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Growing medicine: Small-scale cannabis cultivation for medical purposes in six different countries

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Abstract

The production and consumption of cannabis for the treatment of medical conditions and ailments is of increasing importance internationally. In many EU countries, and especially in several states in the US, the medical use of cannabis has acquired an acknowledged and regulated status as a treatment for a variety of illnesses (e.g. Grotenhermen, 2002; Geluardi, 2010). By creating a category of licit (medicinal) cannabis use with varying levels of regulatory controls, such developments also blur the boundaries between illegal and legal and challenge the ideology of prohibition in drug policy. Indeed, this can clearly be seen in studies of small-scale cannabis growing.

Previous studies in Belgium (2006), Denmark (2008) and Finland (2009) have respectively found that 2 %, 24 % and 59 % of cannabis growers accessed gave 'medical use' as a reason for growing (Hakkarainen et al., 2011). However, these surveys do not provide additional detail about the underlying medical conditions or reasons for this medical growing. Although qualitative interviews have shown that medical use of cannabis is a strong moral justification for small-scale growing (Hakkarainen & Perälä, 2011) as well as how, why and for what illnesses cannabis is used and grown (Dahl & Frank, 2011), it is still a very under-researched topic, especially from a comparative perspective.

The present paper is based on web surveys conducted in several countries, designed to be able to compare data on cannabis growers (see Barratt et al., 2012). These surveys include detailed questions about growing cannabis for medical purposes, as for example: For which types of illnesses, injuries or conditions do you use cannabis as medicine? Who has diagnosed these illnesses, injuries or conditions? Has the use of cannabis been suggested, recommended, prescribed or refused by a doctor? As a starting point this paper reports first results on these questions, in a comparative analysis of samples of growers from six different countries: Finland, Denmark, Belgium, Australia, Germany and the UK.

Introduction

The use of cannabis and cannabis-based preparations for therapeutic purposes goes far back in time and has been known in many cultures all over the world (Aldrich, 1997; Russo, 2007). Ancient Chinese and Indian sources document cannabis as a central ingredient for treating a wide range of diseases, including effectiveness in relation to pain, insomnia, depressions and infections, and so does more sporadic references found in Greek and Roman literature, e.g. from the historian Herodot around 450 BC and the Greek physician Galen in the 2nd century.

Cannabis did not, however, play any significant role in the West, neither as medicine nor stimulant, until 19th century when it became a popular ingredient in medicines and commercial preparations in Europe and the United States (Aldrich, 1997; Grinspoon & Balakar, 1997). It also became recognized within Western school medicine when William B. O'Shaughnessy, an Irish medical doctor stationed in Calcutta, India, in 1839 published his groundbreaking study "On the Preparations of the Indian Hemp, or Gunjah", reporting success in treatment of rheumatism, rabies, cholera, tetanus, convulsions and delirium tremens (Grinspoon, 2001; Frankhauser, 2008). However, by the end of the century, cannabis was already falling out of favor because the potencies of the preparations were too variable and individuals had different reactions, but not least because it was replaced by new synthetic pharmaceuticals such as aspirin and barbiturates (Fankhauser, 2008).

The status of cannabis drastically changed in 1961 when it was included under the international narcotics control and classified in Schedule I of the Single Convention, which describes it as having only a limited medical value but a high potential for abuse. This turned out to be the end of the early history of medical cannabis.

However, a revival of interest in medical cannabis in the 1990s initiated a new phase in its history. Firstly, a social movement developed which fought for legal access to medical cannabis. In the USA, where the movement has been most visible and powerful, an influential argument in medical cannabis advocacy was to apply cannabis in the treatment of AIDS patients. In national polls in 2010, nearly 80 per cent of Americans supported medical marihuana. (Geluardi, 2010.)

