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Cannabis for Therapeutic Purposes: Older Adult Perspectives, User Characteristics and Motivations for Use

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Abstract and Keywords

Use of cannabis among adults 55 years of age and older is increasing. In Q4 of 2018, slightly over half of cannabis users used for therapeutic purposes at least once, where many reported using for both medical and non-medical reasons (mixed use). Research on older adults regarding the use of Cannabis for Therapeutic Purposes (CTP) is fragmented and there are no comprehensive or in-depth studies on their perceptions or self-reported motivations. Understanding in these areas is important to inform policy that takes the protection of public health and safety as central aims. Does policy affect one of, if not both, user and non-user perspectives? Methods: The normalization framework provides a lens through which to study older adult use of CTP, while critical realism serves as the methodological framework. A qualitative flexible deductive approach is applied. Findings: The findings suggest a social acceptance of CTP by non-users, but that the use of healthcare practitioner authorized CTP is not normalized. Government and medical regulatory policy serve as barriers to access authorized CTP, which does not support normalization. In the Canadian context, pain and avoidance of conventional drug use are central factors for the use of CTP. Conclusion: It is understood from the findings that the primary motivator for the use of CTP is to achieve normal goals, goals the participants themselves interpret as normal, distinct from recreational use. Legislative and other policy modifications are required to ensure authorized access to regulated cannabis in order to protect public health and public safety.

Keywords: cannabis, marijuana, policy, Canada, Ontario, older adults, seniors, normalization framework, normalization theory, qualitative methods

Summary for Lay Audience

Scientists do not know a lot about older adult views on using cannabis to feel better. “Older adults” means anyone who is 55 years of age or older. The number of older adults who are using cannabis is going up. Over half of all older adults who use cannabis have used it to feel better at least once. To keep older adults healthy and safe, the Canadian government makes rules. Why are there so many older adults using cannabis to feel better? Why are older adults using cannabis to feel better? Do government rules change older adult views? What does that mean for older adult health and safety? To learn more about older adult views the scientists follows guidelines that help them answer their questions. The guidelines the scientists used are called critical realism and the normalization framework. The scientists talked to older adults and wrote everything down word for word. The scientists arranged the thoughts of the older adults using ideas from the guidelines and then added some of their own ideas. The answers to the questions may show that Canadians are okay with using cannabis to feel better, but people do not always go to their doctor for it. Government rules make it difficult to get cannabis to feel better. Older adults in Canada use cannabis to stop feeling pain and to try to use less medicine. After hearing the older adult views, the scientists think that older adults use cannabis to feel like they normally do, which is different than using cannabis for fun. Changes to government rules can help to make sure older adults get their cannabis that makes them feel better from a doctor. Getting cannabis from a doctor helps to make sure it safe to use.

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List of Abbreviations

AGCO Alcohol and Gaming Commission of Ontario

CBD cannabidiol

CCSA Canadian Centre for Substance use and Abuse

CFPC College of Family Physicians of Canada

CHRC Canadian Human Rights Commission

CMA Canadian Medical Association

CNA Canadian Nurses Association

CPhA Canadian Pharmacists Association

FCM Federation of Canadian Municipalities

FDA *Food and Drugs Act*

MOHLTC Former Ministry of Ontario Health and Long-Term Care

OCRC Ontario Cannabis Retail Corporation

OCS Ontario Cannabis Store

OHRC Ontario Human Rights Commission

OLTCA Ontario Long Term Care Association

THC delta-9-tetrahydrocannabinol

Chapter 1: Introduction

1.1 Background and Significance

Canada federally legalized cannabis on October 17th, 2018 (Bill C-45: Cannabis Act, 2018), shifting away from criminalization to follow what Canada's Task Force on Cannabis Legalization and Regulation termed a 'public health approach' to the production, distribution, sale, and possession of cannabis (Task Force on Cannabis Legalization and Regulation, 2016, p. 15). Other nations look at the Canadian experience for guidance (Parliament of Australia, 2020; New Zealand Government, 2020); however, the Canadian government task is not complete with legalization. If protecting public health and safety is a central aim of cannabis legislation, then legislation, its subsequent regulations, and other forms of policy require continuous development to remain relevant, specifically, regarding the use of Cannabis for Therapeutic Purposes (CTP). Therapeutic is defined as use that is "related to the diagnosis, treatment, mitigation or prevention of a disease, disorder or abnormal physical state, or its symptoms", whether or not that use has been authorized by a HCP (Health Canada, 2020d). As such, CTP can be authorized or unauthorized, licit or illicit, may be used for indicated or non-indicated health issues, and can be contrasted with the strictly recreational use of cannabis. Canadian older adult use of cannabis is increasing (Rotermann & Langlois, 2015; Rotermann & Macdonald, 2018; Statistics Canada, 2020a), but little is known about the use of CTP among this population, particularly the use of unauthorized CTP. Use of cannabis is associated with cognitive impairment, increased risk for psychiatric disorders, and other mental health problems (CCSMH, 2019; Thayer et al., 2019). Further, unauthorized therapeutic use presents several potential harms and risks to the health and safety of Canadians, such as a lack of medical oversight to weigh the harms and benefits, or doctors who may be unaware of potential drug interactions (Abramovici, 2018; Abuhasira et al., 2018;

Allen et al., 2018; CMA, 2018a). This study aims to fill this knowledge gap by exploring the perspectives of older adults regarding patterns of, and motivations for, the use of CTP in this population. Understanding older adult motivations for use may identify generative mechanisms for observed behaviour (Edwards et al., 2014). Knowledge of generative mechanisms may inform policymakers on how to support continuous development of legislation and/or policy that could increase the uptake of authorized CTP, in order to protect public health and safety.

This chapter begins by defining cannabis in Canada. Second, the central research problem is discussed. Third, the necessity of applying an aging lens on cannabis research to understand current and inform future legislation and/or policy is demonstrated. Fourth, current initiatives in Canada regarding cannabis research on older adults are highlighted. Fifth, the study goals and research questions are described. Finally, the introduction concludes with the methodology used to conduct the study.

1.2 Defining Cannabis in Canada

The term cannabis, rather than the common marijuana or marihuana, is used for scientific precision and to avoid slang. For a full list of definitions, see the glossary. All classes of cannabis in Canada can theoretically be used for therapeutic purposes (See Table 1). Illicit cannabis products are products produced outside the regulatory scope of the *Cannabis Act*, particularly the quality and security requirements. Illicit cannabis is also often termed as ‘black market’ cannabis. These products may present a danger to public health and safety, throughout their production, distribution, sale, possession and use. Legal cannabis products currently fall into one of three regulated categories: non-medical, medical and health products containing cannabis (NHPs, VHPs, RXs, Medical devices) (Health Canada, 2020b), split into a dual-stream system (See Table

1). The dual stream system consists of both non-medical and medicinal cannabis. Broadly defined, non-medical cannabis is any government regulated products intended for recreational use, while medicinal cannabis is any government regulated cannabis products authorized or prescribed by a healthcare practitioner (HCP). Medicinal cannabis consists of both medical cannabis and healthcare products containing cannabis, which require HCP authorization. Proposed by Health Canada (See Table 2), is the removal of the health products containing cannabis classification and the addition of cannabis health products (NHPs, VHPs, Extracts, Tinctures, Topicals) and prescription drugs containing cannabis (RXs) classifications (Health Canada, 2019b). It is unclear where medical devices would fall under the new classifications. Health Canada states until "consultations and regulations for [Non-Prescription Drugs and Natural Health Products] are complete, new applications for health products containing cannabis will be limited to prescription drugs, medical devices, or NHPs/VHPs limited to plant parts not considered cannabis under the *Cannabis Act* and no more than 10 ppm THC" (Health Canada, 2020b, p. 24).

1.2.1 Non-medical cannabis. Non-medical cannabis is regulated by the *Cannabis Act*. It consists of cannabis products such as fresh and dried cannabis, cannabis edibles, extracts and topicals, as well as cannabis plants and seeds. Non-medical cannabis maintains regulated quality and security requirements under the *Cannabis Act*. Non-medical cannabis is essentially the same product as medical cannabis, subject to the same quality standards. The two are made distinct by pricing, separate distribution systems, authorization requirement and certain legislative/policy benefits. There is an overlap between Health Canada licenced producers that provide product for both non-medical and medical classes.

1.2.2 Medical cannabis. The regulation of medical cannabis as a therapeutic is distinct from other health products. Access to medical cannabis is dictated by federal law and regulations;

however, the courts struck down various aspects of the regulations in a series of cases under the *Canadian Charter of Rights and Freedoms*, requiring the federal government to amend the regulations ten times between 2001 and 2016. Medical cannabis in Canada originally consisted of fresh, dried, oil, plants and seeds, with edibles and concentrates added on December 17th, 2019 (Health Canada, 2020b). Among the classes available the phytocannabinoid and terpenoid characteristics are heterogenous, strains have both inter (between) and intra (within) variability. The heterogeneity of cannabis products is made evident through variability in the results of testing for phytocannabinoids, as well as variability limits for cannabis extracts and topicals required under section 90 and 97, respectively, of the *Cannabis Regulations*. The result is that product selection is highly individualized and iterative. Medical cannabis may be smoked, vaporized, taken orally, sublingually, as a suppository and/or topically. Medical cannabis is authorized by a healthcare practitioner with a medical document that contains all of the required information under the *Cannabis Regulations* (Cannabis Regulations, 2019). Although a medical document is required, medical cannabis lacks a product monograph that is evidence informed. The maximum amount of authorized medical cannabis one may possess in a public place is the lesser of 30 times the daily quantity of dried cannabis on their registration document(s) or 150g of dried cannabis (Cannabis Regulations, 2019).

1.2.3 Health products containing cannabis/prescription drugs. Health products containing cannabis are prescribed (authorized) by a HCP and have an evidence-based product monograph akin to any other prescription drug. These monographs contain prescribing information such as indications, contraindications, dosage and administration information, drug interactions, etc. Health products containing cannabis may make health claims as they meet the *Cannabis Act* and *FDA* regulations (Health Canada, 2020b). It should be noted that “Cannabis is not an *FDA*

approved therapeutic product, unless a specific cannabis product has been issued a drug identification number (DIN) and a notice of compliance (NOC)" (Abramovici, 2018, p. III; Health Canada, 2016a). Nabiximols (Brand name: Sativex®, a 1:1 delta–9–Tetrahydrocannabinol (THC)/Cannabidiol (CBD) plant extract) nabilone (Cesamet®, a structurally distinct THC synthetic) and dronabinol (Marinol®, a THC synthetic) are examples of health products containing cannabis (Allan et al., 2018; CPhA, 2018; Health Canada, 2020b; Klumpers et al., 2012). Note that dronabinol (Marinol®) was voluntarily removed from the Canadian market by the manufacturer and nabilone (Cesamet®) as a synthetic is not captured by the definition of Cannabis in the *Cannabis Act* and will remain scheduled a narcotic under the CDSA (Health Canada, 2020b). Finally, Cannabidiol (Epidiolex®, a pure plant-derived CBD solution with approval in the USA) is not an approved prescription drug within Canada, but is undergoing clinical trials.

1.2.4 Proposed cannabis health products. (See Table 2) While the prevalence data of alternative products for therapeutic use is limited (Tinctures at 3%, topicals between 0.6-5%) (Russel et al., 2018), the description of CHP ingredients may include cannabis and other medical and non-medical ingredients supported by evidence (Health Canada, 2019b). The breadth of this class has the potential to encompass a large variety of products. CHPs are limited to specific health claims supported by evidence, the level of which is yet to be determined, that associate the ingredient to the health claim (Health Canada 2019b). CHPs may be sold by any federally or provincially licensed retailer, including medical and non-medical retail environments (Health Canada, 2019b). CHPs would require the involvement of an adult to distribute for appropriate use to a young person for whom they are responsible (Health Canada, 2019b). Information from the public consultation on the proposed CHPs have been released by Health Canada and both

consumer and industry feedback highlight the primary reasons for the use of CHP are for pain and inflammation, mental health and as a sleep aid (Health Canada, 2020c).

Table 1

Current System of Cannabis in Canada (2020)

Cannabis in Canada			
Cannabis for Therapeutic Purposes (CTP)			
Unauthorized		Authorized	
	Dual-Stream Cannabis System		
		Cannabis for Medicinal Purposes	
Illicit Cannabis *(Cannabis Act, Controlled Drugs and Substances Act)*	Non-Medical *(Cannabis Act)*	Medical *(Cannabis Act)*	Health Products Containing Cannabis *(Cannabis Act & Food and Drugs Act)*
– Health care practitioner **authorization not required**	– Health care practitioner **authorization not required**	+ Health care practitioner **authorization required**	+ Health care practitioner **oversight required**
– **No pre-market review** for safety, efficacy	– **No pre-market review** for safety, efficacy	– **No pre-market review** for safety, efficacy	+ **Pre-market review for** safety, efficacy under *FDA*
– Lacks quality and security requirements under the *Cannabis Act*	+ / – Quality and security requirements under the *Cannabis Act*	+ / – Quality and security requirements under the *Cannabis Act*	+ Manufacturing subject to quality and security requirements under the *FDA* and the *Cannabis Act*
– **CANNOT** make health claims	– **CANNOT** make health claims	– **CANNOT** make health claims	+ **CAN** make health claims if authorized

Note. Modified version of Health Canada's classification for products containing cannabis (Health Canada, 2020b) (See Appendix A)

Table 2

Health Canada Proposed System of Cannabis in Canada (Health Canada, 2019b)

Proposed Cannabis in Canada				
	Dual-Stream Cannabis System			
		Cannabis for Medicinal Purposes		
Illicit Cannabis *(Cannabis Act, Controlled Drugs and Substances Act)*	Non-Medical *(Cannabis Act)*	Medical *(Cannabis Act)*	Cannabis Health Products *(Cannabis Act & Food and Drugs Act)*	Prescription Drugs Containing Cannabis *(Cannabis Act & Food and Drugs Act)*
– Health care practitioner **authorization not required**	– Health care practitioner **authorization not required**	+ Health care practitioner **authorization required**	+ / – Health care practitioner **authorization not required**	+ Health care practitioner **oversight required**
– **No pre-market review** for safety, efficacy	– **No pre-market review** for safety, efficacy	– **No pre-market review** for safety, efficacy	+ **Pre-market review for** safety, efficacy under *FDA*	+ **Pre-market review for** safety, efficacy under *FDA*
– Lacks quality and security requirements under the *Cannabis Act*	+ / – Quality and security requirements under the *Cannabis Act*	+ / – Quality and security requirements under the *Cannabis Act*	+ / – Quality and security requirements under the *Cannabis Act*	+ Manufacturing subject to quality and security requirements under the *FDA* and the *Cannabis Act*
– **CANNOT** make health claims	– **CANNOT** make health claims	– **CANNOT** make health claims	+ **CAN** make **specific** health claims if based on evidence (level TBD)	+ **CAN** make health claims if authorized

1.3 Central Research Problem

Access to medical cannabis is currently an exemption authorized by healthcare practitioners "for patients whose conditions are refractory to standard medical therapies" (Allan et al., 2018, p. 199), such as prescription products approved by the Canadian *Food and Drugs Act* (*FDA*). HCPs have been described as the sole "gatekeepers" to medical cannabis; however, doctors and trainees experience a mismatch between their knowledge of CTP and the needs of their patients (Pierre et al., 2020). For the following data, it is important to note that none of the publicly available statistics provide a breakdown by age, so it is unclear how many older adults use cannabis therapeutically, as well as how much older adult use is authorized. Health Canada's medical cannabis program began in 2002 with under 500 registrants (Walsh et al., 2013), growing to 7,914 registrants in 2014 at the onset of monthly data collection, without a breakdown by age (Health Canada, 2018b). Registrations rose considerably between 2016 and 2018, from 53,649 to 296,702 (Health Canada, 2018b). The increase in registrants may have occurred due to new federal legislation improving access to medical cannabis. The final data from September 2018 just prior to legalization shows 342,103 registered users of cannabis for medical purposes (Health Canada, 2018b). These statistics are uncategorized by age; therefore, it is unclear what proportion of these users are older adults. Active client registrations for medical cannabis peaked at 369,614 in September, 2019, but there has been a reduction to 329,038 in March, 2020 (Health Canada, 2020a).

Alongside medical cannabis, there are also health products containing cannabis, where only estimates of such users are publicly provided. The data on this population comes from Statistics Canada surveys on the use of cannabis products for medical use with a document (estimated 479,100) (Statistics Canada, 2019b) which can then be compared with and active client

registrations with a federal licence holder (average 350,709) (Health Canada, 2019a). While both data samples are taken within the time frame of the fourth quarter of 2018, estimated medical use with a document includes any documented medicinal use, while active client registrations with a federal licence holder excludes those using health products containing cannabis as such users do not require registration with a licensed producer, but rather obtain their prescription drugs from a pharmacy. Comparison shows that approximately 130,000 Canadians use health products containing cannabis.

Prior to legalization, it was estimated that 90% of the 400,000 to 1,000,000 Canadians using CTP did so without authorization (Belle-Isle et al., 2014; Lucas et al., 2016; Walsh et al., 2013). Post-legalization, Statistics Canada (2019b), estimated over half (50-58%) of all 4.6 million cannabis users had used CTP at least once, while in the same timeframe there were only 479,100 authorized users of CTP; therefore, it is possible that prior estimates where 90% of Canadians use CTP without HCP authorization still holds true. On top of this, cannabis purchasing is typically related to whether the person uses for a medical reason (Statistics Canada, 2019b). Statistics Canada (2019b) also reported that 46% of medical users with documentation and 18% of mixed users reported spending more than $250 over three months, while non-medical users rarely spent more than $250 over three months. It appears that cannabis from both the illicit and authorized medical avenues are THC-rich varieties (Grootendorst & Ranjithan, 2019), while data on unauthorized non-medical cannabis is still required. These values fail to align with therapeutic THC:CBD concentrations recommended by the regulating healthcare bodies, as well as authorized and *FDA* regulated health products containing cannabis (Abramovici, 2018; Allan et al., 2018; Health Canada, 2016a,). The Daily or Almost Daily (DAD) use of cannabis among older adults 65 years of age and older increased from 1.6% pre-legalization to 2.6% post-legalization (Rotermann,

2020). DAD use is typical of medical users with documentation (70%), as well as medical users without medical documentation (46%) and mixed users (46%) in comparison to non-medical users (20%) (Statistics Canada, 2019b). DAD use is strongly associated with a risk of cannabis dependence (CCSMH, 2019; Bertram et al., 2020). Research by Lorenzetti et al. (2016) and Chye et al. (2017) suggests that Cannabis Use Disorder (CUD) may be related to changes in brain structure, but the only study examining brain structure in older adult cannabis users specifically was unable to confirm this as their sample may reflect older adult users without CUD (Thayer et al., 2019). Therefore, the use of unauthorized CTP without HCP monitoring for substance abuse may be a risk to public health and safety, but empirical data is still required to confirm this.

With the legalization of recreational cannabis, the necessity of the medicinal cannabis stream has been questioned (Bean & Smith, 2016; Collier, 2016; Task Force on Cannabis Legalization and Regulation, 2016; Levinthal, 2013; Small 2016), most notably by the Canadian Medical Association (CMA), who initially wanted medical cannabis phased out after legalization (Juurlink, 2014). The CMA later decided instead to support the federal review of medical cannabis within five years (CMA, 2018a). The CMA states a variety of reasons for their decision, such as doctors feeling uncomfortable authorizing use, a lack of need for a medical authorization system due to unauthorized legal availability and the lack of clinical research regarding efficacy, dosing and drug interactions (CMA, 2018a). In contrast, various associations such as the Canadian Nurses Association (CNA), Canadian Pharmacists Association (CPhA) and Health Canada, as evident in its *Framework for the Legalization and Regulation of Cannabis in Canada*, advise the federal government to maintain access to a separate medical framework to support patients (CNA, 2017; CPhA, 2017; Task Force on Cannabis Legalization and Regulation, 2016). Support to maintain an authorized medical stream stems from a requirement to provide patients with reasonable access to

cannabis for medicinal purposes; however, further research is necessary to determine the need for and features of a separate system of cannabis for medical purposes (Task Force on Cannabis Legalization and Regulation, 2016). Currently in place is a federally mandated review every five years from the onset of legalization, expected in 2023, to determine whether the system is meeting its objectives (CMA, 2018a; Task Force on Cannabis Legalization and Regulation, 2016).

1.3.1 Cannabis use and aging. For the purpose of this research older adults refers to individuals 55 years of age and older, which is consistent with addictions treatment aimed at older adults for CUD typically initiated at age 55 (Dr. J. Bertram, personal communication, October 31, 2018). For example, the Lifestyle Enrichment for Senior Adults Program in Ottawa, Older Wiser Lifestyles in Hamilton, Sister Margaret Smith St Joseph's Care Group in Thunder Bay, and Community Outreach Programs in Addictions in Toronto are all initiated at age 55 (Canada Drug Rehab Addictions Services Directory, 2020; Senior Health Research Transfer Network, 2020)

It is important that health authorities and policymakers take older adults into consideration when addressing issues related to cannabis use. Older adults made up an estimated 30.7% of the Canadian population in 2017 (Statistics Canada, 2019c), which is projected to increase to over one third by 2038 (Canada Mortgage and Housing Corporation [CMHC], 2015). Fernando (2018), states that there is a dire need to fill gaps in understanding with regards to cannabis use amongst older adults, an understudied and under-identified population. Use of cannabis in older populations requires “surveillance and additional research to better understand motivations, preferences and potential harms” (Rotermann, 2019, p. 10). Policy issues specific to older adults, as well as surveillance initiatives and their findings are discussed in Chapter 2: Literature Review.

1.3.2 Canadian research initiatives.

Particular to older adult specific initiatives, the Canadian Coalition for Seniors' Mental Health (CCSMH) is using the Appraisal of Guidelines for REsearch and Evaluation (AGREE II) instrument (Conn, Bertram & White-Campbell, 2017), to help identify clinical guidelines informing their work on substance use disorder, specifically CUD (Fernando, 2018). The MHCC has expressed an interest in this initiative (MGD CMCR, 2018). Dr. J. Bertram, a co-chair of the CCSMH cannabis working group, recognizes the time sensitive nature for the creation of these guidelines post-legalization (Personal Communication, October 31, 2018). The CCSMH is the first Canadian group to initiate development of older adult specific guidelines. These guidelines are now completed and may be found on the CCSMH website (Bertram et al., 2020). The Canadian Coalition for Seniors Mental Health (CCSMH) identifies that research is necessary on "recognizing and understanding patterns of and motivations for use in this population" (CCSMH, 2019, p. 19). This is because cannabis use is associated with cognitive impairment, increased risk for psychiatric disorders, other mental health problems, as well as increased risk of a chronic or acute health condition being exacerbated, or an unintended drug interaction (CCSMH, 2019; Bertram et al., 2020).

Finally, both the Ministry of Health and Ministry of Long-Term Care in Ontario are monitoring the evidence and information from several surveys (MOHLTC, 2018), including the Canadian Cannabis Survey (CCS), the Canadian Tobacco, Alcohol and Drugs Survey (CTADS) and a survey by the Ontario Long Term Care Association (OLTCA) to inform the ministries' efforts regarding the health and well-being of Ontarians from cannabis use (MOHLTC, 2018). The OLTCA, represents a majority of the private, not-for-profit, charitable and municipal long-term care (LTC) homes in Ontario (OLTCA, 2018). The OLTCA is partnered with Canopy Growth to develop and implement a long-term care medical cannabis study and care pathway for LTC homes

in Ontario (OLTCA, 2018). The study examines medical cannabis as an alternative to less-desirable therapeutics for pain and cognitive function by using a quality improvement framework (OLTCA, 2018).

While these two initiatives are conducted by high-level organizations and policymakers, they are limited in scope and further research is required. The OLTCA study is limited to providing a care pathway for older adults residing in LTC, but it does not address community dwelling older adults. The Ministry of Health and Ministry of Long-Term Care efforts are limited to a review of the research and will not provide any further research. Finally, the CCSMH initiative provides guidelines on CUD among older adults using non-medical cannabis in Canada, however it does not explicitly account for the use of non-medical cannabis as a therapeutic product.

1.4 Study Rationale and Objectives

The current study fills a research gap in existing initiatives. This thesis examines connections between cannabis policy and older adults' perspectives of CTP in the province of Ontario, Canada. This thesis seeks to answer three questions. (1) What are the perspectives of older adults regarding the use of cannabis for therapeutic purposes, either unauthorized or authorized? The second question follows future research recommendations by the Canadian Coalition for Seniors' Mental Health (CCSMH, 2019). (2) What are the patterns of, and motivations for, cannabis use in the older adult population? (3) Finally, what is the utility of the normalization framework as a theoretical framework to understand CTP in Canada's post-legalization context? Answering these questions may add to the literature that guides refinement of the Canadian cannabis system for the purpose of minimizing unauthorized use of CTP and protecting public health and safety.

To meet the above objectives, the study utilizes the normalization framework, based upon the normalization principle, as a theoretical framework through which to study older adults' perspectives of CTP. A qualitative, flexible deductive approach is applied. The normalization principle is defined as "the right of people with disabilities to live their lives on the same terms as anyone else in society, along with the necessary supports to make this possible" (Perrin, 1999). Normalization is about rights, meaning self-determination, which implies consideration for quality of life, *as people view and define this themselves* (Perrin, 1999); therefore, 'normal' is a relative construction by the participant. The normalization framework, specifically, is about "stigmatized or deviant individuals or groups becoming included in … everyday 'normal' life" (Parker et al., 2002, p. 942). Historically, the normalization framework was used to examine illicit recreational drug use, however, legalization and regulation of both non-medical and medicinal cannabis in Canada requires a shift from the original study population. The study of CTP remains relevant post-legalization, because not all use of CTP is authorized, and the normalization framework's purpose is to study stigmatized or deviant individuals' inclusion in everyday normal life. The population studied is comprised of community dwelling older adults, 55 years of age and older, from Ontario, Canada. These participants are broken down into non-users of CTP as well as users of CTP from both the unauthorized and authorized streams. The unauthorized use of CTP includes illicit cannabis as well as non-medical cannabis, while the authorized streams include medical cannabis and health products containing cannabis.

Chapter 2: Literature Review

The literature review begins with the history of CTP then follows two overarching areas: (1) Canadian cannabis policy; and (2) older adult use of cannabis for therapeutic purposes.

2.1 History of Cannabis

Cannabis was originally prohibited by the United States of America (USA) in their crusade against cannabis in the 1920s (Levinthal, 2013), despite widespread use of cannabis in pharmaceutical preparations of the 19th century (Lucas, 2008). Within Canada, cannabis was criminalized officially in 1923 via the *Act to Prohibit the Improper Use of Opium and Other Drugs* (Carstairs, 2000; Haines-Saah et al., 2014); however there were "no seizures of [cannabis] in Canada until 1937" (Carstairs, 2000, p. 48). This was followed by the United Nations Single Convention Treaty on Narcotic Drugs of 1961, which obligated countries to regulate cannabis as a narcotic (Small, 2016), cementing global prohibition. Prohibition is noteworthy as it failed to acknowledge the therapeutic benefits of cannabis at the time, as a psychopharmacotherapy for intractable lypemania, a type of obsessive melancholia and for muscle spasms associated with tetanus and rabies (Russo & Grotenhermen, 2014).

Contemporary Canadian society began to see a fundamental shift away from the prohibition of cannabis in the mid-1960's. At this time, The negative doctrine behind cannabis prohibition began to fall apart due to a hedonistic, psychedelic ethos in college students challenging the claimed effects in anti-marijuana movies organized by the US government (Levinthal, 2013); in other words, using cannabis as a psychoactive drug for personal pleasure. At the state-level, California, USA was the first to legalize and regulate cannabis for medical use in 1996, followed by federal-level legalization and regulation of medical cannabis by Canada in

2001(Small, 2016). Colorado, USA first legalized recreational use at the state-level in 2012, while Uruguay legalized recreational use at the federal-level in 2013. Canada followed suit on October 17th, 2018 (Bill C-45: Cannabis Act, 2018) following a public health approach rather than one focussed on criminalization (Task Force on Cannabis Legalization and Regulation, 2016).

2.2 Canadian Cannabis Policy

This next section will discuss various components of cannabis policy in Canada. Rotermann (2019, p. 11) states "ongoing policy changes related to legalization, regulation and restrictions of non-medical cannabis and shifting social acceptance of its use will continue to affect use patterns", and this extends to medicinal cannabis policy as well. Knowledge of cannabis policy is imperative, because policy (rule creation and enforcement) may be seen as a generative mechanism affecting people's behaviours, and in this case, older adults' use of cannabis for CTP (Edwards et al., 2014). This section will begin with the Canadian government's surveillance methods to track cannabis use since 1985, followed by developments of medical policy which is regulated at the federal level. The next three sections will discuss non-medical cannabis policy at each of the federal, provincial, and municipal levels. The study literature will focus provincial examples from Ontario, Canada as it is the most populous province with English as its official language. This literature review then notes two specific populations, Indigenous peoples and military veterans, that warrant special consideration due to the Indigenous right to self-governance and government funding for veterans' use of medical cannabis. Finally, the relevance of three further areas of note to older adults are examined, specifically, human rights, impaired driving laws and economic policies concerning the use of CTP.

