

Mitigating and learning from the impact of COVID-19 infection on addictive disorders

The COVID-19 pandemic and the measures required to address it are cutting a swathe through people's lives and the global economy. People with addictive disorders are particularly badly affected as a result of poverty, physical and mental health vulnerabilities and disruption of access to services. The pandemic may well increase the extent and severity of some addictive disorders. Current research is suffering from the termination of face-to-face data collection and other restrictions. There is an urgent need to coordinate efforts nationally and internationally to mitigate these problems and to find innovative ways of continuing to provide clinical and public health services to help people with addictive disorders.

The novel coronavirus (COVID-19) pandemic of 2020 presents vast challenges to humanity, and particularly to vulnerable populations world-wide. This includes particular threats to people with addictive disorders, and public health and clinical services to address their needs. This editorial summarizes many of the issues and calls for a coordinated effort to address them.

OPIOIDS

In recent years, many countries have experienced sharp increases in opioid use disorder (OUD) and fatal opioid poisonings [1,2]. COVID-19 is likely to compound this. People with OUD have a high prevalence of coexisting health problems, including chronic obstructive pulmonary disease [3]. Many live in geographical areas characterized by social deprivation, high population densities, poor-quality housing and homelessness [4,5]. Together, these conditions make it more likely that people with OUD will have elevated rates of COVID-19 infection and transmission.

Social distancing and treatment, staff sickness and absences are straining the ability of OUD clinics to operate effectively, although many have stayed open, at least in some countries. It is essential that patients can continue to access medication for OUD. In the United Kingdom, new government advice asks services to transfer as many patients as possible from supervised consumption to take-home doses, with a 14-day supply for self-administration. More flexibility is recommended for patients opting for buprenorphine over methadone. Patients self-isolating are advised to nominate someone to collect the dispensed medicine on their behalf [6]. While this social distancing response targets reduced COVID-19 exposure, it may

inadvertently increase medication diversion and fatal opioid poisoning. In the community, disruption to the supply of illicit opioids and increases in price could have several effects, including a surge in treatment seekers, more cases of overdose from the consumption of other opioids and increased harms associated with the substitution of opioids with other more readily available substances, such as alcohol, cocaine and benzodiazepines.

STIMULANTS

People who smoke crack cocaine may be likely to experience more severe COVID-19 disease because they already have greater inflammation of, and damage to, lung tissue [7]. Stimulant use more generally puts people at greater risk of cardiovascular disease, and this is a major risk factor for mortality with COVID-19 infection [8].

ALCOHOL

Much of the debate concerning alcohol during the early phases of the pandemic has focused on the restrictions placed on sales, either through the enforced closure of on-trade venues—such as pubs, bars and restaurants—or the decisions taken by public bodies on whether off-trade sales can continue through shops and supermarkets [9]. In places where all alcohol sales outlets are closed drinking can be expected to decrease significantly [10], although this effect may be moderated if stockpiling behaviour occurred immediately before the imposition of restrictions. The closure of all alcohol outlets may improve health and reduce intimate partner violence, as well as other violence. However, social isolation may heighten domestic tensions negating or reversing this possible benefit. In jurisdictions where off-trade outlets remain open, the overall changes in levels and patterns of alcohol consumption are difficult to predict, but there is evidence already of a significant increase in alcohol sales [11]. The closure of on-trade premises will probably affect how people drink (e.g. the emergence of new social practices involving alcohol consumption, such as online pub quizzes, dinner dates and parties) rather than a simple substitution of consumption from the on-trade to the off-trade [12].

For people with alcohol use disorder, there are additional concerns that some heavy drinkers will be at risk of serious symptoms of withdrawal if they stop or reduce alcohol consumption and it may be hard to access medical care. Some organizations are offering personalized

guidance on this topic to try and ensure that reductions in alcohol consumption are achieved safely at a time when the usual sources of support and advice relating to detoxification may be less available [13].

TOBACCO USE

Smoking and associated respiratory disease may exacerbate COVID-19 severity [14]. Although sales of tobacco products may not decline in the short term if consumers can continue to purchase from shops and other outlets, there are particular risks from the disruption of e-cigarette supply chains. High street e-cigarette outlets have been closed down in many jurisdictions, although supplies still appear to be available on-line. With curtailed supply of refills and e-cigarette components and slower delivery schedules for non-essential commodities, some e-cigarette users may relapse to smoking tobacco.

GAMBLING

Where casinos and other gambling venues have closed there are anecdotal reports of increased on-line gambling and gaming [15], although the cessation of most professional sport globally may also exert a downward pressure on gambling. Financial pressures and concerns, social isolation and stress—likely to be felt particularly among people with job insecurity or recent unemployment—may motivate gambling initiation or exacerbate problem gambling. Industry reactions to new players or repeat players who are gambling more intensively merit careful monitoring.