Secondly, the pressure created by the medical cannabis advocacy has led to changes in official policy. In California, USA, the acceptance of the proposition 215 legalized medical marijuana in 1996. Even though it was in contradiction with federal statutes and there were conflicts regarding implementation, many other states decided soon to follow the example of California (Geluardi, 2010). In 2013, altogether eighteen states and DC have legalized medical marijuana use in the USA. Time Magazine reported in 2010 that, according to the Congressional Research Service, there were 369,634 legal marijuana users in the country

(How Marijuana…, 2010). But, changes in policy have not limited only to US. For example, Israel and a few countries in Europe (the Netherlands, Italy and from April 1st 2013 Czech Republic), have introduced or regulated laws that accept use, distribution, cultivation and possession of herbal cannabis for medicinal purposes. In Europe, states may have also founded or licensed companies to produce herbal cannabis for therapeutic purposes to supply this new market. On the other hand, the use of cannabis products for medicinal purposes has = garnered interest from the pharmaceutical industry who have developed alternatives products to herbal cannabis which could be licensed under existing regulations and aim to address some of the concerns about herbal cannabis (dosage, intoxication, smoking as a route of administration and more recently the CBD:THC ratio). Indeed, since the mid-1980s synthetic THC (dronabinol, marketed as Marinol®) has been available in some countries for specific medical conditions. Since 2004, Sativex, a plant-based extract has also been available in a number of countries as a registered pharmaceutical product.

Thirdly, in addition to these social pressure and policy changes over the last couple of decades a growing body of research on the therapeutic value of cannabis has been published, making medicinal use of cannabis an increasingly debated topic (e.g. Grant et al., 2012; Kalant & Porath-Waller, 2012). The ingestion of delta-9-THC (the main active ingredient in cannabis) has been recommended as therapeutically effective for instance in relation to reducing muscle spasticity in patients suffering from multiple sclerosis (see CMCR, 2010). Furthermore, the special working group of American Medical Association concluded that "short term controlled trials indicate that smoked cannabis reduces neuropathic pain, improves appetite and caloric intake especially in patients with reduced muscle mass, and may relieve spasticity and pain in patients with multiple sclerosis" (AMA, 2009). Even if the scientific medical community is still divided on the therapeutic effectiveness of cannabis, as the literature on harms of cannabis use is so much more well-established than the literature on potential therapeutic benefits, the growing body of medical evidence backing therapeutic claims is challenging the classification of cannabis in Schedule I drugs (AMA, 2009; CMCR, 2010).

Since the 1960s and 1970s researchers have studied cannabis use among individual users, with a focus on recreational use and especially on risks and harmful consequences of such use. However, as the recent history of medical cannabis shows, it is worth studying the medicinal use of cannabis, and not only in medicine but in social science too. Is this paper, we present first results on cannabis growing for medical purposes based on a web survey conducted among home growers in Australia, Belgium, Denmark, Finland, Germany and UK (see Barratt et al., 2012). This kind of comparative study on medical growing has not been done previously. However, it should be noted that the results to be presented in this paper are still very preliminary as data collection data not yet finalized in each country.

Social and political context of medical cannabis in participating countries

The official national policy on medical cannabis creates an important context for home growing for medicinal purposes. Medical growing might be, at least partly, seen as a reaction to state regulation, especially in cases when a person is growing only for medical purposes. However, according to a previous Finnish survey most of the medical growers were cultivating not only for medical purposes but also for other purposes like getting high or having fun (Hakkarainen et al., 2011). Anyway, it is also reasonable to scrutinize their growing activity against the background formed by the national policy on medical cannabis. Regulations and practices in participating countries are as follows.

In *Australia*, medical cannabis is not officially available. The largest state of Australia, New South Wales, is currently conducting a public inquiry into the use of cannabis for medical purposes. Such inquiries have been previously conducted, but there have never been any laws in place in Australia that would allow the provision of cannabis for therapeutic use.

In *Belgium*, at the political level, the federal government issued a Royal Order on July 4th 2001 that regulates the conditions on the delivery of medicines containing one or more tetrahydrocannabinols (THC). This law was developed to enable scientific research on THC in order to investigate its therapeutic value and safety. According to the Federal Agency for Medicines and Health Products, five clinical trials with medicinal cannabis (as a fluid extract) were undertaken since 2004. Furthermore Sativex, a cannabinoid nasal(?) spray, has been licensed in Belgium since 21/08/2012, but it hasn't been commercialised yet. Scientific meta-analyses of international research on the efficacy and functionality of medicinal cannabis use, commissioned by the Belgian Science Policy Office, have demonstrated certain reluctance towards the medicinal use of cannabis, because of the perceived ambiguity of evidence regarding effectiveness and the presence of undesirable side effects.

