

SSA Griffith Edwards Academic Fellowship: Final Report

Cannabis addiction: does potency matter?

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Cannabis is used by an estimated 200 million people each year. As an illicit drug in most of the world, consumers have very limited information on its contents or possible health effects. Because of this, studying the constituents of cannabis products and how they have changed over time is important for understanding problems of addiction and health burden attributable to cannabis. Cannabis is now the primary drug responsible for first-time admissions to drug treatment in Europe, with treatment admissions increasing by 76% in the last decade.¹ One potential explanation for this is a rise in the strength of cannabis products (concentrations of delta-9-tetrahydrocannabinol, ‘THC’).

During my SSA Fellowship I was based at the National Addiction Centre, King’s College London working with Professor Michael Lynskey. My Fellowship primarily focused on three programmes of research. Firstly, I characterised changes in the constituents of cannabis products in international studies. With support from the SSA I spent time as a visiting researcher at the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) in



Lisbon in 2018 hosted by Teodora Groshkova, Andrew Cunningham, Roumen Sedefov and Paul Griffiths (photo, left). The EMCDDA collects data on drug use and addiction from all EU member states, Norway and Turkey. Using these data I characterised changes in concentrations of

THC and price of cannabis products at the European level.² Following my visit I was commissioned to write a report on the European cannabis market for the EMCDDA.³ In parallel, I worked with collaborators in the USA (Mahmoud ElSohly)⁴ and Denmark (Kristine Rømer Thomsen)⁵ to characterise country-specific changes in cannabis over time. Finally, in a systematic review and meta-analysis⁶ I quantified international changes in THC and cannabidiol (CBD) over time from 1970-2017. Overall this programme of work has shown that the potential risk of harm from cannabis has increased due to rising THC, both in national and international contexts. Conversely, concentrations of cannabidiol (CBD) have remained stable resulting in an increased ratio of THC:CBD.

In the second programme of work, I investigated associations between changes in THC and addiction outcomes. Firstly, in collaboration with the Netherlands Trimbos Institute and the National Alcohol and Drugs Information System I found the first evidence that changes in THC are associated with the treated incidence of cannabis use disorders.⁷ This association persisted after adjusting for age, sex and non-cannabis treatment admissions. This finding indicates that increasing THC concentrations in cannabis may have contributed to the rising demand for treatment of cannabis use disorders. Additionally, I replicated and extended my previous finding that use of higher THC cannabis products is associated with a greater severity of dependence on cannabis⁸ in subsequent studies with Sam Craft using the Global Drug Survey⁹ and with Lindsey Hines using the Avon Longitudinal Study of Parents and Children.¹⁰ Furthermore, in collaborations with Marta Di Forti, Gary Chan, Jack Wilson and Claire Mackie I found further evidence linking the use of higher THC products with adverse health outcomes.¹¹⁻¹³ Overall, this programme of work has generated consistent evidence that use of higher THC products is associated with a greater severity of cannabis use disorder and related health outcomes.

In the third programme of work I led international initiatives to harmonise the quantification of cannabis use. With support from the SSA, I organised the International Cannabis Toolkit:

<https://canntoolkit.com> in Lisbon, 2019 with Valentina Lorenzetti and Chandni Hindocha (photo, right). The workshop aimed to identify and disseminate key findings in measuring cannabis use



from an international and multidisciplinary perspective and to launch the development of an internationally relevant tool for measuring cannabis use in clinical and research settings. It was attended by speakers and delegates from North and South America, Europe, Africa and Australia. In other work with Valentina Lorenzetti I proposed a 5mg standard THC unit as a universal metric of cannabis consumption, similar to a standard unit of alcohol.^{14,15} My publication on the standard THC unit¹⁴ was endorsed by Nora Volkow, Director of the National Institute of Drug Abuse, and prompted her call for further information on how it might be integrated into future cannabis research: <https://www.drugabuse.gov/about-nida/noras-blog/2020/03/request-information-standard-unit-dose-thc> Standard THC units offer the potential to counteract the problems associated with rising THC in cannabis through effective labelling and guidelines on safer use. They can also enable measures such as minimum unit pricing, which have been shown to decrease alcohol consumption in the heaviest consumers of alcohol.¹⁶

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