Legalization of recreational cannabis: Facilitators and barriers to switching from an illegal to a legal source

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ABSTRACT

Illicit markets persist in places where recreational cannabis has been legalized. This study aimed to identify perceived facilitators/barriers of switching from an illicit to a licit cannabis source. Using a cross-sectional qualitative approach, 529 students, from one New Zealand university, completed a survey investigating the facilitators/barriers to switching through two open-ended questions. Perceived facilitators for switching included: safety (63.1%); price (42.7%); legal, no risk of convictions (35.3%); increased accessibility (32.3%); product diversity (14.2%). Perceived barriers included: price (66.4%); judgement (36%); regulation (28.9%); loyalty to current supplier (27.2%); reduced accessibility (13.2%). The findings provide recommendations for policies aimed at tipping people in favor of a licit over an illicit source. Avoiding arrest/convictions, and easier access, were not primary facilitators for switching. Thus, providing a licit market might be insufficient in the absence of other competitive factors, such as communicating improved product safety. Competitive pricing and regulation (tetrahydrocannabinol strength/quantity limits) were also barriers. Given legal markets aimed at minimizing harm are constrained with competing in these areas, it is significant that our findings identified other barriers which could be overcome, including limiting surveillance and quantity limits and positioning stores to preserve anonymity. The findings also highlight that loyalty to current illicit suppliers will be a significant barrier.

1. Introduction

Cannabis is the most widely used illicit drug (World Health Organization, 2019), with use peaking amongst 20–24-year olds (Degenhardt et al., 2013). The 'war on drugs' has failed and the legal status of cannabis is changing worldwide. Recreational cannabis is now legal in Uruguay (Cerdá and Kilmer, 2017; Queirolo et al., 2016), Canada (Government of Canada, 2018) and several states in the United States (Hall and Kozlowski, 2018), including Colorado and Washington (Coffman and Neroulias, 2012; Pardo, 2014). A key argument for legalizing recreational cannabis is to maximize public health and minimize harm through a public health response (Rehm and Fischer, 2015) that controls cannabis and reduces the illicit market (Fischer, 2017; Fischer et al., 2020b; Mahamad and Hammond, 2019; World Health Organization, 2019). Proponents for legalization argue a public health response could control tetrahydrocannabinol (THC), increase product safety (Cousijn, 2021; Meacher et al., 2019), restrict underage

access, reduce interactions with illicit suppliers, facilitate education, provide tax revenue for the health system (Meacher et al., 2019), and increase users' help-seeking behavior (Benfer et al., 2018). However, the World Health Organization (2019) reports illicit markets continue in places where recreational cannabis has been legalized; competing with licit markets. To inform future policies, this paper seeks to establish factors that might facilitate users switching from an illicit to a licit market.

Whether licit cannabis markets can reduce illicit markets is a topical debate and has been a general public question in America (McGinty et al., 2017) and New Zealand (NZ) (Fischer and Bullen, 2020). Concordantly, in Uruguay, where legalized cannabis is heavily regulated, the illegal market predominated a year after legalization (Boidi et al., 2016). In Canada, approximately one year after legalisation, 50% of users report using legal sources, however, many also report purchasing from the illicit market (Fischer et al., 2020a). Popular media concurs that illicit markets have remained serious competitors, for

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instance, in Canada approximately 16 months after legalization (Halperin, 2019). Researchers argue that it is too early to recognize the impact of legalization (e.g., Hall et al., 2019; Leung et al., 2019) as current outcomes might be transitional (Fischer et al., 2020b), measuring illegal activity is challenging (Caulkins et al., 2016) and outcomes are complicated by differences in regulation across states and countries (Fischer et al., 2020a).

The competitiveness of licit markets are shaped by policy choices. Tension arises between trying to minimize the illicit market whilst trying to minimize harm through legalization. Stronger regulations might keep illicit markets operating whereas limiting taxes (lowering price) might reduce the illicit market but increase harm through increased use (Carliner et al., 2017; Caulkins et al., 2012; Wilkins and Rychert, 2020). Indeed, price is argued to be an important competitive factor in commentary work (Fischer, et al., 2016) and economic behavioral models (Amlung and MacKillop, 2019; Childs and Stevens, 2020). Concordantly, in Canada, popular media reports the illicit market is competing for market share by dropping prices below the licit market (The Canadian Press, 2020). However, price is one of many regulations that might prevent people switching.