2.2.1 Surveillance policy. Prior to and now following the legalization of non-medical cannabis, Canada has a suite of surveillance methods within the social statistics system. These systems and their subsequent key indicators, as well as limitations, gaps and development opportunities are identified clearly by Wilkins et al. (2018). Since 1985, Canada has collected measures of the prevalence of past cannabis use in the population aged 15 or older from a wide variety of surveys (n=8) (Rotermann & Macdonald, 2018). Further, prior to legalization, Canada collected data split by age group on non-medical cannabis use from a variety of surveys, such as the annual 2004-2012 Canadian Tobacco Monitoring Survey (CTUMS), the biannual 2013, 2015 and 2017 Canadian Tobacco, Alcohol and Drugs Survey (CTADS), and the annual 2017-2019 Canadian Cannabis Survey (CCS). Canada also collected monthly data on the number of registered medical users since April, 2014 to September, 2018 under the ACMPR (Health Canada, 2018b). Post-legalization, Canada collected the quarterly 2018-2019 National Cannabis Survey (NCS), as well as monthly data on the number of registered medical users from October, 2018 to March, 2020 under the *Cannabis Act* (Health Canada, 2019a). The central findings relevant to older adults are further discussed under the Canadian demographics and the aging population header below. Canada is also investigating surveillance methods to complement established methods, like the NCS, such as using wastewater-based epidemiology to monitor markers for illicit drug use (Reedman & Brennan, 2019). The extensive literature utilizing quantitative methods substantiate the need for research using a qualitative methodology, to examine older adult perspectives on and motivations for use of CTP.

To my knowledge, Canada, when preparing for the impending legalization of non-medicinal cannabis, did not explicitly account for the potential impact that legalization of non-medical cannabis might have on the medicinal cannabis industry. Reports on preparing the

statistical system and performance metrics for policy consideration by Statistics Canada and Public Safety Canada did not seek to examine this area (Maslov et al., 2016; Wilkins et al., 2018). It is only recognized that the metrics to describe and assess the medical cannabis industry likely remain relevant as the separate systems co-exist.

2.2.2 Federal medicinal policy. The creation of federal medicinal policy in Canada has predominantly been the result of court challenges on the access to CTP in conformity to the *Canadian Charter of Rights and Freedoms* (Constitution Act, 1982). Such legal challenges have led to the formation of new legislation or amendments to existing legislation. In 1999, regulated CTP in Canada was initiated in response to an Ontario court challenge (*R v. Parker*, 2000), where the Ontario Supreme Court recognized a legal right to access CTP and instructed Health Canada to initiate a therapeutic program (Health Canada, 2016b; Lucas, 2008; Lucas et al., 2016). Already in place at the time, Section 56 of the *Controlled Drugs and Substances Act* (CDSA), which grants exemption from the section of the CDSA addressing cannabis possession, was central to Health Canada's response (Lucas, 2008). Since then, federally legislated CTP has undergone multiple iterations, beginning in 2001 with the *Marihuana Medical Access Regulations* (MMAR), that replaced Section 56 of the CDSA (Bean & Smith, 2016; Lucas, 2008). The MMAR provided access to medical cannabis for eligible patients (Bean & Smith, 2016; Lucas, 2008). The MMAR was challenged in court several times such as in *Hitzig v. Canada* (2003), *Sfetkopoulos v. Canada* (2008) and *R. v. Beren and Swallow* (2009), ultimately requiring amendments to the MMAR. The amendments were for the purpose of facilitating access, for example in the areas of compensation for designated producers (DPs), how many people DPs may grow for and the number of growers per site. In 2014, Health Canada replaced the MMAR with the *Marijuana for Medical Purposes Regulations* (MMPR), which shifted the role of authorizing CTP from Health Canada to health

care practitioners (Bean & Smith, 2016). This was a key moment, as there was a shift from regulating patients to regulating industry, denoting a change in policy (Abramovici, 2019). The MMAR challenge in *R. v. Smith* (2015) invalidated the ban on converting dried cannabis into other classes of medical cannabis such as extracts (Ex. oils). The MMPR was not the final solution to access for medical cannabis however, and on August 2016 the MMPR was replaced by the *Access to Cannabis for Medical Purposes Regulations [Repealed]* (ACMPR) based on *Allard v. Canada* (2016). The introduction of the ACMPR was to include the use of fresh cannabis and cannabis oils, as well as to permit individuals to register with Health Canada to produce their own supply for improved access to CTP (Bean & Smith, 2016, Health Canada, 2016c). The changes to classes from the MMPR to the ACMPR and introduction of production licenses was a direct result of *Allard v. Canada* (2016). Challenges to the now repealed ACMPR have continued and in *R v. Howell* (2020) it was concluded that the THC limit of 30mg/ml on THC oils or 10mg/capsule was a violation of the *Canadian Charter of Rights and Freedoms*, however the decision has no impact to current Cannabis Regulations under the *Cannabis Act*.

October 17th, 2018 marks the date of new regulations (Cannabis Regulations, 2019) under the *Cannabis Act* (Bill C-45) (as discussed further below), which replaced the ACMPR, however there are no changes to access (Bill C-45: Cannabis Act, 2018). Under the *Cannabis Act* medical users are allowed limited classes (fresh, dried, oil, plants and seeds), with edibles, extracts and topicals one year later, while users of health products containing cannabis have no class restrictions dependant on *FDA* approval (Health Canada, 2020b). The use of cannabis in Natural Health Products (NHPs) and Veterinary Health Products (VHPs) are restricted to parts of cannabis that "do not meet the definition of cannabis in the *Cannabis Act*, or that have been exempted from the *Cannabis Act* through the *Industrial Hemp Regulations*" and contain no more than 10 parts per

million (ppm) THC (Health Canada, 2020b). There are also health products containing cannabis regulated under the *Cannabis Act* and *Food and Drug Act* (*FDA*) regulations (Health Canada, 2020b). Further, there is a proposed regulatory framework for Cannabis Health Products (CHPs) (Health Canada, 2019b), that has published feedback from the public consultation (Health Canada, 2020c). The allowed product formats of CHPs have yet to be determined (Health Canada, 2019b), but overall respondent feedback indicates anyone suffering from chronic conditions or in pain would benefit from CHPs, particularly seniors and the aging population (Health Canada, 2020c). It should be noted that prior to legalization, access to CTP was court driven, rather than by legislative policy (Abramovici, 2019). Authorized CTP is deemed a service "essential to the health, safety, security or economic well-being of Canadians and the effective functioning of government" (Public Safety Canada, 2020).

2.2.3 Federal recreational policy.

The Health Canada Task Force on Cannabis Legalization and Regulation in their 2016 report, *Framework for the Legalization and Regulation of Cannabis in Canada*, state that the process of legalizing recreational cannabis derives from a public health perspective (Task Force on Cannabis Legalization and Regulation, 2016). Their public health approach seeks to shift the focus from criminalization to the minimization of public health and safety harms (Task Force on Cannabis Legalization and Regulation, 2016). Legalization was initiated in 2018 with the *Cannabis Act*, which regulates recreational cannabis at the federal-level, alongside provincial and municipal-specific regulations (Health Canada, 2018a). The overarching purpose of the *Cannabis Act* is to protect public health and public safety, specifically to: (1) protect the health of young persons by restricting their access to cannabis; (2) protect young persons and others from inducements to use cannabis; (3) provide for the licit production of cannabis to reduce illicit

activities in relation to cannabis; (4) deter illicit activities in relation to cannabis through appropriate sanctions and enforcement measures; (5) reduce the burden on the criminal justice system in relation to cannabis; (6) provide access to a quality-controlled supply of cannabis; and (7) enhance public awareness of the health risks associated with cannabis use (Bill C-45: Cannabis Act, 2018). The introduction of the *Cannabis Act* allowed dried products and oils, later amending the *Cannabis Regulations* on October 17th, 2019 to include further classes such as edibles, extracts and topicals (Health Canada, 2018a; Health Canada, 2020b). Exactly one year later, Bill C-93, *An Act to provide no-cost, expedited record suspensions for simple possession of cannabis*, was introduced to reduce barriers to reintegration by facilitating access to job opportunities, educational programs, housing, and even the ability to simply volunteer for a charitable organization (Public Safety Canada, 2019). Bill C-93 achieved royal assent on June 21st, 2019. Such a measure reduces the retrospective burden on prior users, alongside efforts from the *Cannabis Act* to eliminate prospective burdens (Bill C-93: An Act to provide no-cost, expedited record suspensions for simple possession of cannabis, 2019). The act will accelerate the process of record suspensions for simple cannabis possessions removing the up to ten (10) year wait period and the application fee at cost to the government. The *Cannabis Act* also mandates a review and report where section 151.1 states "Three years after this section comes into force, the Minister must cause a review of this Act and its administration and operation to be conducted, including a review of the impact of this Act on public health…" and "No later than 18 months after the day on which the review begins, the Minister must cause a report on the review, including any findings or recommendations resulting from it, to be laid before each House of Parliament" (Bill C-45: Cannabis Act, 2018; Government of Canada, 2019; Jessman, 2019). The dates for the review and the report are no later than October 17, 2021 and April 17, 2023.

2.2.4 General provincial and territorial policy. The federal legislation set about several baseline regulations and restrictions for cannabis (Ex. possession limits, control of licensed production, etc.), but provinces and municipalities were left with a number of responsibilities as well. Provinces maintain the ability to strengthen legislation in specific areas under federal legislation: possession limits; advertisement and packaging (Ex. Age gating websites); age limitations; and home cultivation. Many provinces exercise their ability to strengthen such legislation, particularly increasing the minimum age above 18, but changes have been made in other areas as well. For example, the province of Quebec attempted to prohibit home cultivation of cannabis under sections 5 and 10 of the *Cannabis Regulation Act* (Cannabis Regulation Act, 2018); however, on September 3, 2019 the lower court decision in *Murray Hall c. Procureure générale du Québec* (2019) found that the restriction extends into federal criminal jurisdiction. The consequence was the constitutional invalidation of sections 5 and 10 of the provincial *Cannabis Regulation Act* (Cannabis Regulation Act, 2018) without suspension, as the ruling does not pose a danger to the public or threaten the rule of law (*Murray Hall c. Procureure générale du Québec*, 2019, para. 105). This finding by the lower court is currently being appealed by the government of Quebec. Note the commentary of the *Murray Hall c. Procureure générale du Québec* (2019) case is limited, based upon an understanding derived from English news articles and Google translation. The jurisdictional responsibilities are broken down further (See Appendix B), where it should be noted that there is some overlap of the responsibilities. It should be recognized that differences in the provincial regulation of cannabis make the comparison of data a challenge and can limit the generalizability of study findings.

In Ontario, the *Cannabis Act* (Bill C-45: Cannabis Act, 2018), *Cannabis Control Act* (Cannabis Control Act, 2017), the *Cannabis License Act* (Cannabis License Act, 2018), the *Smoke-*

Free Ontario Act (Smoke-Free Ontario Act, 2017), the *Ontario Cannabis Retail Corporation Act* (Ontario Cannabis Retail Corporation Act, 2017) and their subsequent regulations state an aim to maintain the safety of the people of Ontario following legalization (Government of Ontario, 2019c). The provincial rules are "in place to keep cannabis out of the hands of children and youth, keep our roads safe and combat the illegal market" (Government of Ontario, 2019c). In Ontario the minimum age is 19, 30 grams is the possession limit and up to four plants may be grown per residence (Government of Ontario, 2019c). The Alcohol and Gaming Commission of Ontario (ACGO) serves as the provincial regulator for privately run recreational stores, requiring two (2) licenses and an authorization (Alcohol and Gaming Commission of Ontario [ACGO], n.d.). Ontario has a hybrid retail system, where the Ontario Cannabis Retail Corporation (OCRC) will serve as the exclusive wholesaler to privately run recreational stores. The hybrid retail system initially used a lottery run by the ACGO to distribute the location of physical retail stores (ACGO, n.d.), as well as a first come first serve application process for stores on First Nations reserves approved by the First Nations Band Council (ACGO, n.d.). The first lottery was held on December 13th, 2018, while the second lottery was held on July 3rd, 2019, resulting in the authorization of up to 93 retail locations (75 private, 18 First Nations). On January 6th, 2020, the Government of Ontario (2019d) moved to an open market system for retail store authorization, accepting operator licence applications, while store authorization applications may begin on March 2, 2020 at approximately 20/month. The Government of Ontario (2020) is also in consultation to implement additional cannabis business opportunities such as Cannabis Consumption Establishments and/or Cannabis Special Occasion Permits (SOPs) to "provide consumers more choice and convenience on cannabis while giving the private sector enhanced ability to compete against and combat the

criminal market". It should be noted that "The government is not considering changes to the *Smoke-Free Ontario Act* as part of this consultation" (Ministry of Economic Development, 2020).

2.2.5 General municipal policy. Municipal governments must also uphold a number of responsibilities. The Federation of Canadian Municipalities (FCM) released a general information guide to support municipal government preparation in five key areas: (1) land use management; (2) business regulation; (3) public consumption; (4) cannabis in the workplace; and (5) enforcement issues (FCM, 2018). The resultant responsibilities post-legalization include education, taxation, providing retail location and rules, land use/zoning, as well as enforcing public consumption laws. For example, in the Regional Municipality of York, current to Jan 21, 2019 only the local municipalities of Aurora and Whitchurch-Stouffville have opted in to allow private retail stores (Aurora, 2019), while all other local municipalities have opted out (ACGO, 2019). Enforcement falls within the jurisdiction of the regional municipal police and public health units for recreational and medical cannabis respectively (Aurora, 2019). Regional public health officers enforce the *Smoke-Free Ontario Act* which regulates the sale, supply, use, display and promotion of tobacco and vapour products including smoking and vaping of cannabis, while all other matters relating to cannabis are under the jurisdiction of the local police service (Aurora, 2019). Education initiatives vary based on municipality, including online resources such as by regional public health units, or even frequently asked questions (FAQs) provided on local municipal websites.

2.2.6 Indigenous peoples policy. Indigenous peoples require special consideration given their right to self-governance. The *Cannabis Act* requires federal and/or provincial or territorial authorization for legal production, sale and other regulated activities with cannabis in addition to compliance to other applicable rules. Indigenous government authority on cannabis stems from multiple sources including Section 35 of the *Constitution Act*, federal legislation such as the *Indian*

Act, self-government agreements and historic, modern and/or land claim agreements. Indigenous governments, or bands as referred to in the *Indian Act*, have authority to develop by-laws regarding law and order or health of those located on-reserve. The government of Canada states that Indigenous communities and governments must ensure that "any restrictions that they wish to establish are duly grounded in the appropriate by-law making authority and that they do not conflict with the *Cannabis Act* or frustrate its purpose" (Government of Canada, 2019). Provinces may include provisions in their legislation to enable exceptions to provincial regulations for indigenous communities to meet their own objectives consistent with the purposes of the *Cannabis Act*.

For example, in Ontario, under Section 26 of the *Cannabis Control Act* the responsible minister may enter an arrangement or agreement with a council of the band in the areas of "sale, distribution, purchase, possession, consumption, cultivation, propagation or harvesting of cannabis on a reserve" (Cannabis Control Act, 2017). Furthermore, for any arrangement or agreement relating to the sale of cannabis the decision must be jointly decided with the responsible minister of the *Ontario Cannabis Retail Corporation Act* (Ontario Cannabis Retail Corporation Act, 2017) or the *Cannabis Licence Act* (Cannabis Licence Act, 2018), such as the Minister of Finance. However, on February 25th, 2019 the Six Nations elected council of the Grand River enacted an Interim Cannabis Control Law (Six Nations Council, 2019a) to provide "health, wellness and safety…while securing economic sovereignty leading to the prosperity of present and future generations" (Six Nations Council, 2019b). There is also a Six Nations Cannabis Commission tasked with administering such law (Six Nations Council, 2019c), although there is a current moratorium on all cannabis activity within the territory until the commission completes its licensing and regulatory process (Six Nations of the Grand River, 2020). There is no current

(20/07/2020) arrangement or agreement between the Six Nations of the Grand River and the responsible minister and the law explicitly states it is "not dependent on the approval of any other governmental body or agency" (Six Nations Council, 2019a, Section 11.1).

2.2.7 Veterans affairs policy. Of Veterans Affairs Canada (VAC) members, 53% are 60 years of age and older. There are 186,080 veterans and survivors with an average age of 70 (VAC, 2020). Veterans in Canada require unique consideration as the only population to receive funding from the Canadian government for medical cannabis. VAC reimbursed its first authorized user of CTP in 2007 (VAC, 2020). VAC reimburses at a rate of $8.50 per gram, deemed fair market value (VAC, 2020). VAC reimbursed 37 members in 2011-2012 at a cost of $103,424 (~6.14/gram) increasing to 13,270 members in 2019-2020 at a cost of $85,151,847 ($8.39/gram) (VAC, 2020).

2.2.8 Human rights policy. The *Canadian Human Rights Act* (Canadian Human Rights Act, 1985) and the Ontario *Human Rights Code* (Human Rights Code, 1990) have implications for cannabis use at work and in residential housing. In preparation for the legalization of cannabis, the Canadian Human Rights Commission (CHRC) and the Ontario Human Rights Commission (OHRC) subsequently published literature to support understanding of the *Canadian Human Rights Act* in layman's terms. Broadly, random drug testing is banned in Canada apart from safety-sensitive positions (CHRC, 2017). If an employee "tests positive", or "an employee is clearly unwell or is known to have, or perceived to have, disability needs" there is a duty to inquire about cannabis use for a medical purpose, or cannabis addiction (CHRC, 2017, p. 23; OHRC, 2018, p. 2). Furthermore, there is a duty to accommodate (CHRC, 2017; OHRC, 2018) a person unless "the needs of the person cannot be accommodated without undue hardship on the person responsible for accommodating those needs, considering…health and safety requirements, if any" (Human Rights Code, 1990). Therefore, any employees prescribed medical cannabis are afforded the same

human rights accommodation principles as any other disability (CHRC, 2017). This stance generally continues to residential housing such as condos and apartments. The *Smoke-Free Ontario Act* (Smoke-Free Ontario Act, 2017) prohibits smoking or vaping cannabis in common areas, but allow use in a private dwelling, however condominium by-laws may prohibit use for individual units. The *Ontario Human Rights Code* supersedes such condo by-laws, requiring accommodation for the disability-related needs of authorized CTP users, but also for people with disabilities affected by authorized CTP use (OHRC, 2018). With consideration to these legislative and policy requirements there are clear benefits to the use of authorized over unauthorized CTP.

2.2.9 Impaired driving policy. Driving under the influence of a narcotic has been a criminal offence since 1925 (CCSA, 2020a), however due to the impending legalization of cannabis, Canada sought to modify impaired driving policies (Department of Justice, 2019a). Bill C-46, *An Act to amend the Criminal Code (offences relating to conveyances) and to make consequential amendments to other Acts* (2018) strengthened the criminal law approach to drug-impaired driving, as well as increasing penalties and facilitating investigation and prosecution of drug-impaired driving. A number of methods were required to strengthen the criminal law approach to drug-impaired driving including "the creation of blood drug concentration (BDC) offences (with the prohibited drug levels being set by regulation) and the authorization of road side drug screening using approved drug screening equipment (ADSE)", as well as, repealing all "current transportation offences" and enact "a new Part VIII.1 of the *Criminal Code* (Offences Relating to Conveyances)" (Department of Justice, 2019a, p. 7). The new offences for combination or solely drug-impaired driving come with strict penalties (See Appendix C), partly based on advisory from the Drugs and Driving Committee (DDC) of the Canadian Society of Forensic Science (CSFS) (Department of Justice, 2019a). All criminal charges fall under federal law, while

provincial jurisdiction comprise of administrative sanctions for breaching the terms and conditions of one's licence, such as license suspension, administrative fees and vehicle impounding (RCMP, 2018). Currently included with drug-impaired and combination offenses are prohibited BDCs for THC, but not other cannabinoids. It is recognized that BDC prohibitions are more complex for THC than alcohol (Department of Justice, 2019a). For example, THC impairment is related to dose, route of administration, time elapsed since use and inter-individual variability (Department of Justice, 2019a). The identified *Criminal Code per se* THC-driving offences were chosen because there is no definitive scientific guidance on safe levels of THC, if any (Department of Justice, 2019a).

2.2.10 Economic policy. Reduction of the illicit market stands as a primary objective of legalization (Mahamad & Hammond, 2019). Specifically, to; (1) provide for the licit production of cannabis to reduce illicit activities in relation to cannabis; and (2) deter illicit activities in relation to cannabis through appropriate sanctions and enforcement measures (Bill C-45: Cannabis Act, 2018). To support these goals the federal government has amended the Excise Tax to ensure there are no barriers to the movement of cannabis within Canada (Intergovernmental Affairs Canada, 2020). As well, Intergovernmental Affairs Canada (2020) has initiated negotiation to include non-medical cannabis to the Canadian Free Trade Agreement (CFTA). This work is to be prioritized when regulatory models of all provinces are completed following the introduction of further cannabis classes on October 17, 2019.

Alongside these measures, price is an important factor influencing purchasing behaviour (illicit vs. legal) and overall consumption (Mahamad & Hammond, 2019). Concerningly, since legalization, purchasing cannabis illegally remains the dominant mean of purchase (59%), with Canadians primarily (34%) stating high cost of legal cannabis as the reason for avoidance of using

a legal means of purchase (Statistics Canada, 2019d). According to Statistics Canada (2020b), in 2019 the average price of legally sourced cannabis still just above $10/g while illegally sourced cannabis is just below $6/g. Taxing schemes of cannabis are set at the provincial level in addition to the federal level, causing provincial variation (Government of Alberta, 2019). For example, on July 18, 2020 3.5g of Good Supply Jean Guy at the Société Québécoise Du Cannabis (SQDC) was $5.29/g including taxes while the exact same product at the Ontario Cannabis Store (OCS) was $6.84/g. The pricing difference represents a priority in differing purposes of the *Cannabis Act*. While Quebec's lower pricing is ideally situated to reduce illicit activities in relation to cannabis, Ontario's greater tax revenue might be spent for the betterment of the protection of young persons and others from inducements to use cannabis or public awareness of the health risks associated with cannabis use.

Prior to legalization there was a well-established illicit retail cannabis market and supply chain which continues to appear firmly entrenched (Grootendorst & Ranjithan, 2019; Mahamad & Hammond, 2019). The Government of Canada and the Canadian Revenue Agency list medical cannabis as an eligible medical expense, of which one may claim the total of the eligible expenses minus the lesser of "$2302" or "3% of your net income", on their tax return in 2018 (Canada Revenue Agency, 2018). While there is no public insurance coverage via the Ontario Health Insurance Plan (OHIP) for medical cannabis, OHIP+ covers two prescription drugs containing cannabis (Government of Ontario, 2019a; Government of Ontario, 2019b). The Workplace Safety & Insurance Board (WSIB) (2019) policy states "Medical cannabis is not necessary, appropriate, or sufficient health care treatment for most medical conditions… [h]owever, in limited circumstances, medical cannabis may be necessary, appropriate, and sufficient health care treatment as a result of a work-related injury/disease". The entitlement criteria closely follow on-

label use for health products containing cannabis. As well, a number of licenced medical retailers have compassionate pricing for members, such as the 20% off at Shoppers Drug Mart (Shoppers Drug Mart, 2019). The private company Harvest Medicine, a network of specialty medical cannabis clinics, has compiled information on cannabis insurance coverage from many of the large private insurance companies in Canada (Harvest Medicine, 2019) (See Appendix D). It should be noted that much of the criteria is based on health products containing cannabis, rather than medical cannabis, but some companies provide coverage on a case by case basis. Coverage is dependent on the plan and subject to change. There is no support for purchases of unauthorized CTP, therefore removal of the medical stream prior to the expansion of health products containing cannabis and cannabis health products (CHPs) has the potential to financially marginalize authorized users of CTP. Therefore, economic policy is important to consider in the study of participant motivations for use of CTP.

2.2.11 Policy harms and risks. Legalization at the federal level follows a stated public health approach, largely based on the recognition that prior legislation governing the substance can cause extrinsic (psycho-social, legal) harm, independent of its intrinsic (chemical) properties (Crépault, 2018). For a description of the intrinsic harms, see Appendix F. A study by Lau et al. (2015) on the American boomer population explored a range of health, legal and social risks rather than a one-dimensional focus of harm. The current study follows a similar approach, where extrinsic risks may be social, structural and legal.

There is a history of social stigma in Canada, for both non-medical and medical cannabis users alike (Bean & Smith, 2016; Belle-Isle et al., 2014; Bottorff et al., 2013; Hathaway, 2004). Stigma may be external, judgement by others resulting in discriminatory practice, or internal, personal negotiation leading to guilt and isolative behaviours (Bottorff et al., 2013). Users

commonly navigate various coping strategies such as covert or responsible use and education to defend their right to access CTP. Older adults are especially vulnerable as age-related stigma may compound with the use of CTP. Users of CTP have faced "'laughter, scepticism, or with negative reactions' (p. 41) from non-users" (Canadian AIDS Society as cited in Bottorff et al., 2013, p. 2). Medical cannabis is positioned within a trifecta of harm. Some authors note that only *irresponsible* use of cannabis remains stigmatized (Duff et al., 2012), but legalization of cannabis brought about no changes to medical cannabis policy. Recall the initial Canadian Medical Association (CMA) response to legislation, a reasoning that, in essence, described non-regulatory approved therapeutic use as deviant. Pierre et al. (2020, p. 4) note that the CMA clinical practice guidelines are "overly cautious on CTP in ways that are not entirely evidence-based". A survey by Belle-Isle et al. (2014), including 85 participants 55 years of age and older, reported that nearly one third of participants experienced CTP-related discrimination from their healthcare practitioner. In the study by Lau et al. (2015) one user of CTP was rejected by multiple doctors, but still used despite their guidance. Use of CTP is less likely to be shared with an anticipated negative reaction (Page & Verhoef, 2006). In Canada the federal court supports access to CTP, however other institutional structures seek further evidence for regulation (Health Canada) or hold opposing ideological views (CMA) (Pierre et al., 2020). Ethical consideration to various policy options such as that previously conducted by Bean & Smith (2016) are essential to help eliminate stigma surround the use of CTP. Should HCPs provide oversight if a patient will use CTP regardless after a rejected request? Do HCPs have a duty to refer patients? This overlaps as a structural harm as users of CTP may not receive appropriate assessment due to HCP discomfort with cannabis and a subsequent lack of referral.

The medical cannabis regime has structural harms. Note that Kahn et al. (2019) state "[t]here is little transparency about the clinical practices of medical cannabis clinics. To our knowledge, Canadian cannabis clinics have not published the indications, contraindications, or dosing protocols for the products they prescribe". Further, Dr. Carolina Landolt, a court qualified cannabis expert, states that "the need for computer access [to order medical cannabis] causes difficulties for patients with limited financial means, those with less formal education, older patients, disabled patients, and patients for whom English is a second language" and "referenced privacy concerns expressed by some of her patients who had to share personal information with LPs" (R v. Howell, 2020). The desire for Canadians to procure from retail stores rather than online is made evident by the steady decline of online sales from 43.4% in October 2018 to 5.9% of sales in September 2019 (Statistics Canada, 2019f). Regarding medical cannabis, LPs may transfer a drug to an HCP, however many medical regulatory authorities (colleges) prohibit or discourage this practice. Although this structural barrier is changing with the introduction of the first medical cannabis pharmacy in Ontario to offer same-day, in-store access to the product and as well as advice from an HCP on site.