In practice, this means that Belgians with professionally diagnosed diseases can go to a doctor and try to get a prescription for cannabis, and then go to a Dutch pharmacy[1]. Dutch pharmacies will often deliver the medical cannabis products in the Netherlands, but when a Belgian patient brings back this cannabis into Belgium, he is guilty of drug possession and import. Moreover, patients will have to look for a general practitioner who wants to prescribe it, because most Belgian practitioners appear to be not in favour of cannabis, and are reluctant to prescribe it. Given the absence of a legal framework, many people fall back

[1] Medicinal Cannabis has been available on prescription in the Netherlands since September 2003. The cultivation of cannabis for medicinal use has been legally permitted since 17 March 2003 when the latest amendment to the Dutch opium laws came into effect. Since the first of March 2005 Bedrocan BV is the only company contracted by the Ministry of Health, Welfare and Sport for the cultivation and production of medicinal Cannabis. At the moment, Bedrocan produces 4 types of medicinal cannabis: Cannabis Flos Bedrocan®, Bedrobinol®, Bediol® and Bedica®.

on ‘self-medication’: they either grow it themselves, buy cannabis on the black market or from friends. Until recently they could also go to the Dutch coffeeshops, but because of the recent new regulation that coffeeshops can no longer sell to foreigners, this has become impossible.

In *Denmark*, medical cannabis is officially available, but can only be dispensed when certain conditions are met. Sativex was approved in June 2011 for treating spasticity caused by multiple sclerosis (MS) and Marinol (Dronabinol), synthetic Delta-9 THC–tablets from September 2003. In principle, both the prescription of Marinol and Sativex must be approved by specialist doctors in neurology and neuro-medicine. Officially, multiple sclerosis is the prime reason, but also AIDS and terminal cancer patients in need of the palliative effects have been prescribed Marinol. Individual patients can only be prescribed cannabis medicines for a limited period of time (one year), while certain hospital departments (typically oncology departments) may have permissions for 5 years. According to the Danish Health Ministry there were 1700 Marinol dispensing permissions in Denmark from 2002–2009. According to The Sclerose Society, Sativex costs around 1,000 Euros a month per patient.

In *Finland*, in 2006 the medical officials for the first time allowed a pharmacy to import medical cannabis (Bedrocan) for an individual person. First the medical authorities denied the application but this decision was overruled by the local administrative court. Today medical cannabis is available but it is strongly regulated as it needs a special permission from authorities and a prescription from a specialist in neurology. As in Belgium, Sativex mouth spray is licensed in Finland since 2012, but it hasn’t been commercialised yet. Sativex is only meant for the treatment MS-patients who have failed to get benefit from using other medicines. In 2011, there were no more than four patients getting Sativex. However, herbal products (e.g. Bedrocan, Bediol) have been more popular. In 2012, altogether 62 people had a special permission for medical cannabis. Although people with severe impairment are now able to get medical cannabis for their illnesses there has been criticism, for example among the MS patients, that it is excessively expensive for an individual.

It is interesting to note that in a nationwide population survey in 2010, a large minority (40 %) of the general public in Finland supported legal access to medical cannabis (Hakkarainen, Perälä & Metso, 2011). In young age groups around one-quarter of the respondents took even the view that cannabis should be used for medical purposes by allowing the growing of cannabis in homes.

In *Germany*, the request for legal access to cannabis products for medicinal purposes has gained increasing attention by the research community, the media, politicians, health officials, patient organizations and advocacy groups like the Association for Cannabis as Medicine (ACM) from the mid-1990s (Grotenhermen, 2002). The availability of medical cannabis products has also improved. Since 1998 dronabinol (synthetic

THC) was made available on a narcotics prescription, and in April 2000 the German company THC Pharm received the approval to make it available to pharmacies. In 1998 dronabinol was rescheduled from annex II to annex III, whereas Δ^9-THC is still listed in annex I. However, dronabinol is at least ten times more expensive than illegal marijuana, especially when the health insurance providers do not reimburse the costs (ibid.). In February 2008, seven German patients were legally treated with natural cannabis, distributed by prescription in pharmacies. In December 2012 a court in Germany ruled that seriously ill patients may grow their own cannabis for medicinal uses. Patients who wish to take part can apply to the Federal Institute for Drugs and Medical Devices (BfArM) for permission to treat themselves with homegrown marijuana, with use monitored by a medical doctor.[2]

In the *UK*, there is no medical cannabis in raw/natural form except for a few ongoing trials. There are some cannabis medicines available - Sativex being the most common, prescribed exclusively for MS. There are ongoing trials of synthetic cannabis medicines for other conditions. All cannabis used for medical trials - whether 'raw' or to extract certain active ingredients - comes from GW Pharmaceuticals in the UK under license from the Home Office. However, a UK survey conducted among chronically ill patients over the period 1998–2002 (N=3,663) shows many severely ill people were using herbal cannabis for medical purposes despite its illegal status (Ware et al., 2005). In legal practice, the use of cannabis medicinally is accepted as a mitigating factor under Sentencing Council guidelines, if it is being cultivated or found in possession of someone.