Commentaries suggest the competitiveness of licit markets might be limited by regulation on product quality, diversity (Cheung, 2019; Fischer et al., 2016), marketing and customer service (Cheung, 2019). For instance, popular press in California reports illicit markets advertise on online websites and compete by providing deliveries (Fuller, 2019). Popular press also describes a close trusting relationship between illicit suppliers and their customers (Quan and Edmiston, 2018) which could act as a further barrier to switching. Concordantly, empirical literature reveals that drugs are often procured through social networks. A study of student drug users in Wales found half of their sample sourced drugs from associates or friends (social supply) and another quarter used social supply and external dealers (Bennett and Holloway, 2019). In fact, the social supply of drugs has been found to occur globally, for instance, in Australia, Europe, Hong Kong, North America and NZ, although data on NZ was drawn from parliament and justice system debates (Coomber et al., 2018). Given the potential price, product and service advantages of illicit markets, researchers argue that it is crucial that legalization is developed carefully to tip users in favor of a licit over an illicit market (Fischer et al., 2020a).

To date, only one study has examined perceptions of licit compared to illicit cannabis markets. The findings revealed that licit cannabis was perceived to be easier to purchase (59.2%), safer to purchase (56.1%) and use (40.3%), higher quality (37.6%), but more expensive (30.6%) than illicit cannabis (Fataar et al., 2021). However, the findings were limited to five closed-answered questions. Thus, other barriers to switching (benefits of an illicit market), and facilitators for switching (benefits of a licit market), and the reasoning behind perceptions, remain unknown. This study will extend the work by Fataar et al. (2021) by employing an open-ended qualitative survey. Further, Fataar's et al. (2021) findings were drawn from US states where cannabis is legalized and perceptions likely shaped by existing policies. Therefore, this study will explore what would facilitate/prevent people from switching from an illicit to a 'hypothetical' licit cannabis source. Studies on addictive substances show actual behavior corresponds closely to hypothetical behaviour (Amlung et al. 2012; Amlung and MacKillop 2015). This study is amongst students in one NZ university, a country where recreational cannabis is illegal, however the illicit use of cannabis is common in NZ (Poulton et al., 2020). For instance, 80% of 15 to 35-year old's report using cannabis at least once in their lifetime (Fergusson et al., 2015). Furthermore, university students are an at-risk group because cannabis use is more concentrated amongst people in their mid-20 s (Fergusson and Boden, 2011) and is embedded in the university culture (Robertson and Tustin, 2020). This study addresses calls to explore the barriers to switching to a licit channel (Kilmer et al., 2019), and for qualitative research to examine why licit channels might be preferred over illicit channels (Amlung and MacKillop, 2019), shedding light on factors that might speed up the transition from an illicit to a licit market.

2. Methods

2.1. Sample

This was a cross-sectional study of 529 university students in one NZ university. The sample ranged in age from 18 to 29 years[3] ($M = 21$, $SD = 1.40$ years). Demographic data revealed participants were primarily female (57%) and European (82.8%). The study had ethical approval from the university of Otago, and participants gave their written and informed consent. Participants had to be 18 years or older, in line with the ethical requirements for the study.

2.2. Procedure

Participants completed a pen and paper survey involving closed and open-ended questions. Data was collected by students enrolled in a third-year marketing course. They recruited their peers/friends as participants, informing them the study was on the integration of cannabis in the student culture and perceptions of cannabis regulation, that there were no right or wrong answers, and that responses would be anonymous. Purposive sampling was employed to ensure the student researchers and participants were embedded in the same culture. Social network recruitment strategies facilitate open and frank responses (Lewis et al., 2018) and have been effectively employed in previous research on health and sensitive research areas (Akhtar et al., 2020; Brown et al., 2013). Participation took approximately 10 min.