2.3 Canadian Demographics and the Aging Population

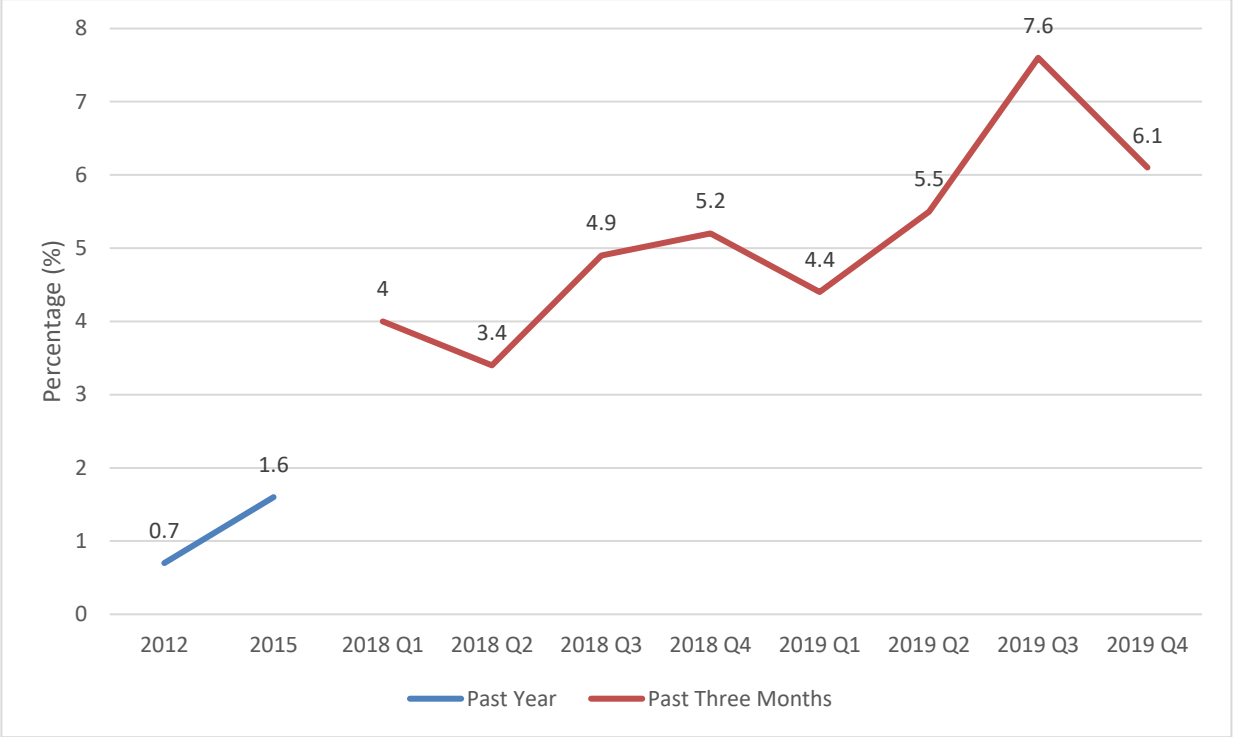
Prior to 2012, cannabis use estimates in older adults 65 years and older were not possible and subsequently withheld, due to a lack of recorded data (Rotermann & Macdonald, 2018; Rotermann, 2019). The CTUMS, CTADS and NCS surveys provide enough data on the prevalence rates of cannabis use among older adults (See Figure 1). Cannabis use rates among older adults has risen in the past decade (Rotermann & Langlois, 2015; Rotermann & Macdonald, 2018; Statistics Canada, 2020a). Medical cannabis, spurred on by media exposure, drives the hopes and desires of patients as a treatment option for a variety of conditions (Minerbi, Häuser & Fitzcharles,

2019). The average age of medical users (50), especially with documentation, is older than non-medical users (35) (Rotermann, 2019; Statistics Canada, 2019b). Older adults are reported to use medical cannabis for pain and sleep difficulties, motor changes such as tremor or spasticity, and mood disturbance and agitation (Minerbi et al., 2019). In their guide to medical cannabis, the Arthritis Society (2018, p. 2) cite "as many as two thirds of Canadian registered medical cannabis patients do so because of a diagnosis of severe arthritis". This is relevant to older adults because approximately 43% of older adults are affected by chronic arthritis (Sanmartin, 2015). Chronic pain caused by arthritis and other causes means many older adults may consider cannabis as part of their pain management plan.

The increase in rates of cannabis use is most notable among those aged 55-74 who have a higher lifetime prevalence of use and past-year use than any preceding generation (Bertram et al., 2020). The high lifetime prevalence of use has been linked to a cohort effect that stems from the baby boomer growing up in the 1960s where permissive attitudes to cannabis were common (Flint, Merali & Vaccarino, 2018; Levinthal, 2013). This increased lifetime prevalence of cannabis use rates of boomers has significant implications as Flint et al, note that "today's cohort of older Canadians have higher rates of past or current substance use disorders than previous cohorts" (2018, p. 114).

Figure 1

Older Adult (65+) Use of Cannabis, 2012-2019



Note. The percentage of older adults (65+) who use cannabis increased from 0.7 to 6.1 from 2012-2019 (Rotermann & Langlois, 2015; Rotermann & Macdonald, 2018; Statistics Canada, 2020a).

2.3.1 Non-medical survey data. Estimated rates of past year cannabis use in older adults 65 years of age and older have more than doubled from 0.7% to 1.6% over 2012-2015 (Rotermann & Langlois, 2015; Rotermann & Macdonald, 2018) and again from 1.6% to 3.0% over 2015-2017 (Health Canada, 2019a). Estimates for the 55 to 64-year-old age group are not presented as they are combined with 45-54-year-old adults. Epidemiological population statistics on older adult use have been unreliable until recently when the National Cannabis Survey was initiated by Statistics Canada in Q1 2018, of which one goals is to better understand the frequency of cannabis usage as a result of the legalization of cannabis for non-medical use. NCS data on the pre-legalization rates of cannabis in the past three months, by those 65 years of age and older, from Q1-Q3 2018 were reported as 4.0%, 3.4%, and 4.9%, while the post-legalization rates from Q4 2018 to Q4 2019 are reported at 5.2%, 4.4%, 5.5%, 7.6%, 6.1% (Statistics Canada, 2019a). This demonstrates an increase in use. Moreover, the pre-legalization daily or almost daily use increased from 1.6% to 2.6% of older adults 65 years of age and older (Rotermann, 2020). Pre-legalization rates of cannabis use over the past three months by those between 55 and 64 years of age from Q1-Q3 2018 were reported as 9.4%, 10.0%, and 9.9%, while the post-legalization rate of cannabis use over the past three months by those between 55 and 64 years of age from Q4 2018 to Q4 2019 was reported at 10.4%, 15.3% and 11.8%, 9.5%, 10.7% (Statistics Canada, 2019a). The increase in cannabis use in the 55 to 64 years of age category is notable as use rates have risen above the younger cohort of 45-54 years of age, where use rates are between 12.8-9.0% post legalization (Statistics Canada, 2019a).

2.3.2 Medicinal survey data. From Q1 2014 to Q2 2018, market data collected under the ACMPR provided numbers of active registered users of medical cannabis. This public data has been archived (Health Canada, 2018b), however the data continues to be reported (Health Canada,

2019a) under the *Cannabis Act* and Cannabis Regulations (Bill C-45: Cannabis Act, 2018; Cannabis regulations, 2019). Unfortunately, the data is not divided into age categories, so the number of older adults using CTP is unidentifiable. The fourth quarter, 2018 data from the NCS reports an estimated 4,600,000 cannabis users aged 15 years or older, with approximately half (50-58%) using at least once for therapeutic purposes (Statistics Canada, 2019b). Of those users an estimated 479,100 only use medical with a document, 620,400 only use medical without a document and another 1,271,400 use a mix of medical and non-medical cannabis (Statistics Canada, 2019b).

2.4 Cannabis for Therapeutic Purposes

In the context of this study, the review of existing literature on therapeutic use refers to therapeutic use that is related to a diagnosis, treatment, mitigation or prevention of a disease, disorder or abnormal physical state, or its symptoms. The discussion may include both potential and/or measured benefits for older adults. Potential benefits, risks and harms are discussed because data is often limited and firm conclusions cannot always be made (Abuhasira et al., 2018; Ahmed et al., 2014; Bertram et al., 2020; van den Elsen et al., 2014; Fernando, 2018; Minerbi et al., 2019; Scott et al., 2019; Sexton et al., 2019). Some research findings fail to be generalizable to the older adult population, while others are extrapolated. Extrapolation results in products that are approved for use on the older adult population with some caution.

2.4.2 Treatment. Doctor decision making is assisted in a multitude of ways. The weighting of benefit vs risk is an important factor that doctors consider when authorizing the use of CTP. Sources include federal documents such as Health Canada's information for health care professionals, professional organizational guidelines such as from the College of Family

Physicians of Canada (CFPC) or Canadian Nurses Association (CNA), research studies and continuing education (Abramovici, 2018; Allen et al., 2018).

2.4.2.1 Approved indications. Health products containing cannabis are only approved for a limited number of indications in Canada: Dronabinol is used for AIDS-related anorexia and/or nausea and vomiting associated with cancer chemotherapy; Nabilone is used for nausea and vomiting associated with cancer chemotherapy; and nabiximols are used as an adjunctive treatment for spasticity from Multiple Sclerosis (MS) and/or as adjunctive treatment for neuropathic pain from MS and/or as adjunctive analgesic treatment for advanced cancer pain. Cannabidiol (CBD) is still being studied in clinical trials for use in Canada (Abramovici, 2018; Greenwich Biosciences, 2019). While these are the approved indications of health products containing cannabis, there is the potential for off-label use of these products. Examples of off label use are outlined in the section below.

2.4.2.2 Indications. Among older adults, possible indications include non-specific pain, cancer pain, neuropathic pain, cachexia, anorexia, behavioural/mood disturbances and agitation in dementia, dyskinesia in Parkinson's disease, chemotherapy induced nausea and vomiting, breath-lessness in Chronic Obstructive Pulmonary Disease (COPD), spasticity associated with MS and spinal cord injuries, anxiety, dystonia, Huntington's disease, Post-Traumatic Stress Disorder (PTSD), psychosis, Tourette syndrome, epilepsy, sleep disturbances, arthritis and more (Abuhasira et al., 2018; van den Elsen et al., 2014; Minerbi et al., 2019).

2.4.2.3 Contraindications. General contraindications provided by healthcare practitioners are currently based upon the available pharmacopoeia of health products containing cannabis (Ex. dronabinol, nabilone, nabiximols) (Abramovici, 2018). These contraindications are listed in

product facts sheets and/or product monographs which are evidence based as products have undergone clinical trials. Contraindications are extended to medical cannabis products, however medical cannabis is not homogenous to the current health products containing cannabis.

There is a variety of contraindications for health products containing cannabis relevant to older adults. Contraindications for nabiximols (Sativex) include patients who are hypersensitive to this drug or to any ingredient in the formulation, including any non-medicinal ingredient, or component of the container, patients with cardiovascular diseases, such as ischemic heart disease, arrhythmias, poorly controlled hypertension, severe heart failure and patients with a history of schizophrenia or any other psychotic disorder (GW Pharmaceuticals, 2019). Nabilone (Cesamet) parallels hypersensitivity to cannabinoids and a history of psychotic disorders (Valeant Pharmaceuticals, 2009). Dronabinol (Marinol) parallels all the above while adding a contraindication for patients with significant hepatic or renal impairment (Unimed Pharmaceuticals, 2011). All three product monographs state data on the older adult population is limited and no conclusions could be made aside from recommendations to monitor patients, use caution (especially in patients with hypertension or heart disease) and titrate the dose due to "the greater frequency of decreased hepatic, renal, or cardiac function, increased sensitivity to psychoactive effects and of concomitant disease or other drug therapy" (GW Pharmaceuticals, 2019; Valeant Pharmaceuticals, 2009; Unimed Pharmaceuticals, 2011, p. 8). In addition to contraindications, there are also harms, risks and adverse events that may weigh in on a doctor's decision to prescribe treatment of CTP.

2.4.3 Safety. Studies on the safety of cannabinoids require examining the general safety, tolerability, any adverse events (AEs) as well as pharmacokinetic (PK) and pharmacodynamic (PD) effects. Broadly, pharmacokinetics describes how drugs move throughout the body, while

pharmacodynamics describe biological responses to drugs in the body. Some common drug classes (>4 listed) potentially interacted with are antidepressants, anticonvulsants, antidiabetics, Central Nervous System (CNS) depressants, antiarrhythmic, antipsychotic, antiretroviral, opioids, hormones and immunosuppressants (See Appendix F, for a list of specific drugs). Current pharmacopeia cannot be used conclude on the safety of cannabinoids for use with the older adult population is insufficient (Abramovici, 2018; Abuhasira et al., 2018). Information direct from clinical studies on older adult use of health products containing cannabis cannot be used as all three product monographs state data on the older adult population is limited and no conclusions could be made aside from recommendations to monitor patients (GW Pharmaceuticals, 2019; Valeant Pharmaceuticals, 2009; Unimed Pharmaceuticals, 2011). Further, data on the safety of cannabinoids cannot be generalized to older adults due to the fact that PK and PD factors change with age (van den Elsen et al., 2014; Abuhasira et al., 2018).

There have only been a few studies that examined the use of cannabis in older adults. It is difficult to summarize these studies as they do not build upon one another and are distinct in their purpose, sample population, treatment methods, and dose. Overall, it appears low doses (up to 10mg) of Dronabinol (Namisol), sublingually administrated whole cannabis extracts (THC and CBD combination or CBD only), and herbal cannabis (CBD or THC rich strains) oils have a low rate of mild adverse events in older adults (Abuhasira et al., 2018; Abuhasira et al. 2019; Ahmed et al., 2014; Sexton et al., 2019). Studies on older adults stress the importance of patient monitoring by HCPs (Abuhasira et al., 2019; Minerbi et al., 2019) and dose titration (Ahmed et al., 2014; Minerbi et al., 2019) following a lack of evidence to guide treatment decisions (van den Elsen et al., 2014).

2.5 Conclusion

The cannabis policy environment is rapidly changing around the world, especially in Canada. Evidence in many areas of cannabis research is lacking, especially research related to older adults in both non-medical and medical populations, which makes evidence-based policy making a challenge. Clinical research capacity on cannabis has historically been limited by its classification as an illegal drug, only recently increasing via public and private improvements in licensing, funding, production capacity and vigorous dissemination of results alongside federal legalization. Older adult use of cannabis is increasing and insight from their perspectives on the use of CTP is imperative to protect the health and safety of Canadians. The next chapter examines how the current study will investigate the research objectives in outlined in the introduction.

Chapter 3: Theoretical and Methodological Framework

As Fletcher (2017) succinctly states, a theoretical framework serves as a compass for research, presenting a philosophical orientation, supporting topic selection and determining the foci of a study. The analogy extends to present the methodological framework as a map (Fletcher, 2017), which delineates the ontology (nature of reality) to be explored, the epistemology (the relationship between the inquirer and the known) and the methodology (paths for knowing that reality) (Denzin & Lincoln, 2018). The compass (theoretical framework) that was used for this study is normalization theory, specifically the normalization framework (described below); and the map (methodological framework) used in this study is Critical Realism (CR). CR guides the selection of methods and use of theory.

Prior to the selection of this study's theoretical and methodological framework, broad reading in the field of older adults and cannabis was conducted. Therefore, the research could not be approached without pre-existing ideas and interests. Reading about cannabis research in Canada led to the discovery of the normalization framework (Duff et al., 2012). This chapter provides the basis for the third objective of the study, which is to expand the application of the normalization framework to the study of cannabis for therapeutic purposes.

3.1 Methodological Framework: Critical Realism (CR)

CR, a philosophy of science, originates from the 1975 publication *A Realist Theory of Science* by Roy Bhaskar (Bhaskar, 2013). However, CR came of age during the qualitative-quantitative paradigm wars of the 1980s (Denzin & Lincoln, 2018). The critical realist follows an objective (Ex. realist) ontology and subjective (Ex. constructivist) epistemology (Denzin & Lincoln, 2018; Edwards et al., 2014). Ontology refers to the assumptions made about the nature of

reality, while epistemology refers to one's beliefs about how what exists can be studied and known (Edwards et al., 2014).

CR bases emergent ideas on empirical evidence and acknowledges that knowledge is partial, provisional, and historically located (Denzin & Lincoln, 2018). Due to the aforementioned, any theories, such as the normalization framework, are initial, whereby deeper analysis of the phenomena of study may be facilitated, but the end result may be a confirmation, elaboration, or denial of the initial theory (Fletcher, 2013). By recognizing that theory has shaped the research(er), greater truth and productive engagement with theory is afforded (Fletcher, 2013).

Reality, within the critical realist ontology is stratified into three levels; (1) the empirical; (2) the actual; and (3) the real. This is also known as depth ontology (Edwards et al., 2014). Each of these levels or domains are distinct from one another. The critical realist ontology has been described from both top down and lateral views. The model of three overlapping domains of reality in the critical realist ontology by Raduescu & Vessey (2009), parallels Fletcher's (2017) metaphor of an iceberg to support understanding of the stratification of reality into three levels (See Figure 2 and 3). At the empirical level "social ideas, meanings, decisions, and actions occur", which can be causal (Fletcher, 2017, p. 5). The empirical, are experiences where events have been observed (Edwards et al., 2014). Experience is mediated by human interpretation despite the ability to be measured empirically. The actual, distinct from the empirical, occurs despite a filter human of human experience or interpretation. At this level, causes of an empirical regularity "may be accessed beyond the immediate context (Edwards et al., 2014, p. 10). The real, is composed of the "inherent properties in an object or structure that act as causal forces to produce events" (Fletcher, 2017, p. 5).

Figure 2

Three Overlapping Domains of Reality in the Critical Realist Ontology (Raduescu & Vessey, 2009)

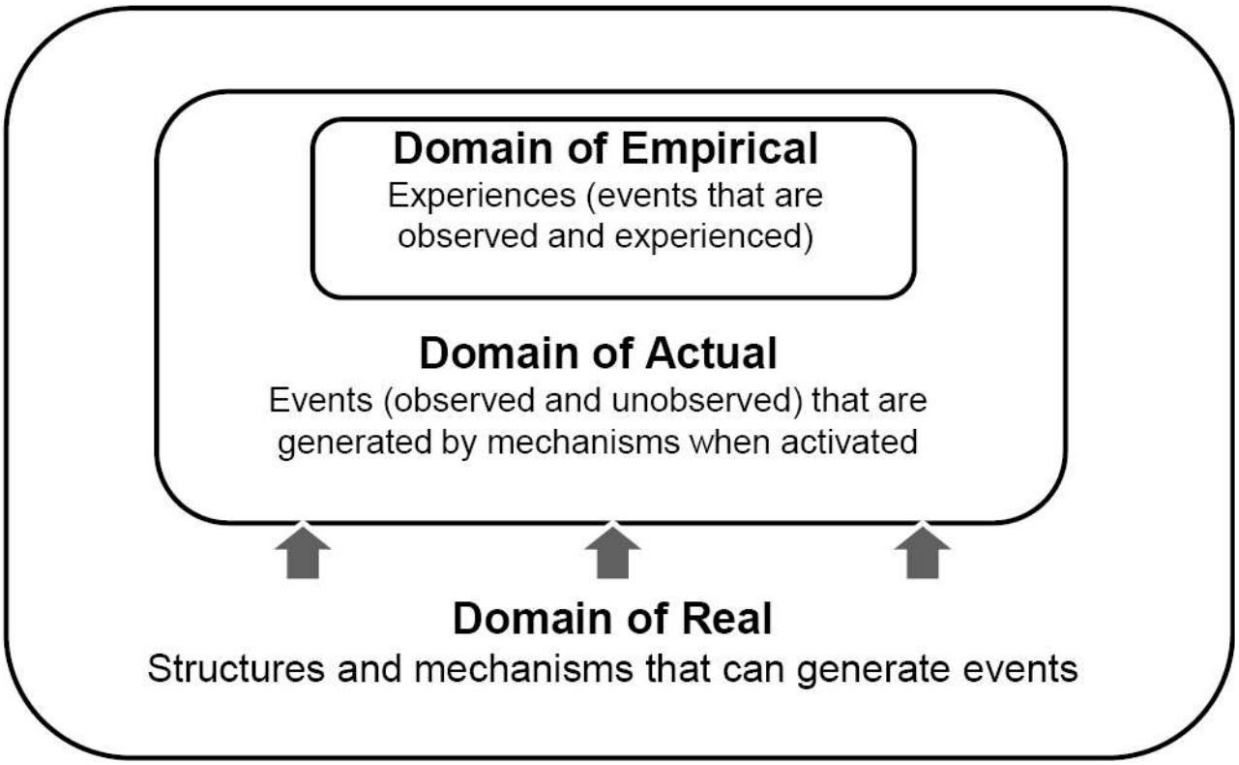
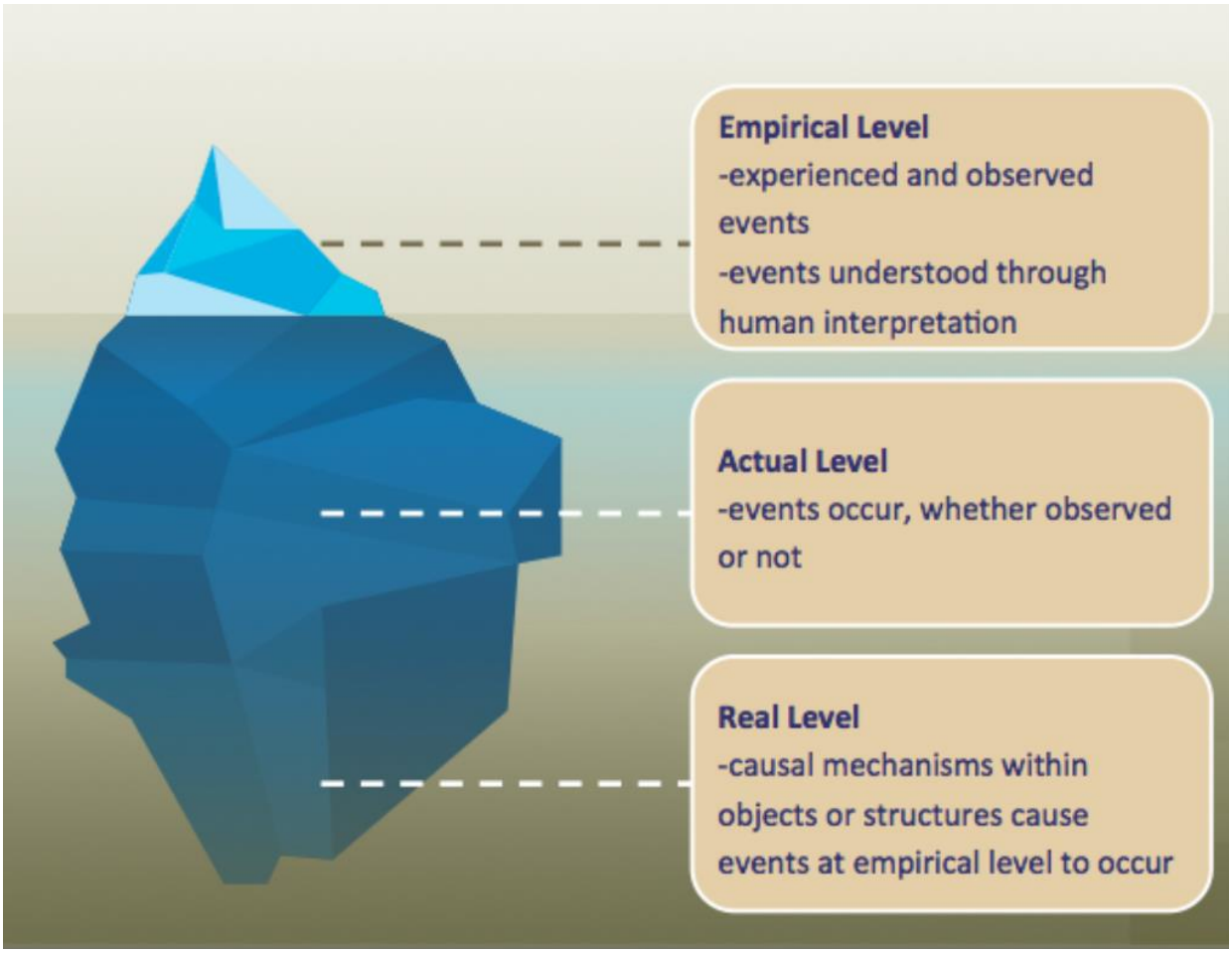


Figure 3

An Iceberg Metaphor for CR Ontology and Epistemology (Fletcher, 2017)



3.1.1 Why critical realism? A critical realist methodological framework was chosen as there is already precedent for its use in drug policy-based research, such as that by Stevens (2019) and in policy-based research, such as by Fletcher (2013, 2017). Furthermore, the CR analysis process seeks generative mechanisms to support research explanation of events and provision of pragmatic policy recommendations to address issues that arise (Fletcher, 2013).

3.2 Theoretical Framework: The Normalization Framework

The normalization framework serves as an analytical apparatus for this study, which aligns with the overarching theoretical approach (CR) to the methodology. The study of drug normalization began due to a substantial rise in the prevalence of exposure to, and use of, recreational drugs among youth in the mid 1990s United Kingdom (Measham, Newcombe & Parker, 1994; Parker, et al., 2002). In the early 2000s, Howard Parker, Judith Aldrige, Fiona Mesham and colleagues developed a conceptual and methodological framework to monitor, understand and explain changes in drug use over time and across geographical contexts (Parker et al., 2002; Parker, 2005; Sznitman & Taubman, 2016). The framework provides dimensions through which normalization manifests. Parker et al. (2002), note that normalization is about stigmatized or deviant individuals or groups becoming included in everyday ‘normal’ life. Recall from Chapter 1: Introduction, Background and Significance, that normalization is about rights, meaning self-determination, which implies consideration for quality of life, as people view and define this themselves (Perrin, 1999). Therefore, normal is a relative construction by the participant. Normalization is important for safe and appropriate use of CTP; therefore, understanding the normalization of CTP may illustrate the successes and shortcomings of policy underpinned by a public health perspective to its makers.

3.2.1 Why normalization for CTP research? Acceptance of the use of the normalization framework as a theoretical paradigm is under debate (Duff et al., 2012; Sznitman & Taubman, 2016). Measham & Shiner (2009, p. 502) present the normalization framework as "orthodoxy" (generally accepted) in the field of drug use, while Parker (2005, p. 206) states normalization "is not a coherent theoretical paradigm". Sznitman & Taubman (2016, p. 2-3) conclude that "further developments in normalization theory and methodology promises to provide researchers with a novel framework for improving our understanding of drug use in contemporary society". Furthermore, the term normalization under continuous revision is an established theoretical perspective (Parker, Williams & Aldridge, 2002).

While the normalization framework is intended for the study of illicit drug use (Parker et al., 2002; Parker, 2005), it presents as a pragmatic approach to the study of CTP related policy in Canada. The medicalization of cannabis lends credence to the acceptance of cannabis as a therapeutic product (Fischer, 2015), however access to CTP itself lies within both illicit, as well as unauthorized and authorized, legislated classifications. Additionally, access to medical cannabis lives in a "grey zone" distinct from conventional Health Canada approved health products that follow the regulations set by the *FDA* with a pre-market review for safety and efficacy. Therefore, while the use of medical cannabis is currently authorized the system is atypical to the regulatory process and standards of health products.

Considering drug use as an unavoidable, widespread activity, as opposed to a deviant or pathological behaviour, the normalization framework is particularly applicable in the Canadian context, as one of the few nations to have shifted away from criminalization to federally legalized use from a stated public health perspective for the minimization of public health and safety harms. However, the legalization and regulation of both non-medical and medicinal cannabis in Canada

requires a shift from the original study population of youth using illicit drugs recreationally. Following the purpose of the normalization framework, to study stigmatized or deviant individuals' inclusion in everyday normal life, the thesis remains relevant to utilize in a post-legalization context because not all use of CTP is authorized.

Following the federal mandate to review and report on recreational cannabis legislation within three (3) years (Bill C-45: Cannabis Act, 2018; Government of Canada, 2019; Jessman, 2019) and medical cannabis legislation within five (5) years (CMA, 2018a; Task Force on Cannabis Legalization and Regulation, 2016), there is an opportune policy window to guide refinement of the Canadian cannabis system. The review by Sznitman & Taubman (2016) indicate that very few normalization studies have focused on the policy dimension and that policy is an area especially suitable for research. As well, harm reduction efforts have historically been aimed at high-risk users, while non-problem users are neglected (Erickson & Hathaway, 2010). This is where the National Cannabis Survey (NCS) is well situated, as it includes non-problem users and collects data across the various stages of the life course. The normalization framework shifts the focus from subcultures to population-level data, therefore, to ensure utility to theory it must be shown drug use persistence continues across the spectrum of society (Erickson & Hathaway, 2010). With much of the research focus on youth, further study on older adults is necessary. Use of the normalization framework in the current study is well positioned, as continued research may improve upon the concerns of Erickson & Hathaway (2010) to apply the normalization framework across a wider spectrum of society beyond youths, given that the goal of this research is to improve understanding of the use of CTP in older adults. Furthermore, the normalization framework applies to the real world as the original and additional dimensions through which drug use normalization manifests itself can still be applied to users of CTP.