A simple conclusion from this review is that the revival of medical cannabis has challenged national drug policies, but at the moment the official policy around medical cannabis in these countries is still in the formative phase. In this context it is important to produce research based knowledge from different perspectives and about different aspects of the phenomenon.

Aims of the study

In research reports, media and activities on social media it is clear that there is a growing population of people who use cannabis medicinally. However, little is known about them. This is the case for the official patient population (Reinarman et al., 2011), but even more so for users who self-medicate and/or define their use or part of their use as medical. In the current situation imposed by severe restrictions and legal barriers many users seem to have turned to home-growing or to rely on home-grown supplies from others.

[2] Information retrieved from internet 21.4.2013 (http://www.tokeofthetown.com/2012/12/german_medical_marijuana_patients_allowed_to_grow.php).

Previous studies in Belgium (2006), Denmark (2008) and Finland (2009) have respectively found that 2 %, 24 % and 59 % of cannabis growers accessed gave 'medical use' as a reason for growing (Hakkarainen et al., 2011). However, these surveys do not provide additional detail about the underlying medical conditions or reasons for this medical growing. Although qualitative interviews have shown that medical use of cannabis is a strong moral justification for small-scale growing (Hakkarainen & Perälä, 2011) as well as how, why and for what illnesses cannabis is used and grown (Dahl & Frank, 2011), it is still a very under-researched topic, especially from a comparative perspective.

The present paper is based on web surveys conducted by the Global Cannabis Cultivation Research Consortium (GCCRC) in several countries, designed to be able to compare data on cannabis growers (see Barratt et al., 2012). Detailed questions regarding cannabis cultivation for medical purposes were asked in six participating countries, Australia, Belgium, Denmark, Finland, Germany and the UK. This creates for us an opportunity to study and compare weather, and in what ways, the small-scale growers cultivating cannabis for medical purposes are alike in different national contexts.

It should be noted that we do not intend to prove or disprove the medical effectiveness of cannabis, but provide insight into the therapeutic aspects of its use and growing.

Methods

The basic questionnaire included 35 items on: experiences with growing cannabis; methods and scale of growing operations; reasons for growing; personal use of cannabis and other drugs; participation in cannabis and other drug markets; contacts with the criminal justice system; involvement in other non-drug related illegal activities and demographic characteristics. The questionnaire also included items to test eligibility and recruitment source. All countries used that basic set of items, called the International Cannabis Cultivation Questionnaire, ICCQ (Decorte et al., 2012), but many countries also added their own additional items or modules.

Detailed questions about growing cannabis for medical purposes were asked in six countries. These questions included items as follows: For which types of illnesses, injuries or conditions do you use cannabis as medicine? Who has diagnosed these illnesses, injuries or conditions? Has the use of cannabis been suggested/recommended/prescribed or refused by a doctor?

In order to recruit as varied a sample of cannabis growers as possible, a broad-based recruitment strategy and techniques were applied. However, it is important to acknowledge the limitations of the internet-based research methods reported here. Most importantly, samples of cannabis cultivators are volunteers, and not all cultivators have an equal chance of being included in the sample, resulting in coverage error. Our findings, therefore, cannot be said to represent all cannabis growers. While all cannabis growers of at least 18 years of age were eligible to participate, we expect to access mainly small-scale cultivators.

The methodology of the GCCRC study has been described in some depth elsewhere (Barratt et al., 2012). A more detailed description of the method and data is also given in the paper "Global patterns of domestic cannabis cultivation: a cross-national analysis of sample characteristics and patterns of growing" by Barratt, Potter and Decorte in this conference. However, it should be stressed that data analyzed in the present paper is still unfinished, and therefore, the results we are able to present here are only preliminary.