2.3. Measures

2.3.1. Integration

To describe the sample, perceptions of the integration of cannabis in the student culture were measured using three questions adapted from Link (2008) whose items were based on the 'Monitoring the Future Study' (Johnston et al., 2004). Two questions measured perceived peer cannabis use: "On a scale from 0 to 100 percent, please estimate how many of your peers have used marijuana at least once in their lifetime" and "On a scale from 0 to 100 percent, please estimate how many of your peers use marijuana regularly". One question measured perceived availability: "Please rate how easy the acquisition of marijuana is, from 0 (*not at all easy*) to 5 (*very easy*)".

2.3.2. Facilitators and barriers to switching

Two open-ended questions were used to identify perceptions of the facilitators and barriers to switching. One measured perceived facilitators: "In your opinion, what factors might influence individuals who currently acquire marijuana through other channels to switch to buying it from a licensed premise?" and the other perceived barriers: "In your opinion, what factors might prevent individuals who currently acquire marijuana through other channels from switching to buying it from licensed premises".

2.4. Analyses

Grounded theory (Glaser and Strauss, 2017) was used to develop a coding scheme for the open-ended questions. Responses were read several times before identifying emergent themes. The two authors met regularly to clarify and refine the emerging codes. This process was done iteratively until complete agreement was reached. Five main themes

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[3] Ages for legally buying cannabis vary worldwide. The participants in this study were 18 years or older, mean age 21, thus we can conclude that most participants would be of the legal age to buy cannabis in countries where it is legal.

emerged as factors facilitating switching (identified in Table 1), and five main themes emerged as barriers to switching (identified in Table 2). Two main themes (safety and regulation) incorporated several sub-themes and these are also presented. Each survey was coded for the presence or absence of each theme and responses entered into SPSS using dummy variables (theme present or absent). Only themes endorsed by 10% or more of participants are presented[4]. The open-ended questions were coded in their entirety. Participant responses could be coded into several mutually exclusive codes, therefore percentages in the two tables do not add up to 100.

3. Results

The results will be presented by outlining the perceived barriers and facilitators for switching. Quotes from the surveys were drawn upon to exemplify the themes.

3.1. Integration

3.1.1. Prevalence of cannabis use
Perceptions of peers' lifetime use ranged from 1 to 100% with an average of 81.38% ($SD = 17.98\%$). Perceptions of peers' regular use ranged from 0 −100% with an average of 35% ($SD = 21.21\%$).

3.1.2. Ease of acquiring cannabis
On the scale of 0 = *not at all easy* to 5 = *very easy*, participants rated the ease of acquiring marijuana at 3.89 ($SD = 0.86$), on average, with both the mean and mode being 4.

3.2. Facilitators for switching

Table 1 below outlies the main themes around facilitators which were uncovered and each are discussed in turn.

3.2.1. Safety
Safety was the main factor perceived to encourage switching, e.g., *"Safer as industry would be regulated"*, including knowing product potency, e.g., *"Regulated so they understand the potency, strength"*, product quality, e.g., *"Know that it must reach a quality threshold"*, and that the product isn't laced, e.g., *"…not laced / influenced by other illicit drugs or nasty chemicals"*. Safety was also linked to a trustworthy source, e.g., *"You are buying from a trustworthy source"* and not having to engage with

Table 1
Main facilitators for switching and percentages.

Theme	Sub Themes	Key Terms	%
Safety		Know THC content; safer; not laced, no pesticides; no drug dealers	63.1
	Safer, not laced, no pesticides		41.8
	Safer (no explanation)		15.1
	Safer no drug dealers		11.0
Cheaper		Costs less; cheaper; lower price	42.7
Legal, no risk of convictions		No risks of punishments or legal consequences	35.3
Accessible		Easier to access and more accessible	32.3
Product Diversity		Types; Strains; Variety	14.2

Table 2
Main barriers to switching and percentages

Theme	Sub-Theme	Key Terms	%
More Expensive		Price, costs more, more expensive	66.4
Judgement		Stigma, embarrassing, ashamed, shame, lack of anonymity	36.0
Regulation		Regulation / surveillance / user records, quality / less THC, limits on quantity, age limits	28.9
	Quality / less THC		11.7
	Regulation / surveillance / user records		10.8
	Quantity limits		11.7
Loyal to dealer, dealer a friend		Commitment, loyalty, dedication, relationship	27.2
Less accessible		Inconvenient store locations / hours, no deliveries, more hassle	13.2

illicit suppliers, e.g., *"They don't have to deal with dodgy dealers"*.

