Notice of the Final Oral Examination for the Degree of Doctor of Philosophy of

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MA (University of Victoria, 20)
BSc (Concordia University, 20)

“The Impact of Cannabis on the Use of Alcohol and Tobacco: Findings from Observational Studies of Canadian Medical Cannabis Patients”

Public Health and Social Policy

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12:30 pm (PST)
Remote Defence

Supervisory Committee:
Dr. Susan Boyd, Human and Social Development, University of Victoria (Supervisor)
Dr. M-J Milloy, Faculty of Medicine, University of British Columbia (Co-Supervisor)
Dr. Zachary Walsh, Department of Psychology, UBC (Outside Member)

External Examiner:
Dr. Kevin Boehnke, Department of Anesthesiology, University of Michigan

Chair of Oral Examination:
Prof. Michael Eby, School of Earth and Ocean Sciences, UVic

Dr. Stephen Evans, Acting Dean, Faculty of Graduate Studies
Abstract

Background A growing body of research suggests the therapeutic use of cannabis may affect the use of other substances, including reducing the use of alcohol, tobacco and prescription drugs such as opioid analgesics. However, most of the evidence stems from small, cross-sectional surveys or population-level studies, both of which have significant limitations, including the inability to conclusively determine causality for behavioural changes. Furthermore, very little detail has been gathered on the factors that potentially impact substitution, including patient characteristics and patterns of cannabis use (e.g., X, Y, Z).

Additionally, despite consistent calls by physicians, academics, patients and policy-makers around the globe citing the need for high quality studies to identify the risks and benefits of cannabis in both medical and non-medical applications, there are many pre-existing and ongoing challenges to conducting such research. These include shifting regulatory policies that may be impacting access to cannabis for both medical and non-medical use, and that could ultimately be affecting patient retention in prospective medical cannabis studies.

In the interest of learning more about how the use of cannabis effects the use of alcohol, tobacco and other substances, and to better understand factors that may be impacting retention in prospective cannabis research, I designed and conducted two studies:

1. The Canadian Cannabis Patient Survey 2019 (CCPS 2019) was a national cross-sectional survey of 2102 Canadian medical cannabis patients that examined demographics, patient patterns of cannabis use, and self-reported changes in the use of alcohol, tobacco, prescription drugs and illicit substances following medical cannabis initiation.

2. The Tilray Observational Patient Survey (TOPS) was a prospective, multi-site, observational study examining the impact of medical cannabis products on quality of life and the use of prescription drugs of 1145 patients over a 6 month period, which provided an opportunity to conduct a survival analysis and other analyses to assess variables potentially impacting retention in longitudinal cannabis studies.

Methods This dissertation includes three analyses of the data resulting from these studies in the form of one published and two submitted manuscripts. The first paper provides an overview of research to date examining the impact of cannabis and cannabinoids on alcohol use, followed by an analysis of the 973 CCPS 2019 participants who either previously or currently use alcohol. The questionnaire gathered a detailed inventory of alcohol use prior and post medical cannabis initiation using two separate but related measures: drinking days per month, and standard drinks per week. The analyses used descriptive statistics as well as univariate and multivariate regression analyses to explore patient characteristics and other variables potentially associated with changes in alcohol use post medical cannabis, including assessing the impact of “intent” to use medical cannabis to reduce alcohol use, as well as participation in other substance use treatment modalities. Findings suggest that medical cannabis initiation is associated with significant reductions in alcohol use, and that younger age (<55 years of age), specific intent to use medical cannabis to reduce alcohol use, and greater patterns of alcohol use prior to medical cannabis initiation were associated with greater odds of reducing alcohol.

The second paper follows a similar methodology and format as the first paper, but with a focus on tobacco/nicotine (T/N) use. In this case, 650 survey participants reported past or current T/N use, and the analysis focused on assessing patient characteristics and other variables associated with changes in T/N uses per day, with the primary outcome of interest being no use in the 30 days prior to the survey, which was considered to be complete cessation of T/N use. The findings suggest that odds of T/N cessation were greater amongst those who were age 55 or older or that reported >25 T/N uses per day prior to initiating medical cannabis use, and that specific intent to use medical cannabis in T/N reduction/cessation efforts resulted in significantly greater odds of reducing T/N use, while involvement with traditional T/N cessation treatments (pharmacological or psychobehavioral) was negatively associated with T/N cessation.

The third paper addresses the challenge of retaining patients in prospective observational medical cannabis studies at a time when there are major policy changes disrupting the legal supply while also increasing access options for adults who use cannabis. The Tilray Observational Patient Study (TOPS) was one of the largest national prospective medical cannabis studies ever conducted, taking place at 21 medical clinics in five provinces. The study was designed to assess the impact of medical cannabis on quality of life and prescription drug use over a six month period, which provided an opportunity to examine baseline patient characteristics that may have been protective of LTFU, so a survival analysis was conducted on this cohort. Additionally, since the study took place during the official launch of the legalization of adult non-medical use of cannabis in Canada on Oct. 17th, 2018, the potential impact of this significant increase in legal access options on the odds of study retention was the subject of additional analyses. The survival analysis indicated that baseline use of antidepressants or antiseizure medications, citing no preference for either THC or CBD, and inhalation as a primary method of use were associated with increased probability of survival/retention in the study at six months. Additionally, while the legalization of non-medical adult cannabis use in October 2018 resulted in more than three times the odds of participants being LTFU at six months, being under 55 years old, having a preference for THC, or citing inhalation as a primary method of use was partially protective of LTFU following legalization.

Discussion The studies in this dissertation presented an opportunity to gather subjective and objective data on naturalistic patterns of medical cannabis use from large, heterogeneous cohorts of patients, and to explore associated impacts on the use of alcohol, tobacco and other substances. The results of these studies provide a more comprehensive understanding of the public health risks and benefits associated with the medical use of cannabis, and could subsequently inform policy decisions affecting access to cannabis vis-à-vis other drugs, private and public payer considerations related to cost-coverage for medical cannabis, and potentially lead to the development of novel alcohol and tobacco cessation strategies. Additionally, the survival analysis conducted on TOPS participants highlights some of the challenges of conducting medical cannabis research at a time when patients have a multitude of cannabis access options, including legal adult dispensaries and a still robust illicit market. Future longitudinal medical cannabis studies should consider the potential impact of policy changes affecting cannabis access on study retention/survival, and may want to focus on patient populations with characteristics associated with lower odds of LTFU.