Prevalence of medical growing

First, the respondents were asked reasons for growing. The respondents were allowed to select as many answers as relevant for describing their motivation for growing from 20 response alternatives. Two of the different response options concerned medical growing. They were (a) "to provide others with cannabis for medical reasons", and (b) "to provide myself with cannabis for medical reasons". The prevalence of medical growing among the study populations in different countries are presented in Table 1.

Table 1. Appearance of medical growing in Australia, Belgium, Denmark, Finland, Germany and the UK, %

			Countries			
Growing for	Australia	Belgium	Denmark	Finland	Germany	UK
medical reasons	(N=572)	(N=1137)	(N=1284)	(N=1310)	(N=1532)	(N=181)
Provide others	18,9	6,1	11,0	16,3	11,5	15,0
Provide oneself	50,9	14,2	29,0	50,8	32,1	45,0

Firstly, as Table 1 suggests, as far as this preliminary analysis goes, medical reasons are offered as an motivation for sizeable proportions of the cannabis growers recruited into the samples in this study. Secondly, even if growing cannabis for medical purposes seems to be relatively widespread practice among the small-scale cannabis growers there were substantial differences between the samples recruited in various countries in the prevalence of medical growing. It was highest among the samples recruited in Australia, Finland and the UK where growing for medical purposes was identified by similar proportions in each of these samples. The samples from Denmark and Germany formed another group with equal stage of prevalence, roughly mid-way between the prevalence reported first group of countries and the sample from Belgium where medical growing was clearly less often reported as a reason for growing. An interesting question is whether the low Belgium figures were due to the fact that those people who have been interested in medical cannabis have been able to buy it from the neighboring country the Netherlands. Thirdly, it was clearly more usual for the samples to report that they grew cannabis to provide oneself, rather than others, with cannabis for medical purposes.

Illnesses, injuries or conditions to be treated with cannabis

We were also interested to know for which types of illnesses, injuries or conditions cannabis was used as medicine. The respondents were offered a list of health problems typically linked to medical cannabis in the literature and an open option to add conditions relevant to them but not mentioned in the list. Results are presented in Table 2.

Table 2. Illnesses, injuries or conditions for which cannabis was used as medicine in Australia, Belgium, Denmark, Finland, Germany and the UK, %

			Countries			
Growing for medical reasons	Australia (N=226)	Belgium (N=313)	Denmark (N=426)	Finland (N=708)	Germany (N=542)	UK (N=?
Multiple Sclerosis	0,4	1,6	3	1,4	2,8	4
Tourette Syndrome	0,4	0,3	3	-	1,7	1
Eye disease (glaucoma)	3,1	0,6	3	2,0	5,5	2
Anorexia	3,5	0,6	4	7,1	11,4	4
Cancer	6,2	0,3*	8	1,6	-	6
Hepatitis	4,4	0	2	-	-	1
HIV/AIDS	0,4	0,3*	1	-	-	1
Nausea e.g. after chemotherapy	4,4	0,3	6	0,1	2,2	4
Parkinson's disease	0,4	0,3	1	0	1,1	1
Chronic pain (e.g. fibromyalgia)	41,2	11,8	37	24,4	41,0	33
Dependence and withdrawal from other drugs	9,3	1,6	7	12,6	5,9	7
Inflammation of the joints (arthritis)	34,5	9,6	16	6,3	9,2	34
Asthma	7,1	2,9	10	13,3	13,8	8
Depression/other mood disorders	50,0	22,7	47	45,6	44,6	51
Anxiety or panic disorders	46,9	0,3*	25	27,3	-	40
Schizophrenia	1,8	0,6*	5	-	-	1
Post Traumatic Stress Disorder (PTSD)	15,0	0,3*	12	-	-	12
ADHD	10,6	5,4	21	20,0	4,2*	10
Hypertension	8,0	0,6	4	5,6	7,4	9
Bowel problems	15,5	1,0*	11	-	1,8*	21
Autism and Asperger's syndrome	5,3	1,0*	5	1,1*	-	5
Migraines and headaches	26,5	1,9*	33	20,5	3,9*	28

*Has not included as a category, but recorded from open option "Others"

-Information is lacking, not included as a category

As shown in Table 2 medical growers were using cannabis for a wide variety of serious illnesses, injuries or conditions. In addition to the categories listed in the questionnaire a great number of different conditions were identified in the open response option “others”. There also were respondents who suffered more than one condition.