RESEARCH

Participant enrolment and primary data collection have stopped in many clinical and psychosocial studies. It is, of course, hoped that these studies will resume, but researchers are likely to need additional funding and will have to incorporate sensitivity checks and other additions to their statistical analysis plans. More positively, there are examples of institutional review boards efficiently fast-tracking new and amended research protocols to study the impact of COVID-19 on populations with addictive disorders.

Creative methodological innovations, including internet-enabled primary data collection [16], are already emerging to circumvent the current restrictions on fieldwork. This will present both opportunities and challenges with regard to selecting appropriate platforms (e.g. video, voice- or text-based communication), sampling and representativeness, establishing rapport with participants, participant retention and safe data storage, with particular challenges for studies involving populations with limited

digital access. Emerging techniques, such as wastewater studies, can also provide valuable additions to more traditional research approaches [17].

Natural experimental designs, including multiple time-series analysis, process evaluations, qualitative research and longitudinal surveys, will be needed to understand and estimate the effects of COVID-19 on addictive disorders, treatment engagement and effectiveness and broader treatment outcomes. Mixed-methods studies will also be required to explore adaptive changes to individual recovery and to mutual aid networks, and to ascertain how any shift towards on-line and digital treatments and telemedicine, are embraced, or not, particularly by those with limited digital confidence and resources.

Research priorities will need to change as the pandemic unfolds and new issues materialize. For example, if and when countries are able to mount mass testing campaigns, there will be questions concerning equity in access for people with addictive disorders. Similarly, if and when an effective vaccine is developed, it will be crucial to monitor and address access and take-up by people with addictive disorders. Given the numbers of people involved, when one considers tobacco users and people with alcohol use disorder, it will be important to adapt predictive modelling for the population as a whole.

GENERAL ISSUES

Poverty, poor mental health and insecurity will be greatly exacerbated by COVID-19 and social distancing measures, and this will affect people with addictive disorders particularly hard. An additional concern is evidence that addictive behaviours are exacerbated when there are few other positive reinforcers in the environment—such as pleasurable things to do and people with whom to interact [18]. We may therefore experience a worsening of problems in people who currently have problems, relapse in people who have recovered and onset in people who are vulnerable. It will be crucial to monitor this and take action to mitigate the problem through protective policies and societal initiatives.

CONCLUSIONS

COVID-19 infection and the measures used to address it will probably exacerbate the multiple risk factors for the initiation of addictive behaviours and the maintenance, worsening and relapse of addictive disorders. We are all prone to experience anxiety due to the disruptions COVID-19 has had on our daily lives; uncertainty about the future, loneliness, depression or even suicidality induced by social distancing; and stress and grief from the illness or death of loved ones. These emotions are likely to place us at increased risk of a range of unhealthy

behaviours and coping strategies, including substance use and gambling.

Some drug and alcohol services will innovate—providing novel ways of delivering harm reduction, flexible access to essential medications and internet and telephone-delivered individual and group-based psychosocial interventions. In many countries and regions, however, access to treatment services and treatment will be limited more than ever, particularly for those who are most vulnerable. This will also probably be reflected in relation to access to medical treatment for COVID-19 infection.







There will be differences among countries in the experience of problems associated with COVID-19, and it is crucial that we learn from each other. We must take the opportunity to share information about the problems, the solutions being tried and the outcomes of these efforts. This requires coordination by supranational agencies, with scientific, clinical and public health organizations all playing a role.

Declaration of interests

In the past 3 years, J.M. declares research grants from the National Institute for Health Research (NIHR); a randomized controlled trial of depot naltrexone for OUD and a randomized controlled trial of acamprosate for AUD, and at the NIHR Biomedical Research Centre for Mental Health at South London and Maudsley NHS Mental Health Foundation Trust a randomized controlled trial of novel cognitive therapy for cocaine use disorder. He has part-time employment as Senior Academic Adviser for the Alcohol, Drugs, Tobacco and Justice Division, Health Improvement Directorate, Public Health England and is a clinical academic consultant for the US National Institute on Drug Abuse Centre for Clinical Trials Network. J.M. declares an unrestricted research grant at IoPPN and SLAM from Indivior via Action on Addiction for a randomized controlled trial of personalized psychosocial intervention in opioid-agonist medication for OUD (published in 2019) and from 2019 an unrestricted research grant funding at IoPPN and SLAM from Indivior for a 3-year, multi-centre, randomized controlled trial of injectable depot buprenorphine for OUD. He has received honoraria and travel support from Reckitt-Benckiser (2016; treatment of OUD) and PCM Scientific and Martindale for the Improving Outcomes in Treatment of Opioid Dependence Conference (2018). S.D. has no declarations to report. In the past 5 years, W.H. has not received fees or funding of any kind from alcohol, pharmaceutical or tobacco companies. His research funding has been from the Australia Research Council and the National Health and Medical Research Council of Australia. He received fees for preparing a literature review of the adverse health effects of cannabis from WHO (2016) and fees for reviewing evidence on the