3.2.2 Dimensions. The normalization framework originally consisted of five dimensions to measure if drug use was acknowledged as unremarkable and within normative boundaries, i.e., 'normalized'. The original five dimensions consist of: (1) Access and Availability; (2) Drug Trying Rates in Adolescence and Young Adulthood; (3) Recent and Regular Drug Use; (4) Social Accommodation of Sensible Recreational Drug Use; and (5) Cultural Accommodation (Parker et al., 2002). Parker (2005) expanded upon the original five dimensions by including a sixth dimension, (6) State Responses in Legislation and 'Anti'-Drugs Strategies. Sznitman & Taubman (2016) further identify a host of studies by various other researchers in both quantitative and qualitative fields that have continuously expanded upon the normalization framework. The additional dimensions include: (7) Normal Lives; (8) Denormalization; (9) Drugs — A Means to Achieve Normal Goals; (10) Assimilative Normalization; and (11) Transformational Normalization (Sznitman & Taubman, 2016). The continued development of the normalization framework has resulted in a total of eleven (11) dimensions. Below the dimensions are described and examples of methods of measurement are provided.

3.2.2.1 Access and availability. Authorized CTP must be available and accessible to a population for there to be any prevalence, else alternatives such as unauthorized streams may meet potential demand. Measures may include number of violations under the *Cannabis Act* or the *Controlled Drugs and Substances Act*, drug offer rates, federal license holders, provincial retail locations and a variety of market or medical data, such as sales data, price comparisons, medical cannabis registrations, etc.

3.2.2.2 Drug trying rates. Comprehensive assessment of the normalization framework requires using long term epidemiological and social trends data (Parker et al., 2002). Furthermore Erickson & Hathaway (2010) point out that for relevance to theory, research, and policy,

explanations of persistence must be shown across the spectrum of society to include more than just adolescents and young adults. Measures may include new medical cannabis registrations and active license holders (if numbers are sustained) and assessing views about authorized and unauthorized use of CTP. Such measures may be used across cohorts and longitudinally to identify explanations of the persistence.

3.2.2.3 Recent and regular drug use. This dimension examines drug use prevalence among various cohorts. Measures may include rates of cannabis use (frequency/amount) in the past three months by gender, age and type of use (authorized vs. unauthorized).

3.2.2.4 Social accommodation of drug use. An essential measure for normalization is the personal and social accommodation of drug use by current non-users (Parker et al., 2002). Measures may include positive expectancies towards drug use, perceived extend of use as deviant, unsafe or wrongful and drug knowledge by abstainers.

3.2.2.5 Cultural accommodation. While difficult to assess, cultural accommodation of CTP may illustrate normalization (Parker et al., 2002); for example, blurring the licit (Authorized use) with the illicit (Unauthorized use) or potentially mixed use (Recreational and therapeutic). Another example of cultural accommodation is the use of CTP in popular media. Measurement may include neutral or positive rather than disapproving terms for the description of CTP, frequency of reference within popular culture or news, normalcy of CTP and opinions on official government policy.

3.2.2.6 State responses in legislation and 'anti'-drugs strategies. Involves shifts in policy and enforcement over time generated by the scale of drug use (Parker, 2005). Methods of measurement may include shifts in official policy/strategy to problem and/or non-problem drug

use. Such shifts may be observable over time or in jurisdictional comparison through education campaigns, legislation and regulations at any level, by law enforcement and re-classification and/or classification indicative of acknowledgement that CTP may be embedded in society.

3.2.2.7 Normal lives. The normal lives dimension examines the relationship between use patterns of CTP, sociodemographics, inequality, other risk factors and normalization (Sznitman & Taubman, 2016). Measurement of the dimension may assess prevalence rates among the socially integrated and well adjusted, as well as evidence of the breakdown in divisions of gender, socioeconomic status (SES) and psychosocial risk factors between users and non-users of CTP (Sznitman & Taubman, 2016).

3.2.2.8 Denormalization. Put simply, denormalization signifies the opposite of normalization, that use becomes socially and culturally unacceptable. Denormalization can be used to examine the effect of education and harm reduction policy on future abstinence (partial use pattern or complete cessation). Denormalization may be an interesting domain specifically for CTP. For example, there is potential for the inclusion of denormalization in the measure of ROAs for CTP. Measurement of denormalization may include the extent to which a whole behaviour or a subset is unacceptable, or where reductions in use are associated with greater division between users and non-users by way of gender, socioeconomic status (SES) and psychosocial risk factors.

3.2.2.9 Drugs — A means to achieve normal goals. This dimension is the first addition identified by Sznitman & Taubman (2016) within qualitative literature. A descriptive theme is drug use as positive/beneficial. The emphasis that drug use can be understood as a way to achieve legitimate, normal and acceptable goals (productivity/creativity) may influence use patterns. Methods of measurement are qualitative in nature and may include semi-structured interview

questions on the perspectives of older adults regarding the use of CTP. Questions may delve into why CTP is used or how it makes older adults feel and if there is a deficit (physical, cognitive, symptoms of a pathology) that use of CTP may help to overcome.

3.2.2.10 Assimilative normalization. This domain refers to deviant people's attempts to 'pass as normal', achieved through boundary work" (Sznitman & Taubman, 2016). A boundary is based upon what is described by users as normalized vs. non-normalized behaviour (Ex. Mitigation of social stigma). For example, within the use of CTP, participants could describe their use through illicit and unauthorized streams as normalized behaviour, while production or trafficking of unlicensed products would be seen as non-normalized behaviour. Such informal rules would be framed, taught and adhered to through boundary work. Akin to other qualitative forms of measurement, observable behaviour and participant perspectives may be significant to understanding boundary work and its effects in assimilative normalization.

3.2.2.11 Transformational normalization. Refers to processes where users resist or redefine normal in the sense that they refuse societies deviant labelling or stigmatization of their behaviour (Sznitman & Taubman, 2016). Measurement of transformational normalization could potentially include criticism of regulations, and/or exaggerating and boasting about the therapeutic effects and that use should be akin to other therapeutic drugs.

3.2.3 Chosen dimensions. This study will explore the dimensions of the normalization thesis, but given the qualitative methodology and study population, specific dimensions will have greater anticipated utility. Full theorization/understanding of normalization requires all evidence to be accounted for; therefore, this study contributes just one piece of knowledge to this effort. The study emphasis is qualitative in nature and as such the focus of data collection will be limited to

such domains. The dimensions with the greatest anticipated utility are Policy (State Responses in Legislation and ‘Anti’-Drugs Strategies) and Drugs – A Means to Achieve Normal Goals, however participant responses may fall within any of the deductive dimensions and inductive codes or sub-codes may arise.

3.3 Methodological Design.

3.3.1 Data collection methods.

CR requires empirical observations that are made using extensive and intensive data. The information described in Chapter 2: Literature Review, represent extensive data. This study will involve the collection of intensive data through qualitative interviews, which, when explored in the context of extensive data, can provide a better understanding for older adult perspectives of CTP. Provided that the evidence and methods for identifying generative mechanisms (used in a CR framework) are distinctive from those used in variance explanations (typically statistically based) (Denzin & Lincoln, 2018), the focus of this study is on the intensive rather than extensive. This also guided the research question to focus on the perspectives of older adults on the use of CTP. Including participant meanings in analysis can integrate experiential knowledge and influence policy and political outcomes (Denzin & Lincoln, 2018). Collection of the intensive data occurred through semi-structured interviews. The interviews were conducted with three distinct subgroups: non-, unauthorized and authorized users of CTP, where each subgroup sample size was seven, five and five respectively. The choice to split up users of CTP is due to the duality of therapeutic use in Canada, as there is both unauthorized and authorized use. Recall, across Canada there are approximately 479,100 authorized users (Statistics Canada, 2019) and approximately 1,891,800 unauthorized users (Statistics Canada, 2019g). The addition of non-users of CTP is a strong factor in normalization theory, leading to

their inclusion as well (Parker et al., 2002). The use of intensive data from semi-structured interviews will be used to determine the micro-level demi-regularities.

3.3.2 Recruitment and qualitative interviews. Participants are all community dwelling older adults 55 years of age and older located in Ontario, consistent with initiation of treatment for Cannabis Use Disorder (CUD) (Dr. J. Bertram, personal communication, October 31, 2018). Community dwelling excludes long-term care and retirement homes as recruitment sources. Recruitment of non-users of CTP does not exclude past or current users of cannabis for recreational purposes. Non-users are described as participants who have never used cannabis for therapeutic purposes. The use of CTP is defined as whatever the participants describe it as within the Health Canada definition of therapeutic. Unauthorized users of CTP do not have healthcare practitioner authorization, while authorized users do.

Participants were recruited using a combination of purposeful sampling and snowball sampling. The use of purposeful sampling was determined by the need of perspectives from non-users, as well as both authorized and unauthorized users of CTP, as discussed under the methodological design subheading. Snowball sampling was conducted via word-of-mouth discussions of the research with the research team, as well as participants identified by those who had previously participated. Both an electronic and physical poster were shared. Approximately 50 physical participant recruitment posters were distributed, while electronic posters were shared or interacted with approximately 800 times. Four methods were used to share the physical and e-posters with participants: physical posters were printed and placed in public spaces in the geographic area of Middlesex, such as seniors centers, libraries and a mall with permission from the institutional managers; a table was set up at two seniors centers with the poster where unsolicited members could ask questions or take a copy; e-posters were shared on websites

including Reddit (134 upvotes), Facebook (4 shares) and LinkedIn (200 views) and two organizations shared the poster by email (~500 shared with); and finally participants were recruited by word of mouth. Local medical cannabis clinics were contacted but omitted as they stated direct recruitment went against their privacy policies.

The study was originally conducted in the geographic area of Middlesex, but due to exhaustion of existing recruitment resources within the scope of the study and challenges associated with the public health protocols of COVID-19, an amendment to recruit from all of Ontario was required to ensure an adequate number of perspectives from users of CTP. Participants are organized based on geographic area, consistent with the *Territorial Division Act*, (2002) listed in the subsequent regulation (O. Reg. 180/03: DIVISION OF ONTARIO INTO GEOGRAPHIC AREAS). The result was that participants are primarily from the geographic area of Middlesex. Expansion to include residents of Ontario rather than all Canadians was chosen to limit the impact of differences in policy, as with the amendment there are only potential policy differences at the municipal level.

Qualitative interviews were semi-structured in the event that novel themes arose and were to be investigated (See Appendix G & H), particularly due to the novelty of legislation as well as an influx of funding and studies in the field. It also accounts for topics introduced by participants, outside what was specifically researched. The interviews include demographic questions that parallel those used by Statistics Canada in their National Cannabis Survey. Every participant provided consent (See Appendix J & K) and ethics approval was provided by the University of Western Ontario's research ethics board (See Appendix I). All interviews were audio-recorded and transcribed verbatim. Saturation was reached when no further themes were emerging (Fletcher, 2013). All names and identifying information, such as responses relating to specific geography,

have been removed. Pseudonyms were assigned to anonymize the participants. Fletcher (2017) provides a description of applied CR for data processing methods that were used in this study, described below.

3.3.3 Data analysis methods. CR analysis begins with a question or problem guided by theory. The two (2) key purposes of analysis will be to interpret the meanings of the generative mechanisms as they appear in the post-legalization context and explain older adult perspectives. Within CR, analysis may be iterative or linear and consists of several key steps listed by Fletcher (2017): (1) identification of demi-regularities; (2) abduction (also known as theoretical redescription); and (3) retroduction. Patterns of data within CR are called demi-regularities and are derived from intensive and extensive empirical data. Description is the process a researcher must conduct first to describe the event intended to study at the empirical level. Extensive methods explore population level trends and intensive methods determine individual understanding within a specific context. Demi-regularities are not causal law, but rather tendencies (Fletcher, 2017). Tendencies are seen during the observation (empirical data) of a trend or pattern from a possible actualized mechanism, requiring further and deeper analysis (Fletcher, 2013). Demi-regularities signify the beginning of the CR analysis via increasingly complex tools of abstraction, abduction (theoretical redescription) and retroduction. Reduced to the most basic sense, abstraction isolates an aspect of the concrete important to the researcher or situates an event within the context it occurred (Fletcher, 2013). While abstraction may occur at multiple points in the research process, guidance by initial theory and identified demi-regularities is consistent. Abstraction helps limit the parameters of the research to the structures of study, but the parameters may be modified at any of the points in the abstraction process it occurs. Abduction (theoretical redescription) occurs after abstraction and description of the empirical domain. The next step of analysis requires an

alternative theoretical framework(s) to explore the utility in understanding the phenomena and ensuring appropriate theory selection. The final step is retroduction, alternative to both inductive and deductive perspectives (Fletcher, 2013). Retroduction goes full circle moving from concrete to abstract, back to concrete, to investigate generative mechanisms in the phenomena of study. For this study retroduction will examine generative mechanisms affecting older adult use of CTP, authorized or unauthorized.

3.3.3.1 Coding and Demi-Regularities. CR ontology initiates analysis with the identification of demi-regularities at the empirical level of reality. Recall demi-regularities are not causal law, but rather tendencies found in empirical data. Such demi-regularities are identified using qualitative coding (Fletcher, 2017), and require further analysis. Fletcher (2017, p. 13) proposes a "primarily deductive yet flexible (i.e., 'directed') coding process" that utilizes existing theory and literature rather than grounded theory which avoids theory during analysis and utilizes an inductive inferential process. A list of codes was deductively drawn from the literature review, theoretical framework and CR concepts. The provisional codes are the domains of the normalization framework as well as demographic questions that parallel the Statistics Canada National Cannabis Survey questions. Following the identification of provisional codes, for the purposes of flexibility, codes may be added, changed or deleted based on collected data. Subsequent cycles should reduce the number of codes and a conceptual map informed by CR may be used for categorization (Ex. Structure and Agency) (Bhaskar, 1979). NVivo coding queries or tree charts will be used to identify dominant codes and subsequent connections. Demi-regularities will be based off all codes, but emphasize dominant codes.

3.3.3.2 Abductive and retroductive analysis. CR further requires theory- and researcher-driven analysis for abduction and retroduction, important to CR analysis (Fletcher, 2017).

Abduction (theoretical redescription) is used to re-describe demi-regularities, using acknowledged fallible theoretical concepts, beyond thick description. Abduction takes the reasoning process from the concrete to the abstract. Retroduction is the final step of CR analysis, which aims to "identify the necessary contextual conditions for a particular generative mechanism to take effect and to result in the empirical trends observed" (Fletcher, 2017). CR concepts such as powers, liabilities, actualization, etc. are be used to describe the above. Iterative movement between the levels or domains of reality helps to identify the structures where powers and liabilities originate (Fletcher, 2017; Raduescu & Vessey 2009). CR holds individual meanings and ideas (Ex. beliefs, intentions, etc.) as equally real to physical objects and processes' (Fletcher, 2017, p. 22). Retroduction moves back from the abstract to the concrete and an NVivo-based analysis on the dominance of codes may be utilized to achieve such movement. Finally, a key outcome of retroduction is to accept, reject or modify existing theory to provide an explanation of reality as accurate as possible.

3.3.4 Evaluating qualitative research. Tracy (2010), provides several big-tent criteria for excellence in qualitative research. The end goal for this research is to achieve a worthy topic, rich rigor, sincerity, credibility, a significant contribution, conduct ethical research and meaningful coherence. To reach the above goals, the study follows several criteria. For research to be a worthy topic requires relevancy, timeliness, significance, and interest (Tracy, 2010). The study adds to the body of literature on older adults and cannabis in anticipation of a policy window. The policy window is the federally mandated review and report on non-medical and medical cannabis legislation no later than October 17, 2021 and April 17, 2023 respectively. The markers of rich rigor include a variety of data sources, contexts, and samples. Sincerity is achieved through transparency about the methods and challenges (Tracy, 2010). The use of multiple perspectives in this study, such as non-users, unauthorized users and authorized users of CTP support markers of

rich rigor, such as a variety of data sources, contexts and samples. Credibility requires triangulation, described as the use of multiple sources (theoretical frameworks, types of data, various methods, multiple researchers) to provide dependable and accurate data (Fletcher, 2013). The research examines existing extrinsic literature and identifies the need for intrinsic literature to support credibility via triangulation of multiple sources. Ethical research requires procedural, situational, relational and exiting ethics (Tracy, 2010). Procedural ethics are actions that are universally necessary, for example, mandates described by the ethical review board such do no harm, avoid deception, informed consent and ensured privacy and confidentiality. The research verifies its procedural ethical conduct via acceptance from the institutional research ethics board. Situational ethics emerge from reasoned consideration of context. Exiting ethics continue beyond data collection to how researchers leave and share results. Concern with situational ethics are demonstrated by recognizing the sensitivity of some questions to participants and emphasizing at such points that participants only share what they are comfortable with. Finally, exiting ethics are addressed through an offer to disseminate the research results with study participants on competition. Finally, meaningful coherence is achieved when studies meet their stated purpose, use methods representative to their theory(ies) and interconnect the literature with research foci, methods and findings (Tracy, 2010). Methods and measurement are explained in full to reflect a sincere account on the knowledge of both the normalization framework and critical realism.

3.4 Conclusion

The legalization of cannabis in Canada required a shift in the application of the Normalization framework from its originally intended purpose. This chapter identifies how the study and analysis of the research is conducted through the lens of the normalization framework within a CR framework. The study follows a qualitative flexible deductive approach, while the

analysis of older adults engages the dimensions with the greatest anticipated utility, namely Policy (State responses in legislation and ‘anti’-drugs strategies) and Drugs – A means to achieve normal goals.

Chapter 4: Results

4.1 Older Adult Perspectives on Cannabis for Therapeutic Purposes

The following chapter presents the perspectives of older adults on the use of cannabis for therapeutic purposes, either unauthorized or authorized. The chapter begins with a description of the abstractions from the literature review; then participant demographics are highlighted; next a summary of the non-user, unauthorized user and authorized user perspectives on CTP are provided; followed by an examination of CTP through each domain of the normalization framework.

4.2 Abstractions

Prior to presenting the findings from the interviews, CR requires abstraction as part of the analytical process. Recall "abstraction isolates an aspect of the concrete important to the researcher or situates an event within the context it occurred" (Fletcher, 2013). Older adult perspectives on cannabis for therapeutic purposes is the focus of this research. This abstraction is guided by trends seen in the empirical data presented in the literature review, as well as the modified normalization theory described under the theoretical framework to fit the context of a post-legalization society. Pre-existing normalization theory and literature review data states that cannabis is used to achieve normal goals (Minerbi et al., 2019), but when applied in the Canadian context where access to medical cannabis is court mandated rather than federally regulated by Health Canada, this demi-regularity leaves medical cannabis in a grey zone that requires analysis. What motivates older adults to stray from the class of regulated health products to medical cannabis? Why is unauthorized use so prevalent?

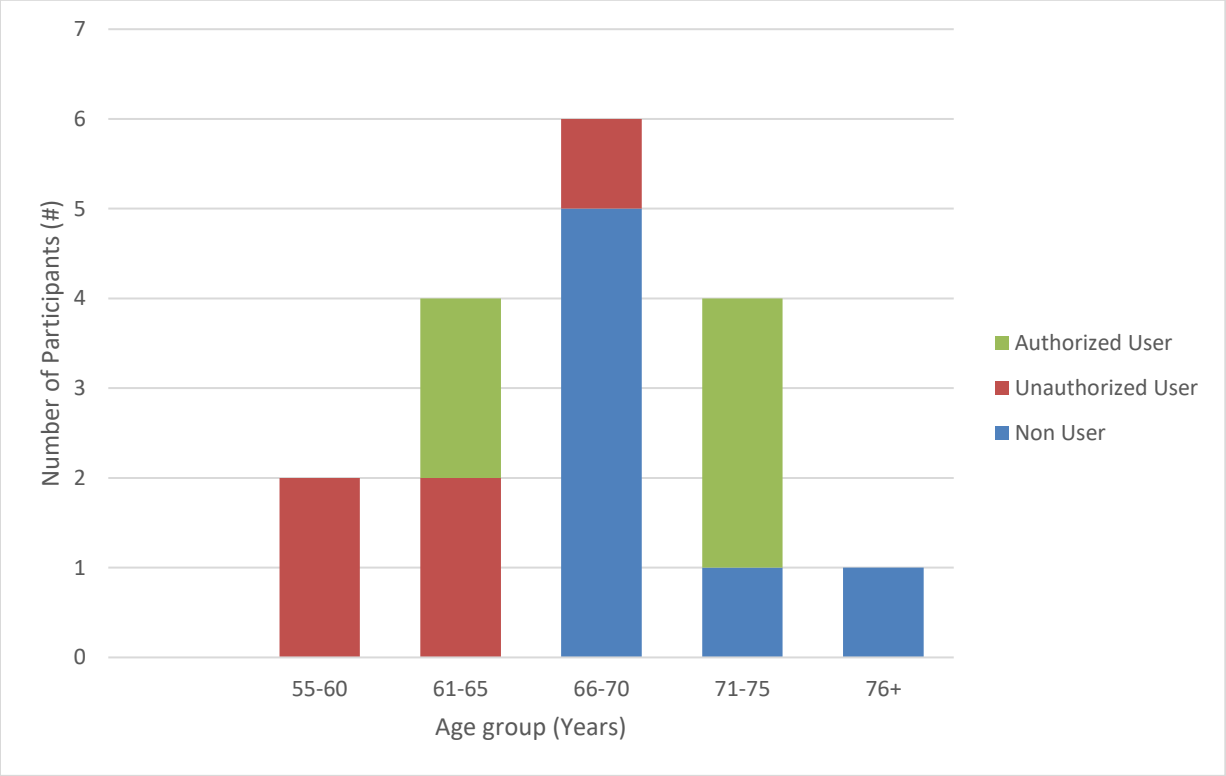
Another trend abstracted for analysis is the growing shift in views on cannabis prohibition, socially since the mid-1960s and in a domino effect on policy starting in 1996 with the legalization of therapeutic cannabis in California and recreational cannabis in Uruguay in 2013. The policy shift in the Canadian system made apparent via the introduction and subsequent evolutions of medicinal cannabis since 1999 and recreationally since 2018. Policy is a systemic, structural force with past, current and prospective impacts on the older adult use of CTP. Therefore, policy is an important contextual process providing insight on macro- and micro-level change to older adult perspectives on CTP. These policy shifts coincide with an increase in the overall rate of cannabis use among seniors over the last decade. The literature review also highlights a high prevalence of unauthorized use of CTP among Canadians and demonstrates that therapeutic users are often older than recreational users. Does policy change affect one of, if not both, user and non-user perspectives? What might this mean from a public health perspective?

4.3 Participant Demographics

For this project a total of 17 interviews were conducted with older adults in Ontario, 9 females and 8 males. The age range of participants was 55-88, with an average age of 67.65 (See Figure 4). For female participants, the average age was 69.89, while the median age was 69; for male participants, the average age was 65.13, while the median age was 66. The 17 participants were split into three sub-groups consisting of seven (7) non-users, five (5) unauthorized users and five (5) authorized users (See Table 3). The average non-user participant age was 71.12, median age 68; the average unauthorized participant age was 61.2, median age 61; the average authorized user age was 69.2, median age 71. The younger average age when comparing unauthorized to authorized users is consistent with the findings by Statistics Canada (2019b) that authorized users are typically older (50) than unauthorized users (35).

Figure 4

Participants



Note. Total sample n = 17, non users n = 7, unauthorized users n = 5 and authorized users n = 5

Table 3

Participant Demographics

Baseline characteristic	Non-Users		Unauthorized Users		Authorized Users		Full Sample	
	n	%	n	%	n	%	n	%
Gender								
Female	4	57.1	3	60	2	40	9	52.9
Male	3	42.9	2	40	3	60	8	47.1
Age								
55-64	0	0	4	80	1	80	5	29.4
65-74	6	85.7	1	20	4	20	11	64.7
75-84	0	0	0	0	0	0	0	0
85+	1	14.3	0	0	0	0	1	5.8

4.4 Perspectives on the Use of Cannabis for Therapeutic Purposes

4.4.1 Non-users. In line with a core dimension of the normalization framework (Parker et al., 2002), non-user perspectives were collected alongside unauthorized users and authorized users of CTP as a valuable measure of normalization, specifically the dimension of social acceptance. Non-user participants were asked a variety of questions regarding their thoughts and experiences with recreational and therapeutic cannabis.

Of the non-user participants, just over half had never tried cannabis before, while the others had tried, or continue to use for strictly recreational reasons. Of those who had used or continue to use, their use was recreational only, attributed to the 60s era of cannabis. For example:

> Lean: Have you ever tried cannabis in the past or do you plan to in the future?
>
> Miles: Oh, I've smoked a truck load of pot [laughs]. Lean: Just not therapeutically?
>
> Miles: Well, I was a 60s and 70s guy.

> Lean: Have you ever tried cannabis in the past? This can be recreationally or medicinally?
>
> Zoe: Well I grew up in the 60s, but I wasn't much of a risk-taker. I didn't want to do anything that would make my parents too upset with me. So, I used it twice probably before I was 30. Yeah.

While Miles (age 67) stated he used a lot of cannabis recreationally, he also indicted that they had not used cannabis for roughly 10 years, but even then it was sporadic and for all intents

and purposes they had quit prior to the age of 30. Zoe (age 68) smoked again “once or twice” in her forties but that was the last time. Jack (age 68) has used recreationally in the past and currently uses for recreational purposes. For the non-users who had never tried before, Jane (age 68) and Patricia (age 72) plan to use recreationally with the legalization of cannabis. Patricia also wanted to use therapeutically to help with sleep. Kane (age 67) does not intend to try cannabis. Katy (age 88) would like to use therapeutically to potentially improve mobility or as an analgesic but is unsure about the safety of cannabis use and is concerned about weight gain.

Almost every non-user had knowledge of one or more people using CTP, but the experiences shared were mostly positive. Four participants felt the experiences shared by those they knew positively influenced their consideration for future use of CTP. One participant was not influenced in any way by their interaction and a final participant was influenced negatively by their own assumption of the person using CTP. Every non-user participant was okay with the use of cannabis in some therapeutic capacity, except for one non-user who was unsure. The unsure participant did not believe cannabis could be therapeutic based on their own experiences for recreational purposes.

> Lean: Do you have any thoughts on cannabis for therapeutic purposes? Just off the top of your head. Perspectives, likes, dislikes?
>
> Jack: Psychosomatic.
>
> Lean: So?
>
> Jack: I don't think it necessarily…I think a lot of people who use it, use it because they think it's doing something.

Lean: OK.

Jack: I don't think it really does. Having used it in the past, I can't imagine that it could relieve too many symptoms.

Lean: OK. Having used recreationally in the past?

Jack: Yes.

Two current non-users wanted to try CTP themselves, while four were amenable to trying on the basis that they had an indication for its use and/or that there was research indicating therapeutic effect for a future indication. The responses of participants who were amenable to trying were very pragmatic. For example:

Lean: [H]as their use in any way influenced you to consider trying [CTP]?

Miles: No, I really don't have any conditions that I would need it for.

Lean: So, you don't see yourself using in the future?

Miles: Well, no, I didn't say that. Things change. It depends. It depends what ailment I have and whether it's conducive to… because I'm sure like most medications, it doesn't work for everybody. Umm. So, I would certainly be amenable to trying it…

Lean: Has their use in any way influenced you to consider trying cannabis for therapeutic purposes?

Kane: It’s made me think about it more yes.

Lean: If you were to consider cannabis for therapeutic purposes are there any specific indications or symptoms that might lead to your consideration?

Kane: If it was proven to relieve pain, it would give me a greater consideration to use it.

Lean: Have your friends’ use, in any way, influenced you to consider trying cannabis for therapeutic purposes?

Jane: I don't have any... I'm interested in it and if I had trouble sleeping on an ongoing basis or if I was having a lot of pain somewhere, I would consider it yes. but I don't have either one of those.

Lean: So, if you had pain you would consider cannabis for therapeutic purposes?

Jane: Yeah after checking out the other kinds of things.

Lean: So, you would take it as an alternative therapy once other options are exhausted?

Jane: Yes, I suppose that would be true. If I hurt my knee and I did the usual things to try and help my knee and that didn't work, then I might consider cream with the Cannabis added.

Two non-user participants even mentioned they knew a number of people who had tried to obtain authorized medical cannabis, but were prevented by their doctor(s).

Lean: So you believe doctors are currently very stringent on allowing it?

Patricia: Well that's what I understand, I haven't even asked my doctor, but I will. From what I've heard lots of doctors don't recommended it.

Lean: Heard on the news or from friends?

Patricia: No, from friends. Lean: So the two people you know who use?

Patricia: Well and there's other people too.

Lean: People who tried to obtain?

Patricia: Yeah.

Lean: And they were unsuccessful?

Patricia: Well the doctors just didn't agree.

Lean: What are your thoughts on cannabis for therapeutic purposes?

Zoe: I don't have any personal experience, but I have a friend. One of my friends and a friend of my son who were both quite ill with cancer. My friend died and I believe that she should have…and she believed that she should have, had but she wasn't allowed to use it. She ended up using it anyway.

Lean: Allowed because her doctor said so?

Zoe: Because her doctor didn't want her.

Lean: So this was post-legalization? Or pre?

Zoe: This was last spring, she passed away end of April, 2019.

Lean: So that would be post legalization.

Zoe: Yeah and she wanted to use it and she [her friend's doctor] said "no you can't". Now I don't know if it's because she was in a clinical study or what, but she…I don't know if my friend even knew why she wasn't allowed to. She ended up using some anyway, she said "I don't care"…I guess I do just wonder why my friend wasn't allowed to use it when she wanted to. After all she was dying and she knew she was dying.

Lean: She was in palliative care?

Zoe: Yeah. They told her the day she was diagnosed that she had three to six months left. So you know she knew that. She knew that and she asked if she could use and she was told no. That seemed really cruel to me and I was glad later when she told me that she had tried, she was using it anyway. She ended up lasting exactly 12 months not the 3 - 6. I think it was cruel not to let her use, because she wanted to. She was going to have it supplied for her. They weren't even supplying it for her.

There are also positive stories on the use of CTP, heard by non-users of CTP, such as a reduction in the use of opioids.

Jane: …[B]ut I know some people are taking it for sleep issues and some for pain. I do have a friend who used a lot of pain medication to manage her pain and she

weaned herself off that. The cannabis is a very important part of her not relying on opioids.

4.4.2 Unauthorized users. The unauthorized users were slightly more likely than authorized users to use CTP that is CBD dominant than THC dominant (See Table 4). Exact measurements of dose and THC:CBD ratios was a point of ambiguity. Alice and Eliza who procured mostly from the illicit market lacked such information. Mark, who grows his own cannabis plants via clones from a friend who obtained their clones from a professional grower, read about it, but didn't remember. Herbal products purchased from the non-medical stream also have regulated variability limits, thus consistent dosing even if one product is adhered to is not possible. Hana and Zack both obtained their cannabis products from the licit non-medical market, Hana's cannabis picked up by a friend via a retail store and Zack from the OCS. The primary reason for use was slightly more common as an analgesic, then an anxiolytic.

Table 4

Unauthorized User Snapshot

Participant (Age)	Dominant Cannabinoid	Ratio THC:CBD	Route of Administration	Indication (Primary/ secondary)	Primary Reason
Alice (55)	THC	*15:0	Inhalation (Smoking)	Neuropathic pain Opioid withdrawal Sleep Appetite	Analgesic
Eliza (69)	CBD Unknown	0:1 Unknown	Ingestion, sublingual (Oil) Ingestion (Tea)	Asthma Mobility (Arthritis)	Anxiolytic/anti-inflammatory
Hana (61)	CBD	1:20	Ingestion (Oil)	Pain (Herniated disc) Drug reduction (Prescription, OTC)	Analgesic
Mark (57)	THC	*15:0	Inhalation (Hybrid convection and conduction)	Stress (Work) Sleep	Anxiolytic
Zack (64)	CBD	1:20	Ingestion, sublingual (Oil)	Pain (Parkinsonism) Drug reduction (Prescription, OTC)	Analgesic

Note. *Indicates unknown (THC:CBD), assumed Canadian average (15% THC). OTC = Over the counter

Alice (age 55) is a long-term user of CTP (~10 years), typically using multiple times per day in the past three months depending on her medical condition. Alice is a mixed user, but the emphasis is therapeutic, with only 5% of use as recreational. Alice has neuropathic pain stemming from a traumatic injury which she uses cannabis for. Alice was given antidepressants (Ex. SSRIs, SNRIs) for her neuropathic pain, but found it was ineffective for her condition. Alice's doctor is aware of her use of CTP, but did not provide an authorization citing legalization. Alice also uses cannabis occasionally to help her sleep and to stimulate her appetite. Regarding the efficacy of CTP Alice states:

> Alice: I don't particularly get…like umm…I don't know, like most people get high if they don't use it all the time. If you're a weekend user, or use it once a month, or whatever, you know just to party with, I usually don't get that kind of effect from it, but I can absolutely tell if it's good quality and if it's doing what it's supposed to do.
>
> Lean: What it's supposed to do for you is pain reduction?
>
> Alice: Yes. Yes.

Eliza (age 69) is a long-term user of CTP (~2 years), using once daily in the past three months. While she had used cannabis recreationally in her teens during the 60s, she stopped when she was 20 or 21. Eliza's use of CBD for asthma is adjunct, in addition to asthma medication and an emergency puffer. Eliza feels nothing when using the CBD, but it took a few weeks to notice a difference in her condition. Eliza uses CBD as an anxiolytic for asthma, stating it reduces her stress and anxiety about having an asthma attack in public.

Eliza: The only huge difference I've noticed is with the asthma…I think it's more likely that I have less stress right now.

Lean: So the effects of the cannabis for you is that you feel less stress, you're not as concerned about asthma flare-ups?

Eliza: Yeah [emphasis], that's really a big one, because when you have asthma your always afraid of when you're going to get asthma attack. It's not fun and it and you don't like to have it in public because it scares people. So yeah, I guess it does reduce stress and that way that I'm not as afraid of having an asthma attack.

Hana (age 61) attempted CTP without any efficacy for her underlying back problem. Hana tried the CBD oil twice at night before bed, as isolated events one week apart. Hana attempted to use the CBD like she would acetaminophen, for pain relief. Hana does use cannabis recreationally, trying first during her teens, but not with any regularity. Hana views CTP favorably, even following a lack of efficacy as an analgesic for her pain, her opinion of users did not change.

Hana: I'm fully in favour of it. I have lots of friends who use it and who have had good results.

Lean: Since you have tried in the past, has that influenced your opinion of users of cannabis for therapeutic purposes?

Hana: Well, before and after, no. I'm in favour of it and it's everyone's choice and I know that there's mixed results. So, I wouldn't judge anybody by trying it or not trying it.

Mark (age 57) is a long-term user of CTP (~5-6 years), but self-describes as a new and occasional user (bi-weekly) in the past three months. Currently, he grows his own cannabis using clones from a friend, with his first grow enough to supply his use for “the next 10 years”. Prior to legalization, Mark initially purchased from an illicit market dealer where he tried many different strains not noticing any difference. While his use is mixed, Mark’s main purpose is therapeutic with the occasional recreational aspect. The reason for his therapeutic use is for stress relief and as a sleep aid.

Lean: Is your used authorized or unauthorized?

Mark: Authorized meaning I would have a prescription?

Lean: Correct, from a healthcare practitioner.

Mark: Uhh no, so I approached mine, just to give you a bit of background, I approached my doctor at some point. I also have severe arthritis that I'm being medicated for with opioids. I'm actually due for hip replacement, but my doctor wasn't convinced. I think she didn't have enough data to show that cannabis would help with that and I didn't pursue it any further. This was actually before cannabis became legal in Canada, I was using it and when it became legal I didn't see the point of actually pursuing a prescription.

Lean: The reason for your use of cannabis…do you believe that's from wear and tear on your body or age-related decline? Do you just feel that it's necessary because you're stressed and you can't sleep for other reasons?

Mark: I think both. The original region reason I started was because of stress. I was selling my business and it was a very stressful situation. Actually, my daughter introduced me to this, I guess she was watching me struggling with it and thought that I might help. I guess this was the original trigger, but then there are side benefits. So yes, it's there's a medicinal aspect to it, stress relief and then can get a good night sleep without any other medication. I was trying other things which may be more addictive and do more harm like...but then you know there's another aspect or you actually…everything becomes more fresh. I think that's how I would describe it, more exciting, as if you smell something for the first time for example. Or when you hear a song you've heard so many times, you discover new things.

Lean: So, your use of cannabis provides a novelty to the acts that you conduct?

Mark: Yes.

Zack (age 64) is a new user of CTP (1 week), taking CBD once daily for parkinsonism pain. Parkinsonism pain is the current indication as a definitive diagnosis is only possible post-mortem via autopsy. Zack had never tried cannabis in the past and even discussed that he had to overcome his own apprehension about using CTP. As a process of overcoming his apprehension, Zack discussed the use of CTP with several Health Care Practitioners (HCPs) prior to purchasing without authorization from the OCS. Zack “made it clear” to his HCPs that he was only interested in trying CBD, with “no interest in the THC component”.

Zack: So this is interesting. I don't have a prescription, but I did consult with my cardiologist before I decided to move ahead with this, because I do have an

underlying heart condition. I also have a diagnosis of neurological condition, and I have approval/encouragement from two different neurologists to give it a try.

Lean: So, you've spoken with three doctors total about this? Two neurologists and one cardiologist?

Zack: Yes.

Lean: Any other doctors?

Zack: Yes, I've mentioned that I might be interested in trying to this with my [General Practitioner] GP, but he's not in favour, so I'm not too sure if he would even provide me with a prescription. He wasn't in favour, because he says I'm already taking various medications that have neurological effects and that this might complicate matters because there's some overlap, not overlap, but some of the same functionality might be addressed by the CBD. So, he said he was "very wary" of this. He said "we just don't know enough about it yet". Oh and the pharmacist also said it would be okay to try, but stressed that it was important to start trying it at a low dosage first.

4.4.3 Authorized users. The authorized users were slightly more likely than unauthorized users to use CTP that is THC dominant than CBD dominant (See Table 5). The route of administration was primarily ingestion via oil, with some inhalation and one sublingual spray. The majority of participants used CTP from the medical classification with one participant who used a health product containing cannabis. Exact measurements of dose and THC:CBD ratios were presented with greater accuracy, however herbal cannabis use was still variable. The variability of THC:CBD ratios is due to use of multiple strains, as well as herbal users not having specific data

on hand. This resulted in estimations and/or provision of product names. Products were sought out on the Licensed Producer (LP) website which provides a certificate of analysis. The certificate of analysis provides a cannabinoid, as well as a terpenoid profile. The values in the certificate of analysis are subject to change, because cannabis grows are not the same every time, so each production lot/batch will be unique. Therefore, unless the exact medical product used is tracked, it is difficult to discern exactly what is taken. The primary reason for use was mostly as an analgesic, rather then as an anxiolytic.

Table 5

Authorized User Snapshot

Participant (Age)	Dominant Cannabinoid	Ratio THC:CBD	Route of Administration	Indication (Primary/ secondary)	Primary Reason
Adam (62)	THC	20:0	Inhalation (Smoking) Ingestion (Oil)	Anxiety Socialization Weapon for work	Anxiolytic
Dan (65)	THC	20-25:<1 Unknown	Inhalation (Vape herbal) Inhalation (Smoking resin/hashish)	Pain (Stenosis, kidney stones, back, disc) Drug reduction (Opioid/Opiate)	Analgesic
Keira (74)	CBD	1:12.5 1:1	Ingestion (Oil drops) Ingestion, sublingual (Spray)	Pain (Stenosis, bursitis, disc, muscle) Sleep Drug reduction (Opioid, OTC)	Analgesic
Lisa (74)	CBD	~1:26	Ingestion (Oil)	Radiating Pain (Undiagnosed) Sleep Drug reduction (Opioid)	Analgesic
Simon (71)	THC (Synthetic)	1:0	Ingestion (Cesamet, an oil)	Refractory pain (Nerve, arthritis) Neuropathy	Analgesic

Adam (age 62) is a long-term user of CTP (45 years) using THC dominant cannabis at least eight times per day in the past three months, two to three hours between sessions. Despite the long-term use of CTP, Adam only sought out authorization post-legalization to ensure access to his preferred strains. Adam uses CTP as an anxiolytic and a creative tool. While he primarily smokes, Adam also uses oils and vapes on occasion using a hybrid convection conduction vaporizer. Adam's indication is for general anxiety and as a weapon for work. Adam began smoking at age 16 because of peer pressure, but started smoking daily during his post-graduate education during his 40s. While Adam is an authorized user with a prescription through two companies, his recent purchases have been through the non-medical stream due to supply issues.

Lean: Can you describe when you began using cannabis therapeutically?

Adam: Okay…now that's an interesting question because the word therapeutic right. I didn't know I was using cannabis for therapeutic reasons. I suppose you can't imagine that that is a purpose given the use, but therapeutic is an interesting choice of words. I started smoking when I was 16…

Adam: I actually have no physical ailment that I'm trying to fix with cannabis. I use it...it's more of a mental balance, in terms of taking away general anxiety.

Lean: So the treatment method for anxiety as an indication is to smoke joints throughout the day?

Adam: Yeah, yeah. I also use it for work. It's a weapon, cannabis is weaponized. There's different strains that I can use for different things I want to achieve.

Lean: Can you explain a little more about that?

Adam: Yeah if I want to do some writing, I do web publishing, I write, I would look to weaponize that process by creating a situation where mentally I'm much more creative, my thoughts are much more active and I have the energy to pursue whatever project I have with great abandon [without inhibition].

Dan (age 65) is a long-term user of CTP (3 years) taking THC dominant cannabis daily on demand in the past three months. Dan began as a recreational user, but is a mixed user now that there is also a therapeutic aspect to it. Dan broached the subject briefly with his HCP, but due to lack of knowledge spoke about a referral, which Dan took upon himself to find a cannabis clinic. His experience with authorized cannabis began a year and a half prior to legalization under the ACMPR, trying out various LPs before settling on producing his own product as an authorized grower with a prescription of 3 grams/day. While Dan may grow up to 15 plants he decided to grow two to three plants via an indoor hydroponic system. Dan uses CTP as an analgesic to relieve various pains.

Dan: Oh, I have lots of sources of pain, so that's never been an issue. I've had perpetual back pains which started when I was in my late teens due to an injury. I've had kidney stones which are incredibly painful for the last 20 years and then spinal stenosis started mid 2017, with essentially leg issues…leg pain. I went to the doctor and was diagnosed with that, I had an operation for my back in early 2018 which solved the majority of the problem, but still I do use a strain for specific pain relief for that condition.

Lean: Regarding the back pain is that something like a bulging disc or generalized muscle pain?

Dan: Yeah generalized disc pain in the lower back. Like I say, it was a spinal injury or disc injury when I was very, very young and it cropped up every 6 months or a couple of times a year typically. The trouble with pain…I don't know if you know pain or pain management, but very few drugs actually do anything. There are specific drugs that do alleviate some of the problem, but when you get into really, really severe pain nothing will really work. I mean you try and throw the kitchen sink at it and it still ends up being a very, very, very unpleasant experience. So, cannabis I found was very useful for mid-level pain shall we say, what I grade as mid-level pain. It [cannabis] doesn't necessarily stop the pain, but it stops you thinking about the pain. It is very, very beneficial in that regard. I'm also very converse [experienced] with a lot of pain drugs, pain medications that have been on the market place, since I've tried them all. Since my back operation I've had no Oxys or Hydrocodone, no opioids taken which is a first because up until that point of time I had been taking considerable opioids over the years. Both the back operation and also kidney stone lithotripsy, that solved the majority of my kidney stones, as well as another operation, my neck operation, where I had a parathyroid gland removed, which stop the calcium production which stopped the production of kidney stones. So that solved that [operations solving back pain, as well as kidney stone symptoms and their cause]. It was a combination of medicine with cannabis being used throughout that situation as a pain reliever.

Lean: Perfect, that was a great description.

Dan: I hope you got the chronology there, like I said there's overlapping things that I've had so they sort of blend in together, but like I say I it has been resolved at this point. Spinal stenosis is never resolved it's sort of…it's relieved, it's, of course, a degenerative disease that will continue in my body and so I'll have to continue dealing with that. That's why I'm very happy to have a specific strain that seems to alleviate the problems with that.

Lean: What is it like or how do you feel when you use your cannabis therapeutically?

Dan: Well basically, from a therapeutic standpoint it relieves the pain. When you have an interior body pains specifically, which is of course the kind of pain I've had, as opposed to an exterior cut, it's very hard to solve or relieve that pain. That's why opioids are used extensively because of course they're good for inner body deep pain. Cannabis can be the same, certain strains do give you a variation of that. Certainly not the same type of relief, but it doesn't have the drawbacks of opioids. You don't, have the threat of potential addiction, you don't have the cold sweats, you don't have all the side effects you get with opioids. So it's sort of a win-win from that standpoint, the downside being the effects of very short-term compared to opioids, although opioids only gives you a couple hours relief, so the Cannabis is probably a 20-minute relief and then you must keep upping your consumption to get the same level of relief, but it's certainly very, very effective.

Keira (age 74) is a long-term user of CTP (5 years), taking CBD oil twice per day and a 1:1 THC:CBD oral spray once in the evening when she uses. While Keira began using CTP five

years ago under the MMPR, she had originally tried cannabis recreationally in the 60s, using ten times over the years. Keira's use of CTP is as an adjunct analgesic for pain and to help her sleep. Keira initially spoke with her HCP about authorized use, but her doctor cited their discomfort due to a lack of study, but stated "If you want to use it, go ahead". When Keira spoke with a lab technician who also dealt with pain, they informed her "you don't have to get your doctor's…just self refer" to a local cannabis clinic.

> Lean: Do you mind sharing about this further? So potentially when it started, or how long it's been a problem for you?
>
> Keira: Oh gosh I've had back issues all my life with pulled muscles, and I've had herniated discs, and I've often had to just take it easy with my back. So now once I was over 70 it got worse. I have spinal stenosis which isn't a fun thing, and kind of just general deterioration, plus bursitis in the left hip. So I get a shot, I get two cortisone shots. One for my hip which is chronic bursitis which it's not fun either and then one for my back too. I've been getting these shots now regularly for probably almost four years and they really helped me for 6...2 months really, 5 to 6 weeks anyways. So I was getting those shots for pain every 4 months and then in the past two years it's been every three months. So it's the best pain relief at all. So when I'm doing well after an epidural I try not to use anything [prescription drugs] because I'm so afraid of getting hooked on something because there's an opioid which I don't take until the pain gets worse and that is called tramacet [Tramadol], which is...there's a bit of Tylenol and an opioid, Tramadol, it's considered an opioid. So I am very careful with what I take.

Lean: And when you…so it seems to me that there's a gap between the efficacy of your cortisone shots and pain or how long until you get the next shot. So do you take the opioid or cannabis in between that time to negate the pain?

Keira: So for about six weeks usually I can deal with the pain and I just try not to take anything. Lately though I've been taking cannabis a little earlier, like...well I started when I came back from Florida, but now with all this isolation maybe I should take it all the time. [laughs]. So I've just run out yesterday, but I was taking [regularly] the previous week, the cannabis.

Keira: I guess over the past year I would take a bit of both. If the pain was really bad, the tramadol you could take up to six a day and I never got to that point because if I would get up to 4 or 5...I never wanted to become addicted to it. So I would be using both, but technically they both affect your brain I believe and make you think...make you forget the pain. Of course the pain pill is much more effective, like it dulls it, I can see why people would get addicted to it, because it really dulls the pain. Cannabis when I'm really in pain it doesn't really...it's not as effective. Usually the week before I get the shot I'm on the pain pills.

Lean: Gotcha. And then you take the cannabis just when the shot starts weaning off?

Keira: Yes. Yeah.

Lisa (age 74) is a new user of CTP (~ 1 month) who attempted CBD for her worsening refractory pain, currently undiagnosed. Lisa took CBD three times per day, six hours apart, for one month before ceasing use due to a lack of efficacy. Lisa has a follow up appointment with the

cannabis clinic to determine her next course of action. Prior to her use of cannabis for CTP she had never tried cannabis before.

Lean: Did you speak to your GP at all about using oil?

Lisa: I did, I spoke to my general practitioner (GP), I spoke to my daughter [a pharmacist]. My GP said “well if you want to try it, but I don't get the idea that it's as effective as people are saying”. Then my daughter said much the same thing. It was a doctor at the hospital that really recommended it to me, I had gone there…I have a number of autoimmune diseases and some of them are fairly rare. Anyway, I had seen her about my autoimmune disease and she was the one that said “well you could try the cannabis, and she said well you can go to the store or you can try the Canadian cannabis clinics”. She's the one that made the appointment for me, not my GP, but my GP would have done it had I asked.

Lean: So another doctor made an appointment for you?

Lisa: Yeah, she made the appointment.

Lisa:…that's why I'm pushing for my doctor to give me something, in the way of a diagnosis, that way I will know what to do to mitigate it and if there is everything…I tried physiotherapy and I did the physiotherapy exercises for quite a while and that didn't seem to help, and of course regular OTC painkillers didn't either. That's how I ended up trying the CBD drops. They didn't seem to help much either.

Simon (age 71) is not a current user of CTP (cessation prior to legalization), but his HCP prescribed nabilone, a synthetic of THC, in an off-label attempt to treat his refractory pain. Simon

had tried recreationally once before in the mid-70s after also consuming alcohol. Simon began with 1mg tablets of nabilone, but the psychoactive effects were far too strong so the HCP titrated the dose down to 0.5mg tablets leaving him slightly impaired and drowsy. Simon is still open to attempting CBD as a treatment for his pain.

> Simon: Yeah, because my pain tolerance is about 0 on a 1-10, and I think now that opioids are politically incorrect, I thought why don't they push this stuff instead? It [Cannabis] doesn't seem to be anywhere near as addictive as, like just the analgesic part [earlier described as CBD] doesn't seem to be anywhere near as addictive as opiates, they're so terrified of opioids now. And you when you've got a chronic condition, they [doctors] don't have a heck of a lot of choice.
>
> Lean: So, if you were to consider CTP what indication or symptom might lead to your use of that? So, I know you said you would support it as an analgesic, so would that be the main thing? Pain would lead you to trying it out or asking your doctor?
>
> Simon: Yeah. I've got arthritis and I've got neuropathy and I had both hands operated on last year for carpal tunnel [syndrome] and that hasn't... they said the nerves may or may not come back. The left hand is much better than the right hand. Both my feet are...I can practically walk on broken glass and I don't know it. My hands...I've lost about half the feeling in my hands. I can't grip things I've trouble picking things up. Every now and then this finger and this finger [Points at pinky and ring finger] there is just such a horrendous pain in there. And they said "well it's nerve pain we really can't do anything".
>
> Lean: Yeah, my dad has similar symptoms.

Simon: I went to the doctor and asked about medical marijuana and he [the doctor] said "well before we get into that, why don't you try this? It's a synthetic" supposedly "cannabis".

Simon: It really didn't do a heck of a lot for the nerve pain.

Lean: So, your prior use was off label use then, it wasn't intentionally meant for that, but the doctor tried it?

Simon: Yeah, he [the doctor] tried it for the nerve, but it doesn't do the trick.

4.5 Perspectives Related to the Normalization Framework

Perspectives will be reported according to the dimensions of the normalization framework based on a deductive analysis of the data. Below are findings that map onto the dimensions of the normalization framework.

4.5.1 Access and availability. Perspectives on access to CTP were variable, with participants procuring illicitly from friends, other sources (Ex. mail order marijuana, dealers), growing; and from licit sources such as online and physical retail stores in Canada, as well as legal stores in the United States (product did not cross the border), designated growing licenses and licensed producers. While access to cannabis was readily available, price was brought up as an issue by seven different users of CTP. Only one mentioned price doesn’t seem to be high. Of the seven users who complained about price, Eliza is considering authorized use for financial incentives (see chapter 2, economic policy), Keira purchased a less cost-efficient product due to lower overall cost. Simon would only consider CTP if it is covered by insurance.

Adam: I might as well go to Medical. I get it cheaper.

Eliza: I intend to ask my doctor.

Lean: And why do you intend to ask them?

Eliza: Because it might be cheaper [laughs].

Hana: [I]t's an expensive product to buy [laughs].

> Simon: Therapeutically if they [Canada], you know, make it a medicine so that insurance will cover it. That's the biggest kick back now, is that if the insurance doesn't recognize it as medicine, they won't cover it. / [I]t's $200 a bucks a month that my friend pays and that gets to be a hell of a lot of money per year.

In the interest of cost efficiency over time, Dan tried growing, Alice wants to grow and Adam successfully grows. Unfortunately, growing has its own challenges, described to have a high initial cost ($2000 for Adam), ability to care for a plant(s) and climate challenges. Authorized users may overcome some of these challenges by accessing a designated grower. Lastly, two participants have faced violations under the CDSA or parallel legislation. When Simon was asked if he had ever had a violation the response was "Sadly, yes", but he did not want to discuss it further. Dan was charged at age 16 and convicted for cannabis and LSD possession though he faced no real impact prior to his pardon. Had he not been pardoned prior to age 20 (~1975), work travel into the USA would have been a challenge. The participant descriptions best describe drug trying rates as well as recent and regular drug use regarding CTP.

4.5.2 Social accommodation. When probing social accommodation of CTP, participant commentary was insightful. While non-user participants were generally accommodating of CTP, such as wanting to try it or amenable to its use in the future only three users spoke of social accommodation. Dan felt no stigma for his use, while Keira stated “I'm glad it's legal, because it's taken it off the bad reputation it has”. Hana found herself in an open social circle that has become more accepting over time “people are accepting it just like they would any other over the counter drug”. Social accommodation of CTP was not always positive however, negative views of CTP were experienced or opined by a number of users and non-users (8) as well. These views were broad ranging with a variety of presentation. Users Alice and Keira faced their own stigma. Alice was watched by security at the hospital after smoking a joint in the designated area. Keira felt her therapeutic use was devalued by people who thought it was recreational. Non-users, Jack and Kane, both viewed cannabis as a recreational drug. Jack stated “I'm not sure it should be necessarily even a prescription. To me that's almost a waste of medical time”. Both users Keira and Mark mentioned they would like educational resources to deter stigma about CTP. Jane even asked “your parents might have been skeptical when you said you were focusing your research on marijuana? [laughs]”. Three participants mentioned their own stigmas with cannabis, but two recognized their views:

> Katy: So I don't know if she was always big or if that weight came with the THC.

> Jane: Well as a young person you know the people were potheads, they weren't exactly the most ambitious or…weren’t sharpest knives in the drawer, you know, so to have that…stigma about overuse.

> Zack: The other thing that I just had to deal with, and that's why I'm taking my time about this, is that psychologically I wasn't too sure whether I wanted to do this because of my negative associations with weed, if I may call it that, and also with people that use it liberally, shall I say.

4.5.3 Cultural accommodation. One common observation that stood out was the blurring of cannabis use. Half of the users of CTP indicated intentional mixed use, both recreational and therapeutic. Keira had an accidental recreational side effect (improved mood) from a non-medical product intended for therapeutic use, so was not included in the 5 mixed user participants. As well, several participants witnessed or made simultaneous use of unauthorized and authorized access to cannabis. Adam, Dan, Keira, and Lisa had all purchased from the non-medical class. The reasoning for each participant's blurring was unique, such as reduced total cost of a non-medical product, ease of access, medical supply issues and therapeutic experimentation.

4.5.4 Denormalization. Recall that measurement of denormalization may include the extent to which a whole behaviour or a subset is unacceptable. It is found in this study that denormalization applies only to a subset of behaviours. Specifically, the route of administration (ROA) by those using CTP. Smoking was a hard line drawn in the sand for most (7/10) participants with vaping only deemed acceptable by one more participant. Adam deemed smoking and vaping acceptable, but held to the rule that he would only do it outdoors. Adam was also concerned about the resin deposited by vaping. Keria directly benefitted from the outcome of the Supreme Court of Canada *R. v. Smith* (2015) decision "that restricting legal access to only dried marijuana was unconstitutional". This caused the Minister of health to issue "section 56 class exemptions under

the CDSA in July 2015, to allow, among other things, licensed producers to produce and sell cannabis oil and fresh marijuana buds and leaves in addition to dried marijuana, and to allow authorized users to possess and alter different forms of cannabis" (Health Canada, 2016c). The benefit from the introduction of oils is especially interesting as this participant like many others stated an abstinence from a ROA that required inhalation. Quotes against smoking and/or vaping include:

> Eliza: No I don't like putting anything into my lungs.

> Keira: I'll never Vape or smoke or anything like that.

> Lisa: Yeah I would probably draw the line there. I used to smoke very, very little when I was 20 years old I went through four cigarettes a week, that was my big rebellion. I stopped that when I was 25 and haven't had anything since. So I don't think I would start it up at any point in time.

> Mark: Vape it yeah, I've never smoked cigarettes. It's too harsh on my throat feels like…a penalty.

> Zack: I don't believe that's smoking…the detriments of smoke in the lungs just out weigh anything for me. I don't care what the beneficial effects are, if you actually

> have to smoke it to get into your bloodstream and damage your lungs in the process is just a no-no. Vaping for me, with all the vaping products that are having issues, I'd be very nervous about that as well.

4.5.5 Drugs – A means to achieve normal goals. When examining motivations for older adult use of CTP, one dominant theme that arose was the prevalence of age-related conditions. Users of and non-users seeking CTP mentioned personal age-related motivations. Additionally, there were multiple references of people known by participants to be using CTP who were using for age-related reasons and/or conditions prevalent with aging. Arthritis and neuropathic pain were equally prevalent (n = 4) age-related motivators during discussion, however, neuropathic pain was more commonly cited by primary sources (4/4 vs. 2/4) than secondary sources. Other age-related motivations include general wear and tear (n = 2) a fall-related hip fracture (n = 1), and transient sensory stimulation akin to youth perceptions (n = 1).

> Dan: Spinal stenosis is never resolved it’s sort of…it’s relieved, it's, of course, a degenerative disease that will continue in my body and so I’ll have to continue dealing with that.

> Keira: I don't know, it might just come from age-related disability. / Keira: This stenosis has gradually gotten worse [laughs] from 5 years ago. And he was, the doctor there that was taking information, was quite impressed the pain level was a lot more manageable with CBD. Really it did, I think it made you feel like you could deal with the pain. Or umm...I really believe it puts you in a better frame of mind, let's put it that way.

Lisa: I don't know maybe, 74, maybe I'm wearing out who knows. / Lisa: Oh I don’t have a diagnosis which is, I think part of the problem. / Lisa: So it is possible that I'm doing something wrong, that's why I'm pushing for my doctor to give me something, in the way of a diagnosis, that way I will know what to do to mitigate it and if there is anything… / Well, only so much so in that when it was really bad I would have to sit down. I would really have to rest a bit…It wakes me during the night, I think that's probably my biggest motivator / Lisa: I suppose and I say yuck it [the CBD oil] tasted awful…you just do it if you feel like it is something that's going to help you.

Katy: Well, I had a knee replacement / Katy: …I do get knee injections. Uh, “Synvisc” they call it. It’s sort of like the gel that's gone [synovial fluid]…

Lean: Would you say it's pain that made you consider cannabis or something else?

Katy: Oh, I think pain and just being so slow and when you sit down you can't get up half the time.

Katy: Oh, I think it's age related. Oh, yeah.

Lean: For your knee as well?

Katy: Yes.

Katy: I don't know, it might just come from age-related disability.

Mark: Yes, it gives me fantastic...well I think it enhances my senses. For example, music sounds much better. Yeah, my sense of smell, everything is enhanced. I joked that it is the perfect medicine for seniors because it helps them feel young again [laughs].

Miles: Just wear and tear.

Lean: Do you believe. Did he ever comment that it was age related or?

Miles: No. But what are you 30, 25-30? Lean: Yeah. Miles: OK, well wait until you get to 60. You can tell me about all the aches and pains.

Lean: Yeah, I understand my dad is 62 and he is considering using.

Miles: It is what it is. Like I was quite athletic most of my life and basically wore myself out. Tennis and squash, rugby for years.

Another point of discussion was the use of CTP to achieve normal goals. For some it was a return, or even partial return to their previous state (n = 3), while others cited the ability to manage their indication (n = 3). The use of CTP to achieve normal goals is best illustrated in the participants own words:

Adam: I use it...it's more of a mental balance, in terms of taking away general anxiety.

Alice: [Cannabis] more alleviated the symptoms of opioid withdrawal, significantly. It's significantly allayed that discomfort.

Lean: After the fact, [cannabis] served as the analgesic portion?

Alice: Yeah, without all the side effects.

Dan: Ahhh... it must be a cognitive barrier, it's all intertwined in the human body. As if you can take your mind and ship it something else, then you're not focusing on the pain. Because that's the biggest problem when you are under really deep physical pain, is you can think of nothing else it's so dominant [emphasis] in your body. If you can think of...if you can divert yourself to something else it certainly does relieve the pain. Whether it's a true reliever of the actual pain, yes I believe it is, due to my experimentation, but it also does help with your cognitive view of the pain to. It changes your mind so you're not thinking of the pain, but it also relieves the pain as well. So I think a double benefit there with cannabis is my guess. / Dan: [W]hen you're, you know, feeling tired, bang! It can give you some energy and get you through whatever you're going to do, and for the same…the opposite end of the day when you want to sleep you take the heavy Indica and you will sleep with in an hour. You can use the drug once you get to know the strains, you can use it to assist you throughout the day to do what you want to do.

Eliza: Now I will go out even when the weather is horrible.

Lean: Would you say it allows you to do more things throughout your general day, because before you were confined to your apartment?

Eliza: Yeah definitely.

Keira: I'm just thinking that cannabis gives me feelings of uhh...well feelings of I can deal with this, things that are okay. / Keira: [T]he doctor there was taking information, was quite impressed the pain level was a lot more manageable with CBD. Really it did, I think it made you feel like you could deal with the pain. / Keira: I felt this was okay. I could manage it.

Mark: I joked that it is the perfect medicine for seniors because it helps them feel young again [laughs].

4.6 Additional Themes

4.6.1 Cannabis use disorder and cannabis hyperemesis syndrome. Participants (n = 13) were asked about their knowledge of Cannabis Use Disorder (CUD) and Cannabis Hyperemesis Syndrome (CHS). The reduced number of participants queried is due to inclusion of the topic in the semi-structured questionnaire part way through the interview process. Only a single participant was aware of each CUD and CHS. Zack was aware of CUD via an article on dependency, while Alice was aware of CHS because her doctor inquired about her nausea when she was coming off antidepressants attempted for her neuropathic pain. The range of views on CUD and CHS varied, but most participants were surprised to hear of it:

Patricia: Well it's good to know that…[laughs] that there are some dangers. Well there always is if you use too much of anything.

Alice: I had been, it was some of these…antidepressants that he prescribed me and I have to come off them because they weren't working for my neuropathic pain. They were actually making me nauseous and that's when he told me about this and I said no that's not what's happening here. It's not because I'm smoking a lot, it's because I'm coming off of these antidepressants that you prescribe me for my neuropathic pain. He was like "oh, okay". That was quite a few years ago when he told me that. Lean: Interesting. Alice: Oh and I did read up on it as well, after that. I was very interested, because I was like "What?!? Marijuana is going to make me throw up!?!? What!?!".

Hana: No. Sounds interesting, is that like abusing it or? / Hana: No, I'm not aware of anybody who's ever had that, and I'm surprised to see it actually. I've never heard of it.

Adam: Wow that's interesting. / Adam: That's crazy. I don't know how you get there.

> Lisa: No and shouldn't places like the [redacted] cannabis clinic, shouldn't they be telling their people that? / Lisa: Well I never got any of that information. I just think that is something that should be covered. I really do. It makes sense, you are, when you are…I didn't even see it in any of my research either

4.6.2 Cannabis and driving. Eight participants spoke about cannabis and driving during the interview. Views on impaired driving were all negative, but users were not very clear on the cannabis driving policy. One comment of some concern was by unauthorized user Alice, who viewed impaired driving very negatively, but felt it was okay to drive after just an hour, citing the short-lived effects and her tolerance. Hana, Keira and Simon all noted their impairment when using THC products with psychoactive effects stating they would not drive the day of use. Zack, Keira and Lisa mentioned they would drive after use of a CBD product, but all three use products that contain low amounts of THC which could theoretically test positive. Zack wanted clarification on the minimum allowable THC for safe driving.

4.6.3 Doctor knowledge and education. Education on titration of dose, also known as "start low, go slow", was common among participants:

> Jane: I've been reading about how it's important to start earlier in the day. Don't expect that you're going to be feeling fine too quick with edibles. That sort of stuff, etc.
>
> Lean: Have you heard the message start low go slow?
>
> Jane: Yes I have [laughs].

Katy: [B]ut I know you need to start off slow.

Keira: When I originally started, you know what they say “start low, go slow” type of thing.

Lean: So that is why people start say “start low, go slow” for edible use.

Patricia: Somebody else used that expression.

Zack: I think I might go to higher dose. I think the term for that is titration, start really low and go up until I get to the point where I take as much as I want to take and I would watch for the side effects.

Doctor knowledge was another area examined, 7/10 users had an HCP who was aware of their use, while the other three unauthorized users HCPs were not aware of their use. Only 3 GPs were aware of participant use of CTP, while authorization only came from 1 GP. The rest of the authorizations came from a specialized cannabis clinic. Regarding the use of CTP, three participants GPs supported their use, three participants expected support from their GP, two participants were not supported by their GP, one did not expect support and one participants expectation of support from their GP was unknown.

Alice's general practitioner (GP) is aware of her use of CTP, but her GP did not provide any support. Alice did not go to another HCP as her use is unauthorized. Alice did find experimentation was required to determine the right cannabis for her indication.

> Alice: Well actually, my doctor has been fully aware that I use marijuana medicinally. When I asked her for a prescription she kind of just said "you know what it's legal and if you know what you're doing then you're good, then I'm okay with you doing it" she didn't even care. So that's fine I guess.
>
> Lean: Did you need to experiment with your use before you found a cannabis product that helped with the pain or did it help with the first product you used?
>
> Alice: No, you kind of have to check things out a bit. You have to do a bit of research into different strains and the effects.

Eliza has not yet told her GP about her use of CTP, but she expects support. As an unauthorized user Eliza has not obtained her prescription through another HCP. When asked if there was a scenario where her GP would not provide support, Eliza laughed and stated she would continue her use of CTP. Hana wants more information on the CBD she is using, in the areas of dosing and drug interactions. She didn't think to discuss her use of CTP with her GP, but expects support from her GP about her questions. When asked if she had done her own research Hana said it was a "good idea" and would seek such information from the Public Health Agency of Canada or Health Canada rather than the LPs for advice that remains objective. Hana ended up taking notes on our discussion about topics she learned from my questions. Mark approached his doctor prior to legalization, but his doctor denied authorization citing a lack of data on efficacy for arthritis. Mark doesn't see the point in pursuing a prescription now that it is legal. Zack has support for the

use of CBD from his two neurologists, one cardiologist and one pharmacist, but his GP is not in favor of its use due to potential drug interaction. Following the other doctor's advice, Zack initiated unauthorized use of CTP. Dan did broached the topic of CTP with his GP who noted his lack of knowledge on the subject and mentioned referral to an outside source. Dan took this referral upon himself, seeking out a clinic for his authorization. Dan had some complaints about the clinic doctors:

> Dan: There's very little guideline to help you choose which strain is good for you. The medicinal doctors, the quote on quote medicinal doctors out there at the at the clinics, the marijuana clinics, they're just repeating what they've read and have zero idea of the actual effects of the specific strain. So unfortunately requires an amazing amount of experimentation on the part of the patient to find something that find something that does specifically work for what they want.
>
> Lean: Do they specifically tell you that kind of experimentation will be required?
>
> Dan: No, I went for one interview with one clinic just to get my original license, and saw a doctor, and again the doctor repeated "you should try this strain and this strain from this supplier", which of course I did and they had zero effect and then from there I played around with the strains and tried multiple different strains for multiple different suppliers to try and find something. This was all medicinal because I was trying to experiment with actual medicinal proven percentages to find what did work. So yes, there was quite an investment required to find what strains were effective and did work.

> Lean: Did you consult about your findings with the clinic doctor or your personal GP?
>
> Dan: I think I did with the clinic doctor, he said “that’s fine, good, good, good”.

Keira spoke to her GP in 2015 when the MMAR program was still the current legislation on CTP, who cited a lack of study for their discomfort in authorizing use. Her GP did support her use, given there was a cannabis clinic above their office. Keira received her authorization and an educational resource titled: *Welcome book: Your complete guide to your medical cannabis journey* from a cannabis clinic. Lisa spoke with her GP as well as her daughter who is a pharmacist, both asserted that the clinical efficacy did not align with the public opinion. Lisa received a referral from another doctor who set an appointment for her at a clinic, though Lisa expects her GP would have done the same if asked. Lisa did not feel the clinic doctor listened to her concerns. Lisa also received an educational resource, but was less than impressed with her education on the topic.

> Lisa: I mean I guess they [the cannabis clinic] did as good a job as they could have done. As I said I was unimpressed with the doctor. He gave me the distinct impression that he just wanted to okay this prescription and get off the line.

4.6.5 Drug use change. Responses by all ten users of CTP were assessed regarding drug use change. Alice was in a very interesting situation. New legislation required a reduction in opioid use, so Alice began using CTP that was THC dominant to alleviate withdrawal symptoms. She then maintained her use of THC as an analgesic:

> Alice: My son-in-law suggested to me that “why don’t you start upping your marijuana intake”. He was a little bit more knowledgeable about it than I was. We research things together and I eventually ended up coming right off the Fentanyl

patches completely, with very little discomfort. So, I had upped my marijuana intake.

Lean: So the Cannabis served as an opioid substitute for you?

Alice: It wasn't really an opioid substitute, [cannabis] more alleviated the symptoms of opioid withdrawal, significantly. It's significantly allayed that discomfort.

Lean: After the fact, [cannabis] served as the analgesic portion?

Alice: Yeah, without all the side effects, with you know, it affecting your bowels, or your intestines, or your kidney or liver. You know what I mean? Without all that kind of happening as well.

Eliza stated that her drug use (emergency puffer and asthma medication) stayed the same despite the use of CBD oil being deemed successful. Hana revealed drug avoidance, both over the counter (OTC) and prescription, as an indication for her use of CTP. The CBD oil had no efficacy as an analgesic on her pain. Mark stated “I was trying other things which may be more addictive and do more harm” such as opioids, before he landed on CTP. Mark continues to use THC dominant cannabis, finding it effective. Zack initiated his use of CBD oil to reduce OTC and prescription drug use, however due to insufficient experience, no reduction in drug use was reported. Adam did not mention any change in drug use. Dan cited a complete cessation of oxycodone and hydrocodone, but the reduction was attributed to a back operation and lithotripsy. The use of THC as pain relief prior to the medical procedures did not impact his drug use. Keira used CBD oil, as well as a mixed CBD/THC spray to limit her drug use when she was experiencing pain. Keria stayed below the maximum prescribing guideline due to her use of CTP. Lisa preferred to limit her use of prescribed painkillers, finding OTC painkillers such as Tylenol did nothing for

her. Lisa does not want a heavier opioid painkiller. Her use of CBD had no efficacy to reduce her pain, but she may explore cannabinoids further. Simon stated his drug use (Tylenol, NSAID and potentially others) stayed the same while using CTP, although the synthetic THC (nabilone) was unsuccessful.

4.7 Conclusion

The intrinsic data shared by participants in this chapter revealed several themes. First, non-user participants were accepting of CTP, suggesting a potential normalization of CTP by society. This parallels previous research that shows over half of all cannabis users in Canada have used at least once for some therapeutic reason (Duff et al, 2012; Health Canada, 2019a; Statistics Canada, 2019g). Despite this social acceptance, the findings suggest that participants did not perceive authorizing CTP to be normalized among HCPs. Participants described barriers in access to CTP based on primary and secondary stories of HCPs views. Perspectives related to the normalization framework identified that cannabis is highly accessible, but cost is prohibitive to the use of cannabis as a therapeutic. Participants felt strongly about avoiding smoking CTP due to associated harms, which might indicate the denormalization of smoking as a route of administration. Another theme evidenced by the intrinsic data is that age-related pain is a primary motivator for the use of CTP, but many participants are also using CTP to avoid OTC or prescription drug use. Finally, the additional themes indicated that participants desire further education, especially for the use of CTP, on cannabis driving policy and on Cannabis Use Disorder (CUD) and Cannabis Hyperemesis Syndrome (CHS).

Chapter 5: Discussion

5.1 Understanding of the Older Adult Perspectives

The following chapter presents an analysis to interpret and understand the findings to advance the research objectives. These objectives explore the perspectives of older adults' and their motivations for the use of CTP. To achieve the objectives the process of abstraction is used, which examines the meaning of two potential inductively determined generative mechanisms: pain; and policy drift in the Canadian context. The chapter concludes with the process of retroduction to identify an overarching contextual condition for the use of CTP within the older adult perspective.

5.2 Abstraction (Theoretical Redescription)

After investigating the abstractions among older adults in Ontario, mentioned in chapter 4, further analysis seeks to interpret generative mechanisms as they appear in a specific context and offer explanations of manifested events (Falleti & Lynch , 2009; Raduescu & Vessey, 2009). The process of abduction and retroduction will be used to analyze these perspectives in relation to the current post-legalization context (See Table 6). Abduction "involves redescription or recontextualization, most usually (in CR research) in terms of a characteristic causal mechanism or process which serves to explain it" (Edwards et al., 2014, p. vii). In this study, retroduction seeks the contextual conditions that lead generative mechanisms to effect; in other words, why older adult perspectives are what they are, specifically, motivators for the use of CTP.

Of the eight (8) empirical observations found in the extensive and intensive data (See Table 6), this study only examined a select few (3) related to older adults' perspectives regarding the use

of CTP. The study could only analyze select empirical observations due to several limitations. For example, to explain the increase in older adult use of cannabis across Canada in the past decade, the most accurate explanation would require both extrinsic and intrinsic data at the national level on all users of cannabis. The study was not nationally representative, as participants were only recruited within Ontario, Canada; as well, the study was qualitative in nature, thus lacking the intent and statistical power to make conclusions on trends or causation. The analysis of the examined observations consists of: (1) why people look to cannabis as an analgesic; (2) why users of CTP seek an alternative to OTC and prescription drugs; and finally (3) motivations for both the unauthorized and authorized use of CTP.

Table 6

Abductions

Empirical observation	Potential generalized explanation	Potential: (1) entities (2) mechanisms (3) structures
Extrinsic		
Older adult cannabis use increasing	Policy implementation - Legalization of cannabis	(1) Non-users, users, cannabis, policy, cannabis companies (2) Legalization (rule creation and enforcement), individual agency, novelty, normalization/loss of stigma, stories (3) State ideological power (Government legislation)
Both unauthorized and authorized use of CTP	Multifactorial: Historical use, legislation not all-encompassing, HCP redirection	(1) Non-users, users, cannabis, policy, HCPs (2) Policy drift, autonomy, power relations, HCP ideological views (3) Cannabis effects, HCP/patient relationship, State ideological power
Older adults typically use therapeutically	Use of drugs to achieve normal goals	(1) Users, HCPs, cannabis (2) Age-associated conditions, belief formation, hope (3) Senescence, cannabis effects
Average unauthorized user of CTP is younger	Boomers discredited government anti-cannabis campaign	(1) Unauthorized users, (2) User identities, HCP ideological views (3) State ideological power
Medical cannabis is court mandated not regulated by Health Canada	Paucity of evidence to meet regulatory standards	(1) Government, courts, legislation/policy, HCPs, researchers (2) Lack of evidence, historical barriers to research, rule creation and enforcement (3) State ideological power, cannabis effects

Intrinsic		
People look to cannabis as an analgesic	Hope, people in pain seek relief	(1) Non-users, users, cannabis, HCPs, policy, (2) Belief formation, hope (3) Cannabis effects
Users of CTP seek an alternative to OTC and prescription drugs	Policy Drift (Collective) – Reduction of opioid prescription leading to seeking new therapeutic agents with analgesic effects	(1) Cannabis users, opioid users, HCPs, policy, media, researchers (2) Belief formation, rational choice, rule creation and enforcement (3) State ideological power, Cannabis effects, opioid effects
Unauthorized and authorized users lack education	Lack of both research and dissemination of evidence-based cannabis resources	(1) Users, medical regulatory colleges, HCPs, cannabis clinics (2) Lack of evidence and/or dissemination, non-transparent practices (3) Medical regulatory college policy, cannabinoid diversity

5.2.1 Is pain a motivator? Following the demi-regularity that older adult patients primarily report using cannabis as an analgesic for chronic pain, further investigation is required. The World Health Organization (WHO) International Classification of Diseases (ICD-11) recognizes chronic pain (pain persisting for longer than three months) as a disease (WHO, 2018). It is estimated that 20% of the Canadian population lives in chronic pain, the prevalence of which increases steadily with age (Canadian Pain Task Force, 2019). Chronic pain is higher in older adults (33%) and more common among women, with women aged 65 years of age and older reporting the highest prevalence (Canadian Pain Task Force, 2019). Older adults living with pain are more likely than the general population to receive prescriptions (National Advisory Committee on Prescription Drug Misuse, 2013).

This analysis begins with a description of the policy climate of opioids in Canada to provide context for the number of users who seek CTP for pain relief. Opioids are a commonly used and often effective analgesic for all acute pain, palliative care and chronic non-cancer pain (Busse et al., 2017; CCSA, 2020b; Canadian Pain Task Force, 2019; McQuay, 1999). Prescription opioids are typically classified as Schedule 1 drugs under *Controlled Drugs and Substances Act* (CDSA). Originally, opioid prescriptions were primarily used in palliative care for cancer patients. In 1996, Health Canada approved OxyContin, a time-release formula of oxycodone, to relieve moderate to severe pain. During the 2000s opioid therapy was initially promoted and even described as underused for older adults with pain (Kahan et al., 2011a; Kahan et al., 2011b; McQuay, 1999). Oxycontin was added to the drug formulary, a list of prescriptions paid for by a health plan, in 2000. However, over the past two decades the opinion of opioids has shifted, including the removal of OxyContin from the drug formulary in 2012 (Morin et al., 2017). Further, in 2012, a narcotics monitoring system was implemented by the Ministry of Health and Long-Term Care in Ontario

(Morin et al., 2017), followed by a pan-Canadian strategy called *First Do No Harm: Responding to Canada's Prescription Drug Crisis* in 2013 (National Advisory Committee on Prescription Drug Misuse, 2013). The opioid crisis became a priority when the province of British Columbia declared a public health emergency 2016 (CPHA, 2016). This was followed by a conference and summit held by the federal minister of health and the Ontario minister of health and long-term care (CCSA, 2017). There is a current emphasis of non-opioid options for managing pain (Busse et al., 2017; CADTH, 2019; CCSA, 2020b) before offering an opioid therapy trail to select patients, such as suggested by McQuay (1999), although hindsight is 20/20. The shift in federal and provincial healthcare policy warrants further study into the possible denormalization of conventional methods of pain management such as opioids. Without easy access to conventional methods of pain management participants must seek alternative therapies.

Cannabis was positioned to inspire hope among participants. Using Google Ngram to determine word frequency for the terms "medical AND cannabis OR medical AND marijuana" (See Figure 5), there is a clear emergence of use beginning in ~1995 just prior to the first medical cannabis program in California, USA and a spike in the use of the term medical cannabis ~2010. Despite its limitations, Google's Ngram holds a large proportion of scientific literature, ideal to describe an emergence of research and is described as a beneficial tool for research purposes (Younes & Reips, 2019). This increase of mention in the literature also coincides with the growth of registered users of medical cannabis in Canada (Health Canada, 2018b; Health Canada, 2019a) and the prevalence of unauthorized use of CTP as well. Such as Alice, who described her firsthand experience with CTP to reduce opioid withdrawal symptoms and its subsequent use as an analgesic after the fact, without all the "side effects" on her bowels, intestines, kidney and liver. Even among non-users of cannabis almost every participant interviewed knew someone using CTP. Of the

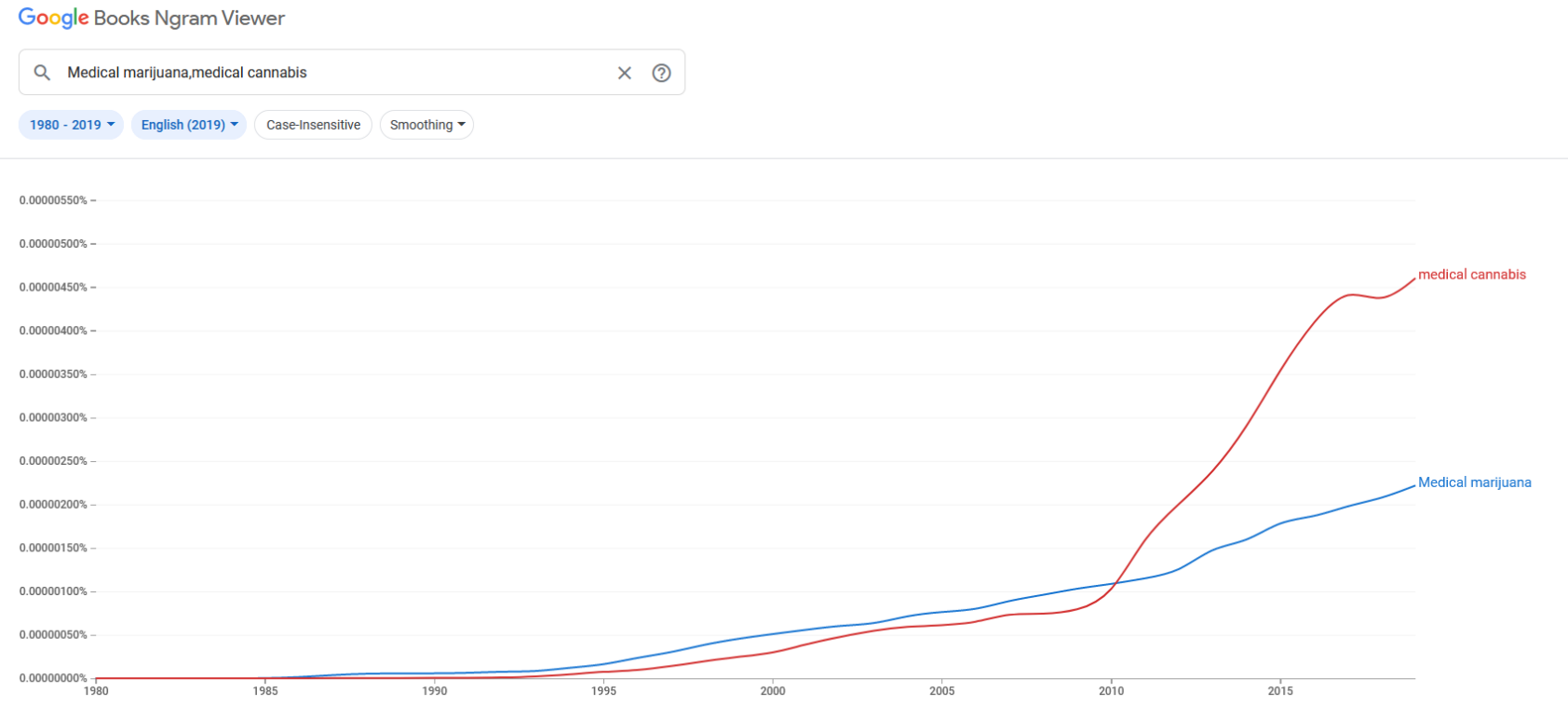
participants who knew someone, positive experiences were the norm and a majorities views were positively influenced. For example, recall that Jane tells of someone she knew using CTP for pain:

> Jane: …[B]ut I know some people are taking it for sleep issues and some for pain. I do have a friend who used a lot of pain medication to manage her pain and she weaned herself off that. The cannabis is a very important part of her not relying on opioids.

Cannabis is seen by many as a panacea for its claimed therapeutic indications; however, there is also the opposite view from the medical community, due to the limited number of approved and evidence-based indications. Many Canadians may be fuelled by a hope to manage their conditions. The Canadian Pain Task Force (2019) notes that cannabis warrants special attention in the Canadian context as an alternative therapy.

Figure 5

Frequency of the Terms Medical Marijuana and Medical Cannabis



Note. The time range was 1980-2019, using the English 2019 corpus, case-sensitivity was off and smoothing was set to 3

The use of cannabis as a potential alternative therapeutic product is supported by a number of organizations. The National Academies of Sciences, Engineering, and Medicine (NASEM) conclude that "there is substantial evidence that cannabis is an effective treatment for chronic pain in adults" and that there is evidence individuals use cannabis to replace conventional pain medications (NASEM, 2017, p. 90). The Canadian Mental Health Association (CMHA) states that cannabis as an alternative form of treatment to opioids deserves exploration for possible benefits (CMHA, 2018). The Canadian Agency for Drugs and Technologies in Health (CADTH) note that there is some evidence to indicate effectiveness in pain management for nabilone (synthetic THC), nabiximols (THC/CBD) and medical cannabis (CADTH, 2019). Recommendations by reputable organizations in parallel to stories of efficacy by peers, such as described by the study participants, result in the formation of hope by participants seeking to manage their pain. While the symptom of pain among participants emerges as a common theme, it does not adequately describe why all the participants use cannabis.

5.2.2 Can policy drift explain perspectives? Policy drift can be used to explain older adult use of unauthorized CTP. Policy drift is broadly defined as changes in the outcomes of stable policy without significant change to those policies' structure (Hacker, 2004; Mitchell, 2006). One of the three ways in which drift may occur is a shift in the context of policies (Hacker, 2004). Policy requires modification to remain applicable such as when first created, but oversight of a changing environment results in policy drift. For example, with the introduction of non-medical cannabis policy under the *Cannabis Act*, where no changes were made to medical cannabis. Mitchell & Hering (2006, p. 15) succinctly state "It does not matter how up to date or strong a policy is, if the process ends there. The importance of a policy is not only what exists in a document; policy is also significant through execution. What is done with a policy is of equal

importance as what it contains. The operation of the policy in practice should be reflective of what was outlined ‘in theory’”. The theory behind the MMAR, MMPR and ACMPR, now Part 14 - Access to Cannabis for Medical Purposes of the *Cannabis Regulations* under the *Cannabis Act*, is to: (1) provide a legal right to access medical cannabis; (2) for eligible patients authorized by HCPs; (3) for the use of regulated cannabis products; (4) to permit individuals to register with Health Canada to produce their own supply or designate a grower for improved access. Another one of the three ways in which drift may occur is "by gaps in rules allowing actors to abdicate previous responsibilities” (Streeck & Thelen, 2005, p. 25). This is specifically evidenced in the accounts of Zack and Lisa who use unauthorized CTP despite doctor knowledge. The deviation from regulated health products is a liability to users of CTP, because important factors such as dose, frequency of use, drug interactions, etc., are not always known to HCPs or users of CTP must determine this on their own. After peaking at 369,614 active client registrations with an LP for medical cannabis in September, 2019 there has been a reduction to 329,038 in March, 2020 (Health Canada, 2020a). There is potential for a reduction in active registrations with a LP for medical cannabis to be due to policy drift. This begs the question is it ethical for doctors to deny oversight provided they are knowledgeable of a patient’s use of unauthorized CTP. Does knowledge of unauthorized use of CTP without authorizing the benefits of medical cannabis policy align with the code of ethics and professionalism (CMA, 2018b)?

5.3 Retroduction

5.3.1 Drugs – A means to achieve normal goals. The potential reasoning of pain and/or policy drift as a causal mechanism only described a portion of the older adult perspectives on CTP. Pain and policy drift were just leading factors in the Canadian context. Therefore, the use of CTP to achieve normal goals may be used as a distinguishing factor between use for recreational or

therapeutic purposes. Recreational users of cannabis may use for euphoria, as a rebellion, via peer pressure or a multitude of other reasons not described by participants in this study. The dominant theme was the use of CTP to achieve normal goals, which explains the perspectives of older adults who use, want to use and are amenable to trying CTP. Participants may stigmatize themselves, feeling excluded from a normal state of function. Participants may feel their use of CTP is deviant based upon medical regulatory college policy and HCP views on cannabis. Despite this, the one thing that every participant was aiming to achieve with CTP was a return to their perceived normal or able self. Below are quotes from participants used to illustrate their use of CTP to achieve normal goals:

> Katy: Well, I had a knee replacement / Katy: …I do get knee injections. Uh, "Synvisc" they call it. It's sort of like the gel that's gone [synovial fluid]…
>
> Lean: Would you say it's pain that made you consider cannabis or something else?
>
> Katy: Oh, I think pain and just being so slow and when you sit down you can't get up half the time. / Katy: Oh, I think it's age related. Oh, yeah.
>
> Lean: For your knee as well?
>
> Katy: Yes. / Katy: I don't know, it might just come from age-related disability.

Non-user Katy's treatment, hylan G-F 20 (Brand name: Synvisc), is typically indicated for treatment of pain in osteoarthritis. Katy's mobility was clearly effected, describing it as an age-related disability. Therefore, Katy is considering cannabis to return to a point of previously experienced function.

> Mark: Yes, it gives me fantastic...well I think it enhances my senses. For example, music sounds much better. Yeah, my sense of smell, everything is enhanced. I joked that it is the perfect medicine for seniors because it helps them feel young again [laughs].

While unauthorized user Mark did not indicate pain as a primary reason for his use of CTP, Mark did note that the effects of cannabis "enhanced" his senses, but related that enhancement to a previous state of function earlier in his life, rather than a state he had never perceived before.

> Dan: Spinal stenosis is never resolved it's sort of…it's relieved, it's, of course, a degenerative disease that will continue in my body and so I'll have to continue dealing with that. That's why I'm very happy to have a specific strain that seems to alleviate the problems with that. / Dan: [T]he biggest problem when you are under really deep physical pain, is you can think of nothing else it's so dominant [emphasis] in your body.

Authorized user Dan recognizes that spinal stenosis is a degenerative disease that cannot go away, but his use of CTP alleviates the pain allowing for improved function.

> Keira: I don't know, it might just come from age-related disability. / Keira: This stenosis has gradually gotten worse [laughs] from 5 years ago. And he was, the doctor there that was taking information, was quite impressed the pain level was a lot more manageable with CBD. Really it did, I think it made you feel like you could deal with the pain. Or umm...I really believe it puts you in a better frame of mind, let's put it that way.

Authorized user Keira related her stenosis to age, but the use of CTP allows her to manage the pain, to feel okay with the changes to her perceived normal function.

> Lisa: I don't know maybe, 74, maybe I'm wearing out who knows. / Lisa: Oh I don't have a diagnosis which is, I think part of the problem. / Lisa: So it is possible that I'm doing something wrong, that's why I'm pushing for my doctor to give me something, in the way of a diagnosis, that way I will know what to do to mitigate it and if there is anything… / Lisa: Well, only so much so in that when it was really bad I would have to sit down. I would really have to rest a bit…It wakes me during the night, I think that's probably my biggest motivator / Lisa: I suppose and I say yuck it [the CBD oil] tasted awful…you just do it if you feel like it is something that's going to help you.

Authorized user Lisa identifies the lack of a diagnosis as a problem, probably because there is no named reason for her pain which acts as a barrier to her daily activity and sleeping. Though Lisa's goal is to return to her previous state of function is clear.

The normalization framework states "Normalization is about stigmatized or deviant individuals or groups becoming included in…everyday 'normal' life" (Parker et al., 2002, p. 942). The normalization framework points to generative mechanisms beyond the individual at the societal level to shape agency. Thus, the normalization framework supports the explanation that older adult's motivations to use CTP is due to a desire to achieve normal goals without stigmatization or perception as deviant users.

5.4 Conclusion

In conclusion, the generative mechanisms motivating older adult use of CTP are only partially explained by theory, such as policy drift, or factors, such as pain. To explain the full range of participant perspectives regarding those who use (users of CTP), as well as those who want to use or are amenable to trying CTP (non-users of CTP), it is understood that the motivation for older adult use of CTP is a desire to achieve normal goals. It is understood that participants feel excluded from a normal state of function and for some that their use of CTP appears deviant. Despite this, every participant's apparent goal was to return to their perceived normal or able self through the use of CTP.

Chapter 6: Conclusion, Policy Recommendations and Future Directions

The following chapter begins with a summary of answers to the research questions. Limitations are then outlined. It moves on to identifying practical policy recommendations for the government of Canada to improve both the non-medical and medicinal streams of cannabis. Future directions are provided for the normalization framework. The chapter concludes with suggested areas of study.

6.1 Conclusion

The primary objective of this study was to better understand the perspectives of older adults regarding the use of cannabis for therapeutic purposes. It was determined that non-user participants were accepting of CTP, suggesting a potential normalization of CTP by society, but participants did not perceive authorizing CTP to be normalized among HCPs. This has several implications for the health and safety of older adults which may require revision of Canadian cannabis policy. These required policy revisions are discussed below. The secondary objective of the study was to recognize and understand patterns of, and motivations for, cannabis use in the older adult population. This study's findings suggest that the motivation for older adult's use of CTP, unauthorized or authorized, is a desire to achieve normal goals, where 'normal' is a relative construct. The desire to achieve normal goals represented the perspectives of the greatest number of participants when compared to pain or policy drift as a causal mechanism influencing behaviour. The final objective of this study was to explore the utility of the normalization framework as a theoretical framework to the study of cannabis for therapeutic purposes in the Canadian context. The normalization framework can be utilized for study on the perspectives of older adults regarding CTP, but a shift was required in its application from the original intended purpose.

Further development of the normalization framework is required to improve its relevance for use within the Canadian context in light of the legalization of cannabis for both non-medical and medicinal purposes.

6.2 Limitations

6.2.1 Self-reported data. The study relied on participant accounts which are difficult to independently verify. Self-reported data may come with a variety of biases such as selective memory, attribution and exaggeration. Each of these biases may shape the understanding of participant perspectives. While the limitation of personal bias is inherent to qualitative research, such a design has the benefit of flexibility and creativity. These benefits of qualitative research were applied through the use of a flexible deductive coding process and semi-structured interviews.

6.2.2 COVID-19. Participant recruitment was limited by COVID-19. Due to public health guidelines at the time of recruitment, many participants were recruited by virtual means. Circumstance, requiring the use of a telephone or personal computing device with a stable internet connection may have limited the ability to capture certain perspectives. These devices are expensive and may have been cost prohibitive to participation in the study. While steps were taken to facilitate the virtual interview process, one interested older adult was unable to share their perspective due to technological issues and an in-person interview could not be offered.

6.2.3 Ease of access to information. Ease of access to information is a limitation of developing a robust understanding of cannabis use among older adults. The National Cannabis Survey's public data occasionally combines age categories into 45-64, rather than maintaining a split between 45-54 and 55-64, with no way to split the data. This makes comparison difficult

based on the choice to distinguish older adults as those 55 years of age and older. Statistics Canada could support research efforts by continuing to report on grouped statistics, but provide the data as separate entities.

There are currently no publicly available measures on the total number of users using health products containing cannabis. The information may lie behind a combination of health product claims and unique client identifiers data from the Canadian Institute for Health Information (CIHI) Health Products to National Prescription Drug Utilization Information System (NPDUIS), which is updated annually. While accessible, the information system typically requires payment to access, or is free to graduate students following a claims request. Free access may allow researchers to look at exactly how many Canadians are using CTP from authorized streams. This limitation was worked around in the literature review by using other data to provide an estimate of people in Canada using Health products containing cannabis. Further, continued measurement of both these statistics will be important for when/if Cannabis Health Products (CHPs) are released to determine their efficacy. Data on these could support future research that aims to identify the need for a court mandated medical cannabis stream in addition to products approved by Health Canada as a regulatory authority.

6.3 Policy Recommendations

Given the insights gained from both the extensive and intensive data there are several policy recommendations to be made to ensure the health and safety of older adults. These recommendations seek to address the policy drift stemming from a lack of updating medical cannabis policy after the legalization of non-medical cannabis and the *Cannabis Act* coming into force.

6.3.1 Non-medical. Due to the high prevalence of unauthorized use of CTP among Canadians and the potential of both intrinsic and extrinsic harm(s), there is good reason to introduce additional "on product" warnings about the potential risks of self-medicating and resources to access authorized CTP to the current list of warnings. These potential risks could include specific drug interactions, or warnings about drug classes that are commonly interacted with such as those mentioned in the literature review. Cannabis health warning messages are already in use to help consumers make informed decisions and to avoid misuse. Shi et al. (2019) demonstrate that medical users prefer text warning messages. For example, warnings could read as: (1) "WARNING: It is important to speak to your doctor about self-medicating with non-medical cannabis. There are legal benefits to using authorized medical cannabis"; (2) "WARNING: Speak with your healthcare practitioner about using cannabis for therapeutic purposes. Non-medical Cannabis does not undergo a pre-market review for safety and efficacy, regulated by the *Food and Drugs Act*"; (3) "WARNING: Cannabis interacts with many drugs. Interactions are common with antidepressants, anticonvulsants, antidiabetics, Central Nervous System (CNS) depressants, antiarrhythmic, antipsychotic, antiretroviral, opioids, immunosuppressants and select hormones". These potential health warning messages are evidence informed and meet the current criteria set out in the *Cannabis Regulations*, bar a translation to French.

6.3.2 Medicinal. Continuing on with the high prevalence of unauthorized use of CTP among Canadians, the government of Canada should continue to expand the selection of health products regulated by both the *Cannabis Act* and *Food and Drugs Act*. This can be achieved by continued support of research on prescribed health products containing cannabis. The government is taking appropriate steps in their proposal of over the counter cannabis health products, having

published their public consultation and selected a scientific advisory committee (Health Canada, 2020c). These two classes of cannabis may slowly replace authorizations of medical cannabis as suitable cannabis based, or otherwise, alternatives arise. Thus, ensuring Health Canada regulation of CTP, as opposed to the currently described "grey" nature of medical cannabis resulting from court mandated access. It is also necessary to recommend changes to medical cannabis policy, because it will take time for the above goals to be achieved.

The extensive data revealed that healthcare practitioners desire more information on cannabis as a therapeutic product, while the intensive data from participants also highlighted the desire for further education on the use of CTP. Recall that most participants were unauthorized users or acquired their CTP from specialized clinics. A few participants had issues with the lack of information provided. Health Canada would do well to develop and disseminate easily accessible educational materials on medicating with cannabinoids to reduce potential risks and harms in patients using unauthorized CTP or for authorized patients seeking further information. While Health Canada does have the document titled: *Information for Health Care Professionals: Cannabis (marihuana, marijuana) and the cannabinoids*, it lacks information specifically aimed to guide the use of medical cannabis. The reason for the recommendation to Health Canada to develop educational materials is because educational resources on medical cannabis from specialized clinics are not readily available to the public, though I did manage to acquire some from authorized users of CTP. Across my search only SpectrumLearning had publicly accessible educational materials (Seven courses), but these are meant for educators, rather than for patients. As a result, Health Canada may want to investigate or develop regulations on the transparency about educational material. As well, one participant avoided authorized use as they did not want

their information out there, so transparency on the privacy and security of authorized individuals data to ensure comfort with the regulated system.

Currently, authorized users of CTP are purchasing from non-medical stores for a variety of reasons. One of these reasons is a lack of access, due to several barriers. Currently, orders for medical cannabis must be placed online with an LP or be acquired by way of a drug transfer to their healthcare practitioner who signed the medical document. This can be a challenge for those who acquired a prescription by means of telemedicine, or from a specialized clinic located at some distance from their home. Further the requirement to order online requires access to a computer or smart phone, as well as internet access. This barrier is especially relevant with regards to older adults, many of whom struggle with technology. Another barrier is the fact that many medical regulatory bodies "strongly discourage dispensing, providing, or accepting delivery of cannabis for medical purposes" (Canadian Medical Protective Association, 2019). Lack of access to brick and mortar medical cannabis stores, akin to pharmacies also serves as a barrier to low SES patients. To my knowledge, there is only one brick and mortar cannabis store, which cannot serve the geographically diverse population. Therefore, the LPs should work alongside medical regulatory bodies to facilitate access to medical cannabis at physical retail locations to address shortcomings in access. Health Canada should also consider alternative methods to distribute medical cannabis to patients.

Recall the *R v. Howell* (2020) court case, where it was concluded that the THC limit of 30mg/ml on THC oils or 10mg/capsule was a violation of the *Canadian Charter of Rights and Freedoms*. The result of this case may set a precedent for any future challenges to the *Cannabis Regulations*. The federal government might do well to proactively address such a limitation prior to the expenditure of tax funds in a future challenge. Given the government mandated review of

the *Cannabis Regulations*, there is a clear opportunity to address the shortcomings identified by *R v. Howell* (2020).

6.4 Future Direction

6.4.1 Normalization framework. The relevance of the normalization framework as a theoretical construct is limited within the study of CTP in a post-legalization context. Recall that the development of the domains were originally intended to assess if drug use had become sufficiently widespread and socially accommodated as to ensure that drug users and their drug use were acknowledged as unremarkable and within normative boundaries (Parker, 2005); therefore, the study focused on constructs that aligned well with the themes in the data. Despite this the principle on which the thesis is based, for the right of people with disabilities to live their lives on the same terms as anyone else in society, along with the necessary supports to make this possible" (Perrin, 1999) is still relevant. This is because not all use of CTP consists of health products containing cannabis and the CMA, whos' constituents control access to authorized CTP still identify non-regulatory approved therapeutic use as deviant. The shift in the application of the theory presented in this study may serve as a starting point for further theory driven research on CTP in a post-legalization context. Similar research could also be applied to use of other drugs for therapeutic purposes that receive a special exemption under the *Controlled Drugs and Substances Act* or are mandated access to by court order such as with medical cannabis. For example, users of psilocybin, among other controlled drugs in Canada.

6.4.2 Future areas of study. Based on the empirical observations that were outside the scope of this study, there are multiple areas of future study. Why is older adult use of cannabis increasing in Canada? Why do older adults in Canada typically use therapeutically? Why is the

average age of an authorized user of CTP older than an unauthorized user of CTP? What level of evidence is required for access to medical cannabis to be regulated by Health Canada, rather than as a court mandate? Why do both unauthorized and authorized users describe a lack of education on their use of CTP?

Other areas of research were also determined. Study on the use of CTP among older adults in both the veteran and the Indigenous population should be conducted, as these populations require special consideration. Further study on healthcare practitioner views of, and education on CTP, such as that by Pierre et al. (2020) might help explain why medical regulatory bodies "strongly discourage dispensing, providing, or accepting delivery of cannabis for medical purposes" (Canadian Medical Protective Association, 2019). Doctors accepting an alternative therapy outside the conventional scope of regulated drugs might be personally perceived as a failing of their profession to help patients, which might require doctors to reframe their ideals. Another important area of research would be to examine the impact of non-medical cannabis on both the use of medical cannabis as well as health products containing cannabis. In the event that the proposed cannabis health products are released in Canada, the impact of their release on both non-medical and medical cannabis use should be assessed. Finally, research should be conducted to understand why Canadians seek cannabis in an effort to reduce both OTC and prescription drug use. Does this constitute a lack of faith in the medical system? If their use of CTP or other alternative therapies is efficacious, does their drug use actually change?

In conclusion, this thesis offers a critical realist examination on the older adult perspectives of cannabis for therapeutic purposes (CTP) through select domains from the normalization framework in the province of Ontario, Canada. It was found that evidence in many areas of cannabis research on older adults is lacking, which prevents the development of evidence informed

policy. Among older adults, many seek cannabis as an alternative therapy to conventional medicine for its analgesic properties in pain management. Policy drift is a strong factor driving unauthorized use. The primary motivator for older adults' use of CTP is a desire to achieve normal goals, distinct from recreational use. Legislative and other policy modifications are required to ensure authorized access to regulated cannabis to protect public health and public safety.

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Appendices

Appendix A

Classification for Products Containing Cannabis (Health Canada, 2020b)

Non-Medical *(Cannabis Act)*	**Medical** *(Cannabis Act)*	**Health Products with Cannabis** *(Cannabis Act* & FDA)
• Limited classes initially (fresh, dried, oil, plants and seeds); edibles and concentrates 1 year later	• Same limited classes non-medical (fresh, dried, oil, plants, and seeds); edibles and concentrates 1 year later	• No restrictions on product classes that may be approved under FDA (e.g. dosage forms for prescription drugs)
• Health care practitioner authorization not required	• Health care practitioner authorization required.	• Practitioner oversight required (i.e., Rx drugs)
• **No pre-market review** for safety, efficacy • Quality and security requirements under the *Cannabis Act*	• **No pre-market review** for safety, efficacy • Quality and security requirements under *Cannabis Act*	• **Pre-market review** for safety, efficacy and quality under FDA • Manufacturing subject to quality and security requirements under the FDA and *Cannabis Act*
• **CANNOT** make **health claims**	• **CANNOT** make health claims	• **CAN** make health claims, if authorized

Appendix B

Jurisdictional Responsibilities (Government of Alberta, 2019)

Activity	Responsible		
	Federal	Provincial	Municipal
Possession limits **	✓		
Trafficking	✓		
Advertisement & packaging **	✓		
Impaired driving	✓	✓	
Medical cannabis	✓		
Seed-to-sale tracking system	✓		
Production (cultivation and processing)	✓		
Age limit (federal minimum) **	✓		
Public health	✓	✓	
Education	✓	✓	✓
Taxation	✓	✓	✓
Home cultivation (growing plants at home) **	✓		
Workplace safety		✓	
Distribution and wholesaling		✓	
Retail model		✓	
Retail location and rules		✓	✓
Regulatory compliance	✓	✓	
Public consumption		✓	✓
Land use/zoning			✓

Appendix C

Penalties for Drug-Impaired Driving (Department of Justice, 2019b)

<table>
<tr><th colspan="4">Penalties</th></tr>
<tr><th>Charge</th><th>1st offence</th><th>2nd offence</th><th>3rd offence</th></tr>
<tr><td>• Alcohol-impaired driving
• Having a Blood Alcohol Concentration (BAC) at or over 80mg per 100ml of blood within 2 hours of driving</td><td rowspan="3">Mandatory minimum:
$1000 fine

Maximum:
10 years imprisonment</td><td rowspan="4">Mandatory minimum:
30 days imprisonment

Maximum:
10 years imprisonment</td><td rowspan="4">Mandatory minimum:
120 days imprisonment

Maximum:
10 years imprisonment</td></tr>
<tr><td>• Drug-impaired driving
• Having 5ng or more of THC per ml of blood within 2 hours of driving
• Any detectable level of LSD, psilocybin, psilocin, ketamine, PCP, cocaine, methamphetamine, 6-mam within 2 hours of driving
• Having 5mg or more of GHB per 1 litre of blood within 2 hours of driving</td></tr>
<tr><td>Combination
• Having a BAC of 50mg per 100ml of blood + 2.5ng or more of THC per 1ml of blood within 2 hours of driving</td></tr>
<tr><td>Refusal to comply with demand for sample</td><td>Minimum:
$2000 fine</td></tr>
<tr><td>Drug-impaired driving - Summary conviction
• Having over 2ng but less than 5ng of THC per ml of blood within 2 hours of driving</td><td colspan="3">Maximum $1000 fine</td></tr>
<tr><td>Impaired driving causing bodily harm</td><td colspan="3">• Summary conviction: Maximum 2 years imprisonment less a day
• Indictment: Maximum 14 years imprisonment</td></tr>
<tr><td>Impaired driving causing death</td><td colspan="3">• Indictment: Maximum life imprisonment</td></tr>
<tr><td>First offence + BAC of 80-119mg</td><td colspan="3">Mandatory minimum $1000 fine</td></tr>
<tr><td>First offence + BAC of 120-159mg</td><td colspan="3">Mandatory minimum $1500 fine</td></tr>
<tr><td>First offence + BAC of 160mg or more</td><td colspan="3">Mandatory minimum $2000 fine</td></tr>
</table>

Appendix D

Medical Cannabis Insurance (Harvest Medicine. 2019)

HARVEST MEDICINE

Price Watch Special Edition

MEDICAL CANNABIS INSURANCE

Listed alphabetically, **potential mental health coverage in red.**

Many representatives we spoke to still seemed unsure or uncomfortable discussing specifics around medical cannabis coverage. Be persistent and ask for elevation until you get the answers you're looking for.

HMED PRICE WATCH hmed.ca/pricewatch

Provider	Contact	Qualification	Criteria of Symptoms	Coverage Limits
Alberta Blue Cross	1-800-661-6995 ab.bluecross.ca	Doctor's note needed under Health Spending Account.	Generally limited to treatment for spasticity and neuropathic pain associated with multiple sclerosis, and nausea/vomiting due to chemo.	Capped by individual plan or Health Spending Account.
Desjardins Insurance	1-800-463-7843 desjardinslifeinsurance.com	Must be 21 years of age or older, completed pre-authorization process, and failed prior traditional treatments.	Limited to pain related to advanced cancer, refractory neuralgia, nausea and vomiting caused by chemo, spasticity caused by multiple sclerosis or a lesion of the spinal cord.	Capped by individual plan or Health Spending Account, annua max between $1,500 and $ 6,000 Excludes PerformPlus.
Empire Life	1-800-267-0215 empire.ca	May be covered but depends on individual plan.	Case by case evaluation.	Capped by individual plan or Health Spending Account.
The Great-West Life Assurance Company	1-780-917-7800 greatwestlife.com	Doctor's note needed under Health Spending Account.	Case by case evaluation.	Capped by individual plan or Health Spending Account.
gsc green shield canada	1-888-711-1119 greenshield.ca	Must be 25 years of age or older, completed pre-authorization process, and failed prior traditional treatments.	Limited to chronic neuropathic pain, treatment for spasticity and neuropathic pain associated with multiple sclerosis, and nausea/vomiting due to chemo.	Capped by individual plan or Health Spending Account, annua max between $1,500 and $ 6,500
Manitoba Blue Cross	1-888-596-1032 mb.bluecross.ca	May be covered but depends on individual plan.	Case by case evaluation.	Capped by individual plan or Health Spending Account.
Manulife	1-800-268-6195 manulife.ca	May be covered but depends on individual plan, completed pre-authorization process, and failed prior traditional treatments.	Case by case evaluation.	Capped by individual plan or Health Spending Account.
Markers Insurance (Subsidiary of Evergreen Pacific)	1-647-557-5824 markersinsurance.com ***To be released Q2 2019***	*Proof of valid medical documentation from a licensed physician after filling out the online application.	*Based wholly on individuals medical document, potential to cover both physical and mental ailments.	*Capped by individual plan or Health Spending Account.
SSQ insurance	1-800-565-4550 ssq.ca	Completed pre-authorization process, and failed prior traditional treatments.	Limited to chronic neuropathic pain, treatment for spasticity and neuropathic pain associated with multiple sclerosis, and nausea/vomiting due to chemo.	Capped by individual plan.
Sun Life Financial	1-877-786-5433 sunlife.ca	Completed pre-authorization process, and failed prior traditional treatments.	Limited to cancer, multiple sclerosis, rheumatoid arthritis, HIV/AIDS, or need of palliative care.	Capped by individual plan.

Please note that only medical cannabis is eligible for insurance coverage in Canada. Current as of Jan 31 2019.

Appendix E

While not the primary focus of this paper, the potential intrinsic (chemical) harms and risks of cannabis use in older adult populations should be noted for any type of cannabis use. The knowledge gap regarding medical and recreational use is of concern with repeated calls for more research (Abramovici, 2018; Allan et al., 2018; CMA, 2018a; Eurich, et al., 2019; Pierre et al., 2020; Task Force on Cannabis Legalization and Regulation, 2016). One dominant factor when weighing the benefits and potential risks of cannabis use in older adults is the consideration of age-related changes. Age-related changes affect how older adults respond to cannabinoid exposure (Abramovici, 2018; Ahmed et al., 2014; Bertram et al., 2020; Centre for Effective Practice, 2018; van den Elsen et al., 2014; Minerbi et al., 2019; Scott et al., 2019). The rate at which older adults can metabolize and filter cannabis from their body is affected due to reductions in both endocannabinoid system activity, as well as kidney, liver and digestive function (Abramovici, 2018; van den Elsen et al., 2014; Sexton et al., 2019). The result is that older adults have a more vulnerable physiology. These age-related changes are associated with comorbidities, which may lead to polypharmacy and drug-drug interactions that may alter the metabolism of cannabinoids. Polypharmacy—at least five prescription medications concurrently—is highest at approximately 30% of older adults age 65-79 (Rotermann, Sanmartin, Hennessy & Arthur, 2014). Drug interactions can be additive ($1 + 1 = 2$), synergistic ($1 + 1 > 2$), or antagonistic ($1 + 1 < 2$) (Alsherbiny & Li, 2019). Some common drug classes (>4 listed) potentially interacted with are antidepressants, anticonvulsants, antidiabetics, Central Nervous System (CNS) depressants, antiarrhythmic, antipsychotic, antiretroviral, opioids, hormones and immunosuppressants. Further research is required to evaluate the safety and tolerability of cannabis and cannabinoids for an older adult population with co-morbidities (Abramovici, 2018; Abuhasira et al., 2018).

Cannabis may be taken via several Routes of Administration (ROAs), some of which are a potential health risk such as smoking or vaporizing concentrates (Lau et al., 2015; Lowe et al., 2018; Minerbi et al., 2018; Renard, 2020; Russel et al., 2018; Volkow et al., 2014). ROAs are classified into three types; (1) inhalational which includes smoking and vaporizing; (2) non-inhalational which includes edibles/drinkables; and (3) other ROAs which includes tinctures, oromucosal/sublingual routes, transdermal topicals, intravenous routes and rectal routes. One example demonstrating the potential risk of vaporizing concentrates was a lack of regulatory control, as evidenced by the E-cigarette, or Vaping, Product Use-Associated Lung Injury (EVALI) outbreak which led to the hospitalization of some Canadians (Chatham-Stephens et al., 2019; Landman et al., 2019). Russel et al. (2018) determined that the limited evidence on ROAs point to vaporizers of natural cannabis and edible products to facilitate reductions in potential key health risks among cannabis users. Interestingly, cannabis oil (litres) appears to be sold in far greater quantities than dried cannabis (kilograms), which may indicate doctors are using more recent evidence for prescription of medical cannabis products (Health Canada, 2019d), separate from the lack of policy recommendation for a specific ROA by Health Canada (2016a).