The most often named conditions fell into two basic classifications, physical illnesses like chronic pain, inflammation of the joints and migraine/headache on the one hand, and mental syndromes like depression, anxiety and panic disorders on the other. The majority of medical growers were cultivating cannabis for these conditions. In the open response option insomnia and sleeping problems were often mentioned in every country, and actually its prevalence was relatively high, e.g. 12 % in Australia, 9 % in Finland, 7 % in Belgium and 5 % in Germany. Other conditions identified by some respondents were for example hormonal problems, epilepsy and stress.

Moreover, Multiple Sclerosis which is officially seen the most distinctive indication for medical cannabis, was not often mentioned by medical growers in our samples but this was probably just reflecting the underlying prevalence of it in general population. It is also interesting to note that while persons suffering HIV/AIDS patients has been a visible patient group for medical cannabis in the USA (Mack & Joy, 2000; Geluardi, 2010; Reinarman et al., 2011) they were not very prevalent in our data. This surely tells that recruitment to our samples grasped a wider population than represented by the American medical marijuana patients. Similarly, there were a relatively small proportion of respondents reporting cancer or nausea after chemotherapy. On the other hand, the proportion of respondents using cannabis as medicine for depression and other mood disorders was much higher in our data than among American medical marijuana patients (Reinarman et al., 2011). Actually it was the most prevalent category as a reason for growing in all our national samples.

There are some interesting differences between countries. However, methodologically it should be noted that those figures drawn from open response option in some countries are not comparable to those included as a category in questionnaire in other countries. First, figures in Belgium sample seem to be mainly lower than in other countries. This might be - at least partly - due to the lesser amount of response categories in Belgium questionnaire. For example, in the open option “others” there are answers like “neck or back pain” (7 %) which could even been categorized into “chronic pain” category or “stress” (5%) into “anxiety or panic disorders” or “PTSD” categories. Second, anorexia was higher in Finland and Germany than in other countries. Third, Scandinavian growers seemed to use cannabis for the treatment of ADHD more often than growers in other countries. Fourth, inflammation of joints as a reason for growing was much more prevalent in Australia and the UK than in other countries, and same was true for the bowel

problems as well as for anxiety and panic disorders. Fifth, it is interesting to notice that quite a few respondents were growing cannabis as medicine for dependence and withdrawal from other drugs, and in Finland, where the proportion was highest, several people reported using cannabis for managing alcohol problems. Clearly, further analysis of this data is needed before firm conclusions can be drawn from this data.

Relationship to national medical practice

To get to know more about the relationship between medical growers and the national medical practice we included questions concerning diagnoses and orders made by medical doctors. First, we asked whether the illnesses, injuries or conditions suffered by the respondents were diagnosed by a doctor. Second, we were interested in whether or not the use of cannabis as medicine was suggested or recommended by the doctor. Response options were as follows:

a) Yes, the doctor has suggested or recommended use of cannabis as a medicine
b) No, the doctor has refused to recommend cannabis use even though I have asked for it
c) No, the doctor did not suggest or recommend cannabis use and I have not asked for it
d) No, on the contrary, the doctor advised me to avoid using cannabis

As many respondents reported more than one illnesses, injuries or conditions they also might have had different experiences of doctors. Results are presented in Table 3.

Table 3. Medical growers meet doctors, %

			Countries			
Diagnosis and doctor's order	Australia (N=220)	Belgium (N=313)	Denmark (N=375)*	Finland (N=708)	Germany (N=542)	UK (N=?)
Have a diagnosis	90,9	57,5	24	76,7	65,7	72
Doctor suggested cannabis	19,6	14,0	13	6,1	14,8	13
Doctor refused to recommend even though asked for it	6,0	-	5	7,6	-	13
Doctor not recommended and person not asked for it	50,3	-	53	87,6	-	43
Doctor advised to avoid using cannabis	6,5	-	7	10,6	-	4

*Only those who grow for own medical purposes

- Not asked

As Table 3 shows a great majority of the medical growers had a diagnosis which confirms the observation that they were suffering serious and medically established maladies. The only exception to this pattern was Denmark where barely one fourth of the medical growers had a diagnosis. On the other hand, in Australia this was the case for nine out of ten. But it is also the case that between 43 and 88% of the time, depending on country, the issue of 'treatment' of the medical condition with cannabis was not raised by or discussed between the doctor and patient, so the role of cannabis in the treatment is solely the prevue of the individual 'patient' rather than a clinical decision.