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References

1. Hedegaard H, Warner M, Minino AM. Drug overdose deaths in the United States, 1999–2016. CHS Data Brief.

- no. 294. Hyattsville, MD: National Center for Health Statistics, 2017; Centers for Disease Control and Prevention. National Vital Statistics System, Mortality; CDC Wonder. Atlanta, GA: US Department of Health and Human Services, CDC; 2017.
2. European Monitoring Centre for Drugs and Drug Addiction. European Drug Report 2017: Trends and Developments. Luxembourg: Office of the European Union, 2017. Available at: <http://www.emcdda.europa.eu/publications/edr/trends-developments/2017> (accessed 4 April 2020).
 3. Palmer F, Jaffray M., Moffat M. A., Matheson C., McLernon D. J., Coutts A. *et al.* Prevalence of common chronic respiratory diseases in drug misusers: a cohort study. *Prim Care Respir J* 2012; **21**: 377–83.
 4. Advisory Council on the Misuse of Drugs. Drug-related harms in homeless populations and how they can be reduced. London; 2019. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810284/Drug-related_harms_in_homeless_populations.pdf (accessed 4 April 2020).
 5. Marsden J., White M., Annand E., Burkinshaw P., Carville S., Eastwood B. *et al.* Medicines associated with dependence or withdrawal: a mixed-methods public health review and national database study in England. *Lancet Psychiatry* 2019; **6**: 935–50.
 6. Department of Health and Social Care and Public Health England. 15 April 2020. Guidance: COVID-19: guidance for commissioners and providers of services for people who use drugs or alcohol. Available at: <https://www.gov.uk/government/publications/covid-19-guidance-for-commissioners-and-providers-of-services-for-people-who-use-drugs-or-alcohol/covid-19-guidance-for-commissioners-and-providers-of-services-for-people-who-use-drugs-or-alcohol> (accessed 18 April 2020).
 7. Restrepo C. S., Carrillo J. A., Martinez S., Ojeda P., Rivera A. L., Hatta A. Pulmonary complications from cocaine and cocaine-based substances: imaging manifestations. *Radiographics* 2007; **27**: 941–56.
 8. Schwartz B. G., Rezkalla S., Kloner R. A. Cardiovascular effects of cocaine. *Circulation* 2010; **122**: 2558–69.
 9. Morris J. COVID-19 and alcohol: an enduring effect on home drinking habits? Available at: <https://www.addiction-ssa.org/covid-19-and-alcohol-an-enduring-effect-on-home-drinking-habits/#> (accessed 4 April 2020).
 10. The South African. SA's alcohol ban explained: why booze is barred during lockdown. Available at: <https://www.thesouthafrican.com/news/why-alcohol-sale-banned-south-africa-during-lockdown/> (accessed 4 April 2020).
 11. The Times. Coronavirus: Bingeing Britons buy 20% more alcohol for lockdown. Available at: <https://t.co/kdQHRztc6e?amp=1> (accessed 4 April 2020).
 12. Meier P. S., Warde A., Holmes J. All drinking is not equal: how a social practice theory lens could enhance public health research on alcohol and other health behaviours. *Addiction* 2018; **113**: 206–13.
 13. Scottish Health Action on Alcohol Problems. Coronavirus (COVID-19) pandemic: advice for heavy drinkers on cutting back or stopping drinking alcohol. Available at: <https://www.shaap.org.uk/downloads/240-covid-advice-for-heavy-drinkers/download.html> (accessed 4 April 2020).
 14. Public Health England. Smokers at greater risk of severe respiratory disease from COVID-19. 3 April 2020. Available at: <https://www.gov.uk/government/news/smokers-at-greater-risk-of-severe-respiratory-disease-from-covid-19> (accessed 4 April 2020).
 15. iGaming Business Limited. 888 sees casino and poker growth despite Covid-19 pandemic. Available at: <https://www.igamingbusiness.com/news/888-sees-casino-and-poker-growth-despite-covid-19-pandemic> (accessed 4 April 2020).
 16. Barchard K. A., Williams J. Practical advice for conducting ethical online experiments and questionnaires for United States psychologists. *Behav Res Methods* 2008; **40**: 1111–28.
 17. González-Mariño I., Baz-Lomba J. A., Alygizakis N. A... A.-C. M. J., B. R... B. A., *et al.* Spatio-temporal assessment of illicit drug use at large scale: evidence from 7 years of international wastewater monitoring. *Addiction* 2020; **115**: 109–20.
 18. Bickel W. K., Johnson M. W., Koffarnus M. N., MacKillop J., Murphy J. G. The behavioral economics of substance use disorders: reinforcement pathologies and their repair. *Annu Rev Clin Psychol* 2014; **10**: 641–77.