While cannabis-related injuries and poisonings are relatively rare, mental illness may not be effectively captured by the Canadian Hospitals Injury Reporting and Prevention Program (eCHIRPP) (Champagne et al., 2020). The effects of cannabis on mental health and addiction are a concern. There is a disproportionate burden on those living with mental and behavioural disorders, many who attempt to self-medicate with non-medical cannabis with regressive effect (Lowe et al., 2018). People living with anxiety or depression are less likely to discuss the use of CTP with healthcare practitioners (Belle-Isle et al., 2014). Cannabis Use Disorder (CUD) in older adults is a problematic pattern of use leading to impairment or distress (Bertram et al., 2020, Lowe

et al., 2018). Note that typically, medical cannabis patients are screened for CUD and other use disorders, as a contraindication to therapeutic use. Cannabis Withdrawal Syndrome (CWS) is commonly associated with shakiness/tremulousness, depressed mood or dysphoria, decreased appetite, nausea, irritability, sleep difficulty, sweating, craving to smoke marijuana, restlessness, nervousness/anxiety, increased aggression, headaches, stomach pains, strange dreams, nightmares and increased anger (Bertram et al., 2020). Finally, Cannabis Hyperemesis Syndrome (CHS) is a potentially dangerous condition, characterized by nausea, vomiting and abdominal pain (Bertram et al., 2020; Lowe et al., 2018). The Canadian Mental Health Association concludes there is insufficient research on the possible harms and benefits of cannabis on mental health (CMHA, 2019).

There are resources respecting mental health and addiction with regards to cannabis use. For example, Canada's *Cannabis Act* requires a number of evidence-based health warning messages on products that state cannabis contributes to "mental health problems over time", cannabis can "harm brain development and function", "THC can cause anxiety and impair memory and concentration", "coordination, reaction time and ability to judge distances are impaired", "cannabis can be addictive", and "regular use can increase the risk of psychosis and schizophrenia" (Health Canada, 2019e). In addition to this, the Centre for Addiction and Mental Health (CAMH) developed and disseminated their own cannabis lower risk guidelines endorsed by several reputable organizations (Fischer et al., 2017). Finally, specific to older adults the Canadian Coalition for Seniors' Mental Health (CCSMH) have developed various resources for seniors and their families as well as for clinicians. The most extensive resource is the Canadian Guidelines on Cannabis Use Disorder Among Older Adults (Bertram et al., 2020; CCSMH, 2019). The guidelines provide "guidance for clinicians on either preventing the development of Cannabis Use Disorder

(CUD) or optimally assessing and treating older adults who have developed such a disorder" (CCSMH, 2019)

Appendix F

Potential Drug Interactions with Cannabinoids

CBD (Alsherbiny & Li, 2019; Anderson & Chan, 2016; Antoniou et al., 2020; Kocis & Vrana, 2020; Parihar et al., 2019)	THC (Alsherbiny & Li, 2019; Anderson & Chan, 2016; Antoniou et al., 2020; Kocis & Vrana, 2020)
Alosetron (IBS treatment)	Alfentanil (Opioid)
Aminophylline (Bronchodilator)	Alprazolam (CNS Depressant)
Amiodarone (Antiarrhythmic)	Aminophylline (Bronchodilator)
Amitriptyline (Antidepressant)	Amiodarone (Antiarrhythmic)
Aripiprazole (Antipsychotic)	Amitriptyline (Antidepressant)
Bupropion (Antidepressant)	Amphotericin B (Antifungal)
Caffeine (CNS stimulant)	Aprepitant (Antiemetic)
Carbamazepine (Anticonvulsant)	Argatroban (Anticoagulant)
Celecoxib (NSAID)	Astemizole (Antihistamine)
Citalopram (Antidepressant)	Atorvastatin (Statins/Lipid lowering)
Clobazam (CNS depressant)	Avanafil (Erectile dysfunction treatment)
Clomipramine (Antidepressant)	Bromocriptine (Dopamine agonist)
Clonidine (Antihypertensive)	Budesonide (Anti-inflammatory)
Clopidogrel (Antiplatelet)	Buspirone (Anxiolytic)
Clozapine (Antipsychotic)	Busulfan (Chemotherapy)
Cyclobenzaprine (Muscle relaxant)	Carbamazepine (Anticonvulsant)
Cyclophosphamide (Chemotherapy)	Celecoxib (NSAID)
Dabigatran etexilate (Anticoagulant)	Cisapride (Parasympathomimetic)
Desipramine (Antidepressant)	Clindamycin (Antibiotic)
Desogestrel (Hormone)	Clomipramine (Antidepressant)
Diazepam (Anticonvulsant/Hypnotic)	Clonidine (Antihypertensive)
Diflunisal (NSAID)	Colchicine (Anti-inflammatory)
Diphenhydramine (Antihistamine)	Conivaptan (Vasopressin antagonist)
Dosulepin (Antidepressant)	Cyclobenzaprine (Muscle relaxant)
Doxepin (Antidepressant)	Cyclosporine (Immunosuppressant)
Duloxetine (Antidepressant)	Darifenacin (Antimuscarinics)
Efavirenz (Antiretroviral)	Darunavir (Antiretroviral)
Escitalopram (Antidepressant)	Dasatinib (Cancer treatment)
Esketamine (CNS Depressant)	Digitoxin (Cardiotonic)
Fenofibrate (Fibrates)	Dihydroergotamine (Vasoconstrictor)
Fluoxetine (Antidepressant)	Dofetilide (Antiarrhythmic)
Fosphenytoin (Anticonvulsant)	Doxepin (Antidepressant/Anxiolytic)
Gemfibrozil (Fibrates)	Dronedarone (Antiarrhythmic)

Glimepiride (Antidiabetic)
Imipramine (Antidepressant)
Lamotrigine (Anticonvulsant)
Lansoprazole (PPI)
Lofepramine (Antidepressant)
Lorazepam (CNS Depressant)
Melatonin (Hormone)
Melitracen (Antidepressant)
Meperidine (Opioid)
Mephenytoin (Anticonvulsant)
Methadone (Opioid)
Moclobemide (Antidepressant)
Montelukast (Asthma treatment)
Morphine (Opiate/Analgesic)
Mycophenolic acid (Immunosuppressant)
Nelfiniavir (Antiviral)
Nortriptyline (Antidepressant)
Olanzapine (Antipsychotic)
Omeprazole (PPI)
Paclitaxel (Chemotherapy)
Pantoprazole (PPI)
Phenobarbital (Anticonvulsant/Sedative)
Phenytoin (Anticonvulsant)
Pimozide (Antipsychotic)
Pioglitazone (Antidiabetic)
Pirfenidone (Antifibrotic)
Progesterone (Hormone)
Propofol (Hypnotic/Sedative)
Propranolol (Beta Blocker)
Quinidine (Antiarrhythmic)
Rabeprazole (Antiulcer)
Rabeprazole (PPI)
Ramelteon (Hypnotic)
Ramosetron (IBS treatment)
Repaglinide (Antidiabetic)
Rosiglitazone (Antidiabetic)
Sertraline (Antidepressant)
Siponimod (S1P receptor modulator)
Tacrolimus (Immunosupresive)
Tasimelteon (Melatonin receptor agonist)
Ebastine (Antihistamine)
Eletriptan (Triptan)
Eliglustat (Glucosylceramide inhibitor)
Eplerenone (Diuretic)
Ergotamine (Vasoconstrictor)
Esketamine (CNS Depressant)
Ethosuximide (Anticonvulsant)
Everolimus (Immunosuppressant)
Felodipine (Calcium channel blocker)
Fentanyl (Opioid)
Fosaprepitant (Antiemetic)
Fosphenytoin (Anticonvulsant)
Glimepiride (Antidiabetic)
Ibrutinib (Kinase inhibitor)
Imipramine (Antidepressant)
Indinavir (Antiretroviral)
Isavuconazole (Antifungal)
Levacetylmethadol (Opioid)
Levothyroxine (Hormone)
Lomitapide (Lipid lowering)
Lopinavir (Antiretroviral)
Lovastatin (Statins/Lipid lowering)
Lurasidone (Antipsychotic)
Maraviroc (Antiretroviral)
Meperidine (Opioid)
Methysergide (Vasoconstrictor)
Midazolam (Hypnotic/Sedative)
Montelukast (Asthma treatment)
Naloxegol (Constipation treatment)
Nisoldipine (Calcium channel blocker)
Nortriptyline (Antidepressant)
Paclitaxel (Chemotherapy)
Phenobarbital (Anticonvulsant/Sedative)
Phenytoin (Anticonvulsant)
Pimozide (Antipsychotic)
Pioglitazone (Antidiabetic)
Quinidine (Antiarrhythmic)
Repaglinide (Antidiabetic)
Rilpivirine (Anti-HIV drug)
Rivaroxaban (Anticoagulant)

Testosterone (Hormone) Theophylline (CNS Stimulant) Thiopental (CNS Depressant) Tizanidine (Muscle relaxant) Tolbutamide (Antidiabetic) Trimipramine (Antidepressant) Valproate (Anticonvulsant) Valproic acid (Anticonvulsant) Venlafaxine (Antidepressant) Vitamin K Agonist (Anticonvulsant) - Acenocoumarol, dicoumarol, fluindione, phenprocoumon, warfarin Voriconazole (Antidepressant)	Rosiglitazone (Antidiabetic) Saquinavir (Antiretroviral) Sildenafil (Erectile dysfunction treatment) Simvastatin (Statins/Lipid lowering) Siponimod (S1P receptor modulator) Sirolimus (Immunosuppressant) Tacrolimus (Immunosuppressant) Tadalafil (Erectile dysfunction treatment) Temsirolimus (Chemotherapy) Terfenadine (Antihistamine) Theophylline (CNS Stimulant) Tianeptine (Antidepressant) Ticagrelor (Antiplatelet) Tipranavir (Anti-HIV drug) Tolbutamide (Antihyperglycemic) Tolvaptan (Aquaretic) Triazolam (CNS depressant) Valproic acid (Anticonvulsant) Vardenafil (Erectile dysfunction treatment) Vitamin K Agonist (Anticonvulsant) – Acenocoumarol, clorindione, dicoumarol, diphenadione, ethyl biscoumacetate, fluindione, phenprocoumon, warfarin Zolpidem (Hypnotic/Sedative)

Note. For this chart the cannabinoid is the precipitant and the drug is the object, meaning the cannabinoid is causing the interaction with the drug

Appendix G

Recruitment Poster

Western
UNIVERSITY · CANADA

PARTICIPANTS NEEDED FOR RESEARCH ON THE OLDER ADULT PERSPECTIVES OF CANNABIS FOR THERAPEUTIC PURPOSES

We are looking for volunteers to take part in a study on the use of cannabis for therapeutic purposes who meet the following criteria:

Age 55 and older.
Residing in Ontario.
Participants must be users (authorized or unauthorized) of cannabis for therapeutic purposes.

If you are interested and agree to participate you would be asked to:
answer semi-structured interview questions on your perspective of cannabis for therapeutic purposes.
Audio-recording is mandatory.

Your participation would involve one (1) session,
each session will be about sixty (60) minutes long.

Your time is greatly appreciated.

For more information about this study, or to volunteer for this study, please contact:

Co-investigator: Lean Fiedeldey
Health and Rehabilitation Sciences
Telephone: [redacted]
Email (Preferred): [redacted]

Principal Investigator: Dr. Maxwell Smith
School of Health Studies, Department of Philosophy
Email: [redacted]

Version Date: 21/04/2020

Appendix H

Semi-Structured Interview Guide Non-Users

1. **About You (DEM)**

1.1 What is your age?
1.2 What is your gender?
1.3 How did you hear about the study?
1.4 What is your geographic area?

2. **Cannabis Use (CAN)**

2.1 Are you a user- or **non- user** of CTP?
2.2 What are your thoughts on CTP?
2.3 Have you ever tried cannabis in the past? Do you plan to in the future?
2.3.1 Was your prior use for recreational or therapeutic purposes?
2.3.2 If you have tried in the past, has prior use influenced your opinion of CTP use/users?
2.4 Do you know of anyone using CTP?
2.4.1 Are you aware if their use is authorized, or unauthorized?
2.4.2 Can you describe their use?
2.4.3 Has their use in any way influenced you to consider trying CTP?
2.4.4 If you are considering CTP, what is the indication leading to your use of CTP?
2.4.5 Can you tell me about this further?

3. **Drugs—a means to achieve normal goals (DNG)**

3.1 If you have used cannabis, what is it like or how do your feel when you use cannabis?
3.1.1 Do you use cannabis to overcome a physical or cognitive barrier?
3.2 Have you ever had any violations under the *Controlled Drugs and Substances Act* or the *Cannabis Act?*

4. **Policy, Challenges, and Adaptation (PCA)**

4.1 What was your exposure (Ex. participation in authorized programs such as the MMAR, MMPR or ACMPR) to CTP prior to the legalization of cannabis?
4.1.1 Has that exposure changed since the legalization of cannabis?
4.2 What are your thoughts on the proposed Cannabis Health Products (CHPs), and do you think it has any potential to modify your use of CTP?
4.3 Are there any challenges you have faced since the introduction of the federal acts (Ex. Bill C-45 The Cannabis Act, Bill C-93 An Act to provide no-cost, expedited record suspensions for simple possession of cannabis) and their subsequent regulations?
4.3.1 If so, how have you had to adapt?
4.4 Are there any challenges you have faced due to the introduction of provincial acts (Ex. Control Act, License Act) and their subsequent regulations?

4.4.1 If so, how have you had to adapt?
4.4.2 Do you believe there should be changes in cannabis policy?
4.4.3 If so, what changes do you recommend?

5. <u>Other Questions</u>

5.1.1 If there was a cannabis education program what would you like to see in it?
5.1.2 CUD
5.1.2.1 Hyperemesis
5.1.3 Driving
5.1.4 Mixing alcohol and cannabis
5.1.5 Drug interactions
5.1.5.1 Mentioned to doctor?

Appendix I

Semi-Structured Interview Guide Users

1. **About You (DEM)**

1.1 What is your age?
1.2 What is your gender?
1.3 How did you hear about the study?
1.4 What is your geographic area?

2. **Cannabis Use (CAN)**

2.1 Are you a long-term chronic user (Recreational or Medicinal), or a new user?
2.2 During the past three months, how often did you use CTP?
1: Not in the past three months
2: Once or twice
3: Monthly
4: Weekly
5: Daily or almost daily
2.3 What is your frequency of consumption of CTP?
2.4 How would you describe your use?
2.5 Are you primarily an authorized, unauthorized or non-user of CTP?
2.5.1 If you are an authorized or unauthorized user, is your use mixed (recreational & therapeutic), or solely therapeutic?
2.6 What is the indication leading to your use of CTP?
2.6.1 Can you tell me about this further?
2.6.2 What is the treatment method for your indication?
2.6.3 Can you tell me about this further?

3. **Drugs—a means to achieve normal goals (DNG)**

3.1 What is it like or how do you feel when you use cannabis?
3.2 Do you use cannabis to overcome a physical or cognitive barrier?
3.3 Have you ever had any violations under the *Controlled Drugs and Substances Act* or the *Cannabis Act?*

4. **Policy, Challenges, and Adaptation (PCA)**

4.1 Do you have any thoughts on how legalization has gone?
4.2 Has legalization of recreational cannabis impacted your access to CTP in any way?
4.3 What was your exposure (Ex. participation in authorized programs such as the MMAR, MMPR or ACMPR) to CTP prior to the legalization of cannabis?

4.4 Has that exposure changed since the legalization of cannabis?
4.5 What are your thoughts on the proposed Cannabis Health Products (CHPs), and do you think it has any potential to modify your use of CTP?
4.6 Are there any challenges you have faced since the introduction of the federal acts (Ex. Bill C-45 The Cannabis Act, Bill C-93 An Act to provide no-cost, expedited record suspensions for simple possession of cannabis) and their subsequent regulations?
4.6.1 If so, how have you had to adapt?
4.7 Are there any challenges you have faced due to the introduction of provincial acts (Ex. Control Act, License Act) and their subsequent regulations?
4.7.1 If so, how have you had to adapt?

5. <u>Other Questions</u>

5.1.1 If there was an education program is there anything you would like to learn further about?
5.1.2 Have you ever heard of cannabis use disorder?
5.1.3 Have you ever heard of hyperemesis syndrome?
5.1.4 Unauthorized users: Accessibility affected by shutdown of stores due to COVID-19?

Appendix J

Ethics Approval

Western Research

Date: 18 December 2019

To: Professor Maxwell Smith

Project ID: 114597

Study Title: A Study on the Perspectives of Older Adults 55 years of Age and Older Using Cannabis for Therapeutic Purposes

Short Title: Older Adult Perspectives of CTP

Application Type: NMREB Initial Application

Review Type: Delegated

Full Board Reporting Date: 10/Jan/2020

Date Approval Issued: 18/Dec/2019 10:37

REB Approval Expiry Date: 18/Dec/2020

Dear Professor Maxwell Smith

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. All other required institutional approvals must also be obtained prior to the conduct of the study.

Documents Approved:

Document Name	Document Type	Document Date	Document Version
Letter of Information and Consent v3 (Ethics CLEAN)	Written Consent/Assent	10/Dec/2019	Version 3
Recruitment Poster (Ethics CLEAN)	Recruitment Materials	26/Nov/2019	Version 2
Research Plan (Ethics)	Protocol	01/Oct/2019	Version 1
Semi Structured Interview Guide (Ethics)	Interview Guide	01/Oct/2019	Version 1

No deviations from, or changes to the protocol should be initiated without prior written approval from the NMREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Katelyn Harris, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Appendix K

Consent Form (Physical)

Consent Form

A Study on the Perspective of Older Adults 55 years of Age and Older Using Cannabis for Therapeutic Purposes

Principal Investigator: Maxwell Smith PhD
Co-Investigators: Lean Fiedeldey, Marie Suvundranayagam PhD, Marita Kloseck PhD

I have read the *Letter of Information*, have had the nature of the study explained to me and I agree to participate. All questions have been answered to my satisfaction.

1. I consent to the use of unidentified quotes obtained during the study in the dissemination of this research.
   ☐YES ☐NO

2. I consent to the use of my data for future research purposes.
   ☐YES ☐NO

_____	_____	_____
Print Name of Participant	Signature	Date (DD-MMM-YYYY)

My signature means that I have explained the study to the participant named above. I have answered all questions.

_____	_____	_____
Print Name of Person Obtaining Consent	Signature	Date (DD-MMM-YYYY)

Appendix L

Consent Script (Virtual)

Consent Script

Now onto Verbal Consent.

Please state your name and the date.

Have you been read the *Letter of Information*, had the nature of the study explained to you and agree to participate? Have all questions have been answered to your satisfaction?

1. Do you consent to the use of unidentified quotes obtained during the study in the dissemination of this research?
   YES or **NO?**

2. Do you consent to the use of my data for future research purposes?
   YES or **NO?**

Glossary (Note: Definitions are subject to change by regulatory bodies)

Adverse reaction: a noxious and unintended response to a cannabis product (Health Canada)

Advertising and Promotion: any public notices, representations or activities that aim to attract attention to cannabis, cannabis accessories or the sale of cannabis (ACGO)

Cannabidiol (CBD): a cannabinoid (chemical compound) found in cannabis. CBD does not produce a high or intoxication. (Health Canada)

Cannabinoids (chemical substances): made and stored in the cannabis plant's trichomes. Cannabinoids have effects on cell receptors in the brain and body. They can change how those cells behave and communicate with each other (Health Canada)

Cannabis: means a cannabis plant or any part of a cannabis plant, including (1) the phytocannabinoids produced by, or found in, such a plant, regardless of whether that part has been processed or not, other than a non-viable seed of a cannabis plant, a mature stalk, without any leaf, flower, seed or branch, of such a plant, fibre derived from a stalk, the root or any part of the root of such a plant; (2) any substance or mixture of substances that contains or has on it any part of such a plant; and (3) any substance that is identical to any phytocannabinoid produced by, or found in, such a plant, regardless of how the substance was obtained (Bill C-45: Cannabis Act)

Cannabis Accessory: a thing, including rolling papers or wraps, holders, pipes, water pipes, bongs and vaporizers, that is represented to be used in the consumption of cannabis; or a thing that is commonly used in the consumption of cannabis is deemed to be represented to be used in the consumption of cannabis if the thing is sold at the same point of sale as cannabis (Bill C-45: Cannabis Act)

Cannabis Extract: A substance produced by the extraction or processing of cannabis, synthesizing a substance that is identical to a phytocannabinoid produced by, or found in cannabis and a substance or mixture of substances that contains or has on it a substance produced in cannabis (Bill C-45: Cannabis Act; Cannabis Regulations)

Cannabis Health Products (CHPs, proposed): Cannabis must be listed as an active ingredient and could not be included without a direct link to the health claim. Evidence would need to sufficiently demonstrate the association of the ingredient (i.e., specific phytocannabinoid) with the health claim (Health Canada)

Cannabis for Medical Purposes: obtained via a health care practitioner's authorization for human use, with no health claims or premarket review for safety and efficacy (Health Canada)

Cannabis for Medical Use: This refers to cannabis bred to contain cannabinoids, in particular tetrahydrocannabinol (THC) and cannabidiol (CBD), and may also include CBD extracted from hemp, for medical use. To obtain cannabis for medical use, a patient or client generally needs to register with a governmental authority and a holder of a licence for sale of cannabis for medical purposes, and get an authorization (medical document and written order) from an authorized health care practitioner. Cannabis for medical use should not be confused with cannabis-based prescription drugs (Statistics Canada)

Cannabis for Non-Medical Purposes: obtained from provincially and territorially licenced sellers, for a range of non-medical reasons (e.g., socially for enjoyment, pleasure, amusement or for spiritual, lifestyle and other non-medical reasons) (Government of Canada), and with no health claims or pre-market review for safety and efficacy (Health Canada)

Cannabis Plant: a plant that belongs to the genus Cannabis (Bill C-45: Cannabis Act)

Cannabis Product: means cannabis of only one of the classes set out in Schedule 4 (dried cannabis, cannabis oil, fresh cannabis, cannabis plants, cannabis plant seeds, edible cannabis, cannabis extracts, cannabis topicals) to the Act—or a cannabis accessory if that accessory contains such cannabis—after it has been packaged and labelled for sale to a consumer at the retail level. It does not include cannabis intended for an animal, a cannabis accessory that contains cannabis that is intended for an animal, or a drug containing cannabis (Bill C-45: Cannabis Act; Government of Canada)

Cannabis Topical: means a substance or mixture of substances that contains or has on it any part of a cannabis plant, including the phytocannabinoids produced by, or found in, such a plan, or any substance that is identical to any phytocannabinoid produced by, or found in, such a plant, regardless of how the substance was obtained, and that is intended for use, directly or indirectly, exclusively on external body surfaces, including hair and nails (Government of Canada)

Delta-9- Tetrahydrocannabinol (THC): a cannabinoid (chemical compound) found in cannabis. Responsible for the way your brain and body respond to cannabis, including the high and intoxication (Health Canada)

Dried Cannabis: means any part of a cannabis plant that has been subjected to a drying process, other than seeds (Bill C-45: Cannabis Act)

Edible Cannabis: means a substance or mixture of a substance that contains or has on it any part of a cannabis plant, including the phytocannabinoids produced by, or found in, such a plan, or any substance that is identical to any phytocannabinoid produced by, or found in, such a plant, regardless of how the substance was obtained and that is intended to be consumed in the same manner as food. It does not include dried cannabis, fresh cannabis, cannabis plants or cannabis

plant seeds. For clarity, it does not include cannabis extracts and cannabis topicals (Bill C-45: Cannabis Act; Government of Canada)

Health Care Practitioner (HCP): includes medical practitioners and nurse practitioners (Health Canada)

Health Products Containing Cannabis: products, such as prescription drugs (Rx), Natural Health Products (NHPs), Veterinary Health Products (VHPs) and medical devices containing cannabis or for use with cannabis, that are marketed with health claims and subject to a premarket authorization by Health Canada. Such products are regulated by the Controlled Drugs and Substances Act (CDSA) and the *Food and Drugs Act* (*FDA*) (Health Canada)

Hemp: Cannabis that contains very low amounts of THC in its flowers and leaves (less than 0.3%) (Health Canada)

Hemp Seed Oil: Hemp-seed oil is oil made from pressing the grain of hemp plants. It is processed like other oil seeds, such as canola. In order for hemp-seed oil to be exempt from the *Cannabis Act*, it can't contain more than 10 parts per million of THC. For hemp-seed oil to be exempted from the Cannabis Act, no phytocannabinoid including THC and CBD may be added or concentrated by processing. (Health Canada)

Illicit Cannabis: means cannabis that is or was sold, produced or distributed by a person prohibited from doing so under [the *Cannabis Act*] or any provincial Act or that was imported by a person prohibited from doing so under [the *Cannabis Act*] (Bill C-45: Cannabis Act)

Industrial Hemp: Industrial hemp is cannabis that contains 0.3% THC or less in the flowering heads and leaves. The Industrial Hemp Regulations under the *Cannabis Act* set out the

requirements for cultivators of industrial hemp. Although it may not have more than 0.3% THC, there is no limit to the amount of CBD that may be contained in industrial hemp plants. The Cannabis Act and its regulations do not distinguish between CBD derived from industrial hemp and CBD derived from cannabis with greater than 0.3% THC. Hemp producers may not extract the CBD themselves, unless they also have a cannabis processing or research licence. (Health Canada)

Inflorescence: a combination of the flowers and the ultimate small twigs of the branching system subtending the flowers. This includes what is commonly known in the industry as the bud and the small sugar leaves or other materials (bracts, stems, etc.). (Health Canada)

Medical Devices: medical devices containing cannabis or for use with cannabis fall under the definition of a cannabis accessory in the Cannabis Act (Health Canada)

Medical Document: a document provided by a health care practitioner to support the use of cannabis for medical purposes (Cannabis Regulations)

Medicinal Ingredient: refers to any substance or mixture of substances that, when used in the production of a health product, becomes an active ingredient and provides a health effect related to the health claim of the product (Health Canada)

Natural Health Products (NHPs): containing permitted parts of the cannabis plant, and no more than 10 parts per million THC, have been approved with general health claims or for treating minor conditions (Health Canada)

Oil: refers to cannabis oil produced by extracting the oil from the flowering and/or non-flowering material of the cannabis plant, including industrial hemp by-product. Oil reported in this column can include cannabis oil in liquid form as well as wet or dried resinous form. (Health Canada)

Phytocannabinoids: produced by, or found in, the cannabis plant and substances that are duplicates of such phytocannabinoids **except (1) derivatives of cannabis as defined in subsection 2(1) of the Cannabis Act that are exempt from the application of the Cannabis Act under the Industrial Hemp Regulations and that do not contain an isolated or concentrated phytocannabinoid or a synthetic duplicate of that phytocannabinoid, or; (2) anything referred to in Schedule 2 to the Cannabis Act that contains no more than 10 µg/g delta-9-tetrahydrocannabinol and that does not contain an isolated or concentrated phytocannabinoid or a synthetic duplicate of that phytocannabinoid (Health Canada)

Prescription Drug: a drug (a) that contains cannabis; (b) that is a *prescription drug*, as defined in the *Food and Drug Regulations*; and (c) for which a drug identification number has been assigned under the *Food and Drug Regulations* (Health Canada)

Prescription Drugs Containing Cannabis (Rx): authorized drugs containing cannabis to be sold with a prescription to individuals, or for animals, under the care of a practitioner (Health Canada)

Simple Possession: a criminal conviction for possession of a controlled substance (Ex. cannabis), for personal use with no intent to traffic (Government of Canada)

Terpenes: Terpenes are chemicals made and stored in the trichomes of the cannabis plant, with the cannabinoids. Terpenes give cannabis its distinctive smell (Health Canada)

Therapeutic: Use that is related to a diagnosis, treatment, mitigation or prevention of a disease, disorder or abnormal physical state, or its symptoms (Health Canada)

Veterinary Health Products (VHPs): containing non-viable seed derivatives (as a dried or as an extract preparation with no more than 10 parts per million THC) have been approved with general health claims (Health Canada)

Self-Defined

Older Adults: refers to individuals 55 years of age and older. Consistent with treatment aimed at older adults for cannabis use disorder which is initiated at age 55

Cannabis for Therapeutic Purposes (CTP): is defined as whatever the participants describe it as

Curriculum Vitae

Name: Lean Fiedeldey

Education:
Western University
London, Ontario, Canada
2018-2020 MSc. (Health and Rehabilitation Sciences – Health and Aging)

Western University
London, Ontario, Canada
2014-2018 Hon. BA (Kinesiology, Geography Minor)

Related Work:

Graduate Research Assistant
Western University, 2020

Graduate Teaching Assistant
Western University, 2018-2020

Presentations:

Health & Rehabilitation Sciences Graduate Research Conference
Western University, 2020

Western Research Forum
Western University, 2020 (cancelled due to COVID-19), 2019

Awards:

HELP Lab award, presented to the poster presentation most relevant to Health Ethics, Law and Policy at the Health & Rehabilitation Sciences Graduate Research Conference (2020)

Additional Skills:

Certificate of Completion: Tri-Council Policy Statement – Ethical Conduct for Research Involving Humans (TCPS 2: CORE) (2020)
Completed Women and Gender Equality Canada's Introduction to Gender-based Analysis+ (2020)