Interests in quitting smoking and alcohol during COVID-19 pandemic in India: A Google Trends study

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The novel coronavirus (2019-nCoV), first reported in Wuhan city of central Hubei province of China in December 2019, has spread across the globe at a rapid pace. The first case of COVID-19 in India was detected in a medical student returning from Wuhan on 30 January 2020. There has been a steady increase in the number of cases in India since then.

It is a well-established fact that, just like smoking, alcohol use is significantly associated with the risks for pneumonia.1, 2 The negative effects of alcohol in the transmission and disease progression of viral infections are also well studied.3 Recent studies have highlighted the negative association of smoking and prognosis in patients with COVID-19.2, 4 However, the effects of alcohol-related liver disease on prognosis of COVID-19 is still under evaluation.5 In response to fake news that alcohol provides protection against COVID-19, the World Health Organization released a detailed factsheet providing important information about alcohol consumption and COVID-19.6 This document advises readers to avoid alcohol altogether to protect the immune system and to stay sober to act quickly and make decisions with a clear head, for oneself and others in one’s family and community. Moreover, in an attempt to control the pandemic, the Indian government implemented strict physical distancing measures and advised the public to remain indoors and also banned the sale of alcohol and tobacco from 25 March 2020. The ban was very strict, and no tobacco or alcohol was available legally to buy either directly from stores or online, and it extended to more than 2 months.

Many mental health specialists and public health experts have appeared on television and have written in newspapers to advise members of the public to utilize this period to quit smoking and alcohol.

Google Trends analysis during the lockdown period showed a sharp increase in Google searches on COVID and disinfection measures in India. This study aims to investigate the interest in quitting smoking and alcohol during the lockdown period in India from 25 March 2020 to determine the effectiveness of public awareness measures conducted regarding the negative aspects of smoking and alcohol during the COVID-19 pandemic. This methodology was adopted from a recent study with the understanding that a significant population of India search for health-related information online and Google Trends can provide information regarding collective health trends.7, 8 As the interest in ‘COVID’ and ‘hand sanitizer’ increased rapidly during March, we examined the interest in quitting smoking and alcohol from 2 February to 29 April 2020.

Data were collected from Google Trends (trends.google.com), which provides information on how many ‘hits’ different words have had on a given day on Google, which can be used as a measurement of public interest over time.9 The highest interest on a search query is quantified as 100 relative search volume (RSV), decreasing to 0 RSV indicating no interest. We retrieved public query data from India for the following terms: ‘how to quit smoking’ and ‘how to quit alcohol’ between

![Fig.1](image-url)

**Fig.1** Google Trends data from 2 February to 29 April 2020 in India. Web search queries for the terms (a) ‘COVID,’ (b) ‘hand sanitizer,’ (c) ‘how to quit smoking,’ and (d) ‘how to quit alcohol.’ The number of Google searches on ‘COVID’ and ‘hand sanitizer’ increased sharply worldwide in March. On the other hand, the interest in ‘how to quit smoking’ and ‘how to quit alcohol’ showed no consistent changes for increased interest.
2 February and 1 May 2020. We investigated whether there was an increased interest in quitting smoking in late February, March, and April compared with the preceding weeks.

The interest in the search term ‘how to quit smoking’ showed significant increase on 9 March (90 RSV) and the interest in the search term reached 100 RSV on 19 April (Fig. 1). The interest in the search term ‘how to quit alcohol’ showed significant increase on 11 February (100 RSV). However, the interest for both the search terms was not stable over the study period (Fig. 1).

Our study results showed no consistent increase in the number of searches for quitting smoking or quitting alcohol on Google during the study period (February to May). A recent study analyzing Google Trends regarding smoking cessation searches worldwide during the early months of the COVID-19 outbreak (9 January 2020 and 6 April 2020) also failed to show a tendency for increased interest in any of the key terms related to smoking cessation (‘quit smoking’, ‘smoking cessation’, ‘help quit smoking,’ and ‘nicotine gum’). However, another study from the Netherlands showed a significant increase in RSV 1 to 4 weeks after the introduction of the smoking ban in restaurants and bars in 2008, and also after the introduction of smoking cessation support in 2011. Our study results may indicate that there has been no significant increased interest in quitting smoking and alcohol, at least among the Indian population who use online resources for health-related information. Our results further highlight the need for continuing public health efforts to inform the Indian public regarding the negative effects of smoking and alcohol during the COVID-19 pandemic. However, our study results were preliminary, and further research is needed to determine the long-term trend and compare it to the results of other studies.

Disclosures statement
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References
1. Trevejo-Nunez G, Kolls JK, de Wit M. Alcohol use as a risk factor in infections and healing: A clinician’s perspective. Alcohol Res. 2015; 37: 177–184.
2. Vardavas C, Nikitara K. COVID-19 and smoking: A systematic review of the evidence. Tob. Induc. Dis. 2020; 18: 20.
3. Pandrea I, Happel KI, Amedee AM, Bagby GJ, Nelson S. Alcohol use and psychiatric syndromes, including first onset of psychosis, that seem to be directly related to brain damage in the context of COVID-19.
4. Wang D, Hu B, Hu C et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. JAMA 2020; 323: 1061–1069.
5. Mao R, Liang J, Shen J et al. Implications of COVID-19 for patients with pre-existing digestive diseases. Lancet Gastroenterol. Hepatol. 2020; 5: 426–428.
6. World Health Organization. Alcohol and COVID-19: What you need to know. 2020. [Cited 4 May 2020.] Available from URL: http://www.euro.who.int/__data/assets/pdf_file/0010/437608/Alcohol-and-COVID-19-what-you-need-to-know.pdf
7. Renganathan L, Ray S, Nagpal D. Use of internet for accessing healthcare information among patients in an outpatient department of a tertiary care center. J. Mar. Med. Soc. 2017; 19: 15–17.
8. Heerfordt C, Heerfordt IM. Has there been an increased interest in smoking cessation during the first months of the COVID-19 pandemic? A Google Trends study. Public Health 2020; 183: 6–7.
9. Carneiro HA, Mylonakis E. Google Trends: A web-based tool for real-time surveillance of disease outbreaks. Clin. Infect. Dis. 2009; 49: 1557–1564.
10. Troedstra SA, Bosdriess JR, de Boer MR, Kunst AE. Effect of tobacco control policies on information seeking for smoking cessation in The Netherlands: A Google Trends study. PLoS One 2016; 11: e0148489.

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Case with psychotic disorder as a clinical presentation of COVID-19

During the COVID-19 pandemic, reactive psychiatric symptoms and exacerbation of pre-existing psychiatric conditions have been widely described as secondary effects of social isolation, consequences of the obliged quarantine, fear of the infection, or a complicated grief for the unexpected loss of beloved people. Nevertheless, the scientific community working directly with COVID-19 patients is facing complex neuropsychiatric syndromes, including first onset of psychosis, that seem to be directly related to brain damage in the context of COVID-19.

This is the first report, to the best of our knowledge, describing a non-reactive psychosis break directly related to COVID-19 in a naïve psychiatric patient. A 63-year-old man with no previous psychiatric history was first admitted to hospital presenting with bilateral pneumonia and positive polymerase chain reaction (PCR) COVID-19 test (30 March 2020), being diagnosed with COVID-19. He also presented with a delirium during the hospitalization (Table 1) that improved in parallel with the respiratory disorder, leading to the patient’s discharge (8 April 2020). Ambulatory treatment with risperidone 2 mg per day was maintained, but bizarre delusions and incoherent thought and speech did not disappear even after antipsychotic treatment adjustment, so the patient was referred to hospital again (15 April 2020).

At this second in-hospital admission, a new PCR COVID-19 test was performed with positive result. Respiratory evaluation was normal. An elevation of D-dimer level was detected in the blood test and a computed tomography pulmonary angiography showed a low-risk pulmonary thromboembolism, which was determined to be related to COVID-19 and treated with anticoagulants. In the first psychiatric evaluation, the patient referred to thoughts about changes occurring in his body, including the absence of an arm, so he had decided not to eat anything to avoid exploding. At first, fluent attention and orientation to time and place were observed, but no other common features of delirium were present. Cranial magnetic resonance imaging with contrast enhancement showed no significant findings. Finally, a diagnosis of psychotic disorder due to another medical condition (COVID-19) was made following DSM-5 criteria. During the case follow-up by the liaison psychiatry department, the delusions’ content changed – the patient related that most of his relatives had died – and auditory verbal hallucinations appeared. Risperidone was titrated in the following days from 2.5 mg per day up to 6 mg per day. On 30 April 2020, the patient was mostly recovered, with absence of delusions and hallucinations and critical thought about the psychotic symptoms presented, so he was discharged and referred to his outpatient mental health unit for further follow-up.

This case report shows the possibility of a first psychosis break as a direct (non-reactive) COVID-19-related syndrome. The hypothesis of a link between this and an increased immunologic response of the body to the virus affecting the brain may be extrapolated from previous reports linking other respiratory virus infections and the occurrence of

Table 1: Treatments prescribed in the patient’s first hospitalization

| Condition | Treatment |
|-----------|-----------|
| COVID-19  | Oxygen, lopinavir, ritonavir, toziluzumab, hydrochloroquine, and a 3-day corticoid bolus |
| Delirium  | Risperidone 2.5 mg per day |