3.2.2. Cheaper
Students perceived people would switch to a licit source if it was cheaper than illicit sources, e.g., *"If it was cheaper"; "Better value"; "Lower price than on the street"*.

3.2.3. Legal, no risk of conviction
Avoiding possible legal consequences of the illicit market was offered as a reason to switch to a licit market, e.g., *"No risk of conviction"*, including no longer having to break the law, e.g., *"Would mean you don't have to break the law"* and thus removing guilt, e.g., *"Legal – won't feel as guilty as getting weed through an illegal process"*.

3.2.4. Accessible
Accessibility was another reason offered for switching, e.g., *"Less of a hassle / easier"*. Hours of operation were noted as an important factor, e. g., *"Accessibility – being available during day hours at all times – similar to alcohol licensed stores"*.

3.2.5. Product diversity
Product variety was also a reason for switching. This predominantly pertained to variety in strains and strengths, e.g., *"Access to different strains"; "different strengths / highs"* and a variety in products, e.g., *"Maybe more variety in products"; "Other options for consumption e.g., edibles"*.

3.3. Barriers to switching

Table 2 below outlies the main themes around barriers which were uncovered, and each are discussed in turn.

3.3.1. More expensive
Many students stated that if a licit source was more expensive it would prevent people switching, e.g., *"Prices – won't pay more for same product if [its] still available on [the] black-market"*. Tax was mentioned as a factor that would push prices up, e.g., *"High taxes ramping up prices. Might go back to illegitimate dealers"*.

3.3.2. Judgement
Following price, judgement due to stigma was the next most mentioned reason perceived to prevent switching, e.g., *"Feel more judged than buying it off a dealer"; "Embarrassment"*. Embarrassment was linked to a perceived lack of anonymity, e.g., *"Not wanting to be seen in a labelled marijuana shop due to social stigma"; "People might be afraid to buy it in public – want to keep their hobby under wraps"*. The private nature of illicit

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[4] To examine the reproducibility of the results, subsampling with multiple random samples (e.g., Finifter, 1972) was conducted and the effect on reproducibility was negligible.

channels was perceived favorably, e.g., *"Wanting to acquire it in a more private setting rather than in public"; "Drug dealers often meet in cars/homes if they become friends so it's often discrete while if you buy from a licensed premise, it's more open"*.

3.3.3. Regulation

Regulation was noted to prevent switching, e.g., *"… more steps to purchase – ID, restriction etc. "; "Poor legislation that is exclusionary and too restrictive",* and surveillance or record keeping, e.g., *"People may feel as though they are being [under] surveillance when they buy from a legal premise"; "Distrust on the system- don't want it on their personal record they have brought marijuana"*. Regulation was also perceived to lower the strength of cannabis, e.g., *"Strength, if THC content is regulated people may seek stronger strains on the black market"* and impose quantity limits, e.g., *"Being limited to a certain amount at each purchase"*.

3.3.4. Loyal to dealer, dealer a friend

Students stated that existing relationships with current dealers could prevent switching, including a sense of commitment, e.g., *"Commitment to other dealers",* loyalty, e.g., *"Loyalty to current suppliers",* and obligation, e.g., *"May feel obliged to keep going to who they know"*. Students perceived that people might want to continue to fund their friends, e.g., *"Would rather fund mates"; "Profit goes to large companies rather than to the bros"*. Students also recognized that existing behaviors can prevent switching, e.g., *"Habit from buying from friends etc."; "…difficult to change habits"*.

3.3.5. Less accessible

Limited access to licit cannabis was noted as preventing switching, including inconvenient locations, e.g., *"Limit on outlets locations creating greater inconvenience",* store hours, e.g., *"… not able to get it any day / time if restrained to when a licensed premise is open",* and a perceived a lack of deliveries, e.g., *"You have to go pick it up, no drop off"*. Purchasing legally was perceived to be inconvenient compared to purchasing illegally, e.g., *"Easier to get it in other ways"; "Not as easy and convenient as snapchat etc., licensed premises may not drop off"; "Ease of organizing drugs (i.e., texting)"*.

4. Discussion

There is a move worldwide to legalize recreational cannabis, but legalized markets must compete against illicit markets (Fischer, 2017). This study addresses calls to identify factors that would tip people in favor of a licit market (Amlung and MacKillop, 2019; Kilmer et al., 2019) and in doing so, we offer policy recommendations for minimizing the illicit market, whilst trying to minimize harm through legalization. This is the second empirical study to identify perceptions of the barriers and facilitators to switching to a licit cannabis source. The findings confirmed previously identified facilitators (safety, cheaper price, accessibility; Fataar et al., 2021) and, importantly, uncovered new facilitators (e.g., product diversity), and unique barriers (e.g., judgment from a lack of anonymity, and loyalty to current suppliers) that will need to be overcome to facilitate switching. The respondents' perceptions were pertinent for identifying the facilitators and barriers to switching, as the illicit use of recreational cannabis was integrated into their culture. Specifically, students reported that 81% of their peers had used cannabis, 35% used regularly, and acquiring cannabis through illicit sources was perceived to be easy, like past research (Robertson and Tustin, 2020).

Unsurprisingly, price was perceived to be a primary driver of choice between sources. The finding aligns with Fataar's et al. (2021), behavioral economic models (Amlung and MacKillop, 2019; Childs and Stevens, 2020) and with reports in popular media (The Canadian Press, 2020). Competing on price poses significant challenges for policy makers. As noted by others, limiting taxes might reduce the illicit market, but increase harm (Caulkins et al., 2012; Wilkins and Rychert,

2020), by expanding use due to affordability, and reducing tax revenue which could be used to provide drug education and counselling. Given policies to legalize cannabis are constrained in price competition, it is noteworthy that although price was perceived to be the main barrier preventing switching, it was not perceived to be the main facilitator for switching. Furthermore, our findings revealed several other barriers, beyond price, which could be overcome.

Regulation was perceived to represent a significant barrier to switching, specifically: THC strength, surveillance/records and quantity limits. Whilst competing on THC strength might actively go against harm minimization strategies, legalization policies could consider limiting quantity constraints and surveillance/records. Furthermore, the need to limit surveillance/records aligns with our novel finding that judgement, shame, and lack of anonymity were perceived barriers to using licit channels. The perceived lack of anonymity of licit markets were judged unfavorably compared to the private nature of illicit channels where supply was described to take place in cars or the home, confirming speculation from the popular press (Fuller, 2019). These findings clearly show potential customers value being able to purchase anonymously. Thus, a legal market structure that offers anonymity might compete more effectively with the illicit market. The findings also resonate with research in Uruguay which has shown the requirement to register for licit cannabis has prevented users switching (Boidi et al., 2016).

Limiting restrictions on quantity limits might also help to overcome the perceived limited accessibility of licit markets, and, that store locations might be inconvenient and service hours might be limited. Accessibility of licit channels were also evaluated unfavorably compared to illicit channels; students reported that people use text messaging and social media to order deliveries through the illicit market. Although some countries and states allow online purchasing and delivery, this service actively goes against a harm minimization strategy as it could expose underage people to cannabis. Thus, rather than offering online sales and deliveries, regulation could limit restrictions on the quantity of single purchases to reduce the frequency with which people have to source the product. Although researchers have speculated that if maximum single purchase amounts are too high it could lead to legal cannabis being illegally re-sold (Boidi et al., 2016).

The final barrier to switching was the perceived loyalty and allegiances people have with their existing suppliers. Suppliers in the current study were often described as friends and acquaintances, confirming popular media reports (Quan and Edmiston, 2018). Concordantly, only 11% of the sample discussed avoiding 'drug dealers' as a benefit of the licit market. These findings suggest that illicit cannabis is more likely to be acquired thorough social supply rather than 'drug dealers', per se. Thus, current relationships within illicit markets will pose a significant hurdle to policy makers. Related to this, students noted the difficulty of changing habits, stating that people are likely to stick with what they know. We speculate that regulation could overcome these barriers by permitting illicit suppliers to enter the licit market and ensuring barriers to entry are not unsurmountable, thus, enabling existing relationships to endure. Subsequent research is required to explore loyalty to suppliers and how to overcome this barrier in greater depth.