The most usual practice among growers was not to ask for cannabis from a doctor. In Finland this was the most obvious, perhaps due to the strictly restrictive drug policy tradition in the country (Hakkarainen et al., 2007). However, in Australia, growers reported that a doctor had suggested or recommended cannabis for one fifth of the medical growers, even though there is no official medical cannabis provision in that country. In Finland this share was clearly lower than in other countries. In the UK, 13 % of medical growers reported that their doctor had refused to recommend even though they had asked for it. Less than ten % of the medical growers were using cannabis against doctor's advice.

Whilst noting that this is only a preliminary analysis and that there is more work to be done understanding these figures they raise a number of questions including:

(1) What is the role of policy with regards to medical cannabis in the decisions that people make with regards to using the drug for 'medical' purposes?

(2) What relevance do these findings have for the status of cannabis as an approved treatment option for some of these conditions?

(3) According to the self-reporting significant proportions of the growers in these samples are using cannabis for treatment of conditions, which research suggests can exacerbate those conditions (e.g. depression, anxiety, psychosis). Whilst acknowledging that there is some disagreement in the literature regarding the role of anxiolytic affects from CBD and the implications for treatment of such disorders, what are the implications of these findings?

(4) Significant proportions of the sample are using cannabis to treat pain related disorders, yet such conditions rarely get mentioned in conditions for which cannabis is approved as medicine. Whilst there appears to be some formative work on cannabis as an analgesic, clearly this is an area for further research.

(5) We need to note that this is self-report data and it may be that there are policy, law-enforcement and social desirability related reasons whilst some cannabis growers and users may give medicinal reasons for why they grow and consume cannabis.

This preliminary analysis of the existing data from this web-survey of cannabis growers in six of our nine countries gives an insight into the relevance of future findings for questions regarding the use of cannabis for treatment of medical conditions. We will continue with our analysis and hopefully contribute further useful data to this increasingly important area of drug policy in the near future.

Discussion

As noticed the results presented in this paper are still preliminary and partly based on unfinished data gathering in some countries. However, some general observations from the data may already be worthy of discussion.

First, the majority of medical growers in these six countries report cultivating cannabis for serious illnesses, injuries and conditions. The majority of them report having an official diagnosis. Hence, they are suffering medically established maladies that are treated and cured through illicit activity. This finding suggests that

there is a wider demand for an official and licit access for medical cannabis than available in these countries today. Another interpretation is that medical cannabis users are moderating the risk of legal ramifications by claiming the benefits from its use in the management of their medical condition (Swift, Gates and Dillion, 2005). In that kind of contradictory situation the benefits from cannabis might even be over-emphasized.

The medical marijuana patient study done in the USA indicates that around half of patients are using marijuana as a substitute for prescription drugs (Reinarman et al., 2011). Even though cannabis might not be that effective as analgesic in pain relief as the strongest pharmaceutical pain killers it has less unpleasant side effects than they usually do (Swift, Gates and Dillon, 2005; Dahl & Frank, 2011). Less is known about whether there is a same kind of criticism behind the use of cannabis for mental disorders. This may also reflect mistrust against psychopharmaceuticals in general beliefs. Furthermore, it has recently turned out that the efficacy and science of psychopharmaceuticals has become increasingly uncertain. For example, it has been argued that anti-depressants have little more than a placebo effect (Greenslit & Kaptchuk, 2012).

Of course, the adverse psychoactive effects of cannabis as medicine, like mental discomfort and confusion, dizziness, space and time distortion and feelings of anxiety and fear, has also been known for a long time (e.g. Frankhauser, 2008). We didn't ask about these from our respondents, which is one evident limitation of our study.

One debatable issue in medical cannabis use is its relationship to recreational use. For example, in the previous Finnish survey most of the medical growers were cultivating not only for medical purposes but also for other purposes like getting high or having fun (Hakkarainen, Perälä & Metso, 2011; see also Dahl & Frank, 2011). Invoking medical purposes may also be seen as a neutralization of the stigma created by the illegal social position of cannabis or as a legitimation of the illicit action since growing for medical purposes is not that easy to prejudge as growing for pleasure and recreation. If this being the case, it can be hypothesized that people in countries with a harder cannabis control or more negative public attitudes toward cannabis may tend to justify their activity with medical purposes more than people in countries with a more lenient control and public attitudes. However, as Reinarman et al. (2011, p. 134) emphasis, "it is not clear where a border line between medