Aggarwal S. The impact of the COVID-19 pandemic on cancer deaths due to delays in diagnosis in England, UK: a national, population-based, modelling study. *The Lancet Oncology* July 2020, DOI:[https://doi.org/10.1016/S1470-2045\(20\)30388-0](https://doi.org/10.1016/S1470-2045(20)30388-0)
11. <https://litfl.com/i-dont-trust-doctors/>. Ioannidis, JPA. 2020. Coronavirus disease 2019: The harms of exaggerated information and non-evidence-based measures. *Eur J Clin Invest*. 50(4).
12. <https://www.bbc.com/future/article/20170301-lies-propaganda-and-fake-news-a-grand-challenge-of-our-age>
13. Holmes, Emily A., et al. 2020. "Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science." *The Lancet Psychiatry*.

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