In terms of the perceived facilitators for switching to a licit source, our findings revealed two novel facilitators, namely, avoiding criminal arrest/conviction, and the possibility of increased product diversity (e. g., different strains/edibles). The perceived benefits of product diversity confirm speculation in commentaries (e.g., Fischer et al., 2016), and has important policy implications for countries/states considering heavily regulating the market and banning diverse products. We also confirmed three facilitators identified by Fataar's et al. (2021), specifically, price, increased accessibility, and increased safety. Our analysis by sub-theme revealed perceptions of safety largely pertained to the benefit of knowing that the product would not be laced or contain pesticides, confirming previous speculation on the benefits of legalization (Cousijn,

2021; Meacher et al., 2019).

Importantly, increased safety was the primary facilitator for switching. Thus, we suggest that legalization could facilitate tolerance for price differentials between the illicit and licit market by implementing education and public health messaging reinforcing the perceived safety benefits of a legalized product. Policy makers considering banning advertising should consider the impact of such a ban on public health messaging. Furthermore, accessibility and avoiding criminal arrest/conviction were far less likely to be mentioned than were the benefits of product safety (almost half as likely to be mentioned). Given the strength of the illicit market, our findings reveal it is critical for regulation to ensure the licit market can overcome barriers to switching (i.e., the perceived benefits of the illicit market), whilst embracing factors perceived to facilitate switching. These findings are corroborated by the integration of illicit recreational cannabis in our sample's culture, previous research showing illicit cannabis use is common in NZ (Poulton et al., 2020) and research showing that the law does not deter use (Robertson and Tustin, 2020). Our findings match anecdotal evidence from the media and are in line with observational studies. Although legalisation is in its early stages, and it is too early to conclude what will tip users in favour of a legal market, Fisher et al (2020) [a] report tentatively that in the US charges for possession have declined amongst users of legal age, and there is price competition between the licit and illicit market. Fisher et al (2020)[a] also note that in Canada, the legal market provides diversified products, varying in potency, composition and mode of use. However, the authors caution against extrapolating findings from one context and applying it to another due to differences in the sociocultural-behavioural ecology, hence the need for culturally specific research

4.1. Limitations

The findings of this study must be interpreted considering the limitations. The nonprobability method of purposive sampling elicited frank responses on a sensitive topic as intended, however, the use of this method also means we make no claims to the representativeness of the findings, to all students, other Universities or the general population. We call for future research to examine whether these findings are true elsewhere. Similar to previous research, responses were based on a hypothetical scenario (Amlung and MacKillop, 2019; Benfer et al., 2018) because recreational cannabis is illegal in NZ; however, this was also a strength because it ensured perceptions were not limited or shaped by, existing legislation policies. We call for future research to employ other methods to examine the actual impact of the features identified in this study in practice.

5. Conclusion

Licit cannabis markets need to compete with well-established and thriving illicit markets (Mahamad and Hammond, 2019). Our qualitative research extended the founding paper by Fataar's et al. (2021) to show additional barriers to switching from an illicit to a licit supply. However, the findings also offer promise for how the licit market could compete with the illicit market, and importantly, these factors may not act against harm minimization goals. Specifically, by competing on product safety, product diversity, and quantity limits whilst at the same time reducing surveillance and record keeping, locating stores in accessible yet discrete locations, and removing barriers to entry so that illicit suppliers can enter the market and maintain their existing relationships. The findings provide knowledge on factors that might speed up or limit the speed of transition to legalized cannabis markets and inform policy regulation.

CRediT authorship contribution statement

Kirsten Robertson: Conceptualization, Formal analysis, Methodology, Validation, Writing – original draft. **Maree Thyne:** Methodology, Validation, Writing – review & editing.

Declaration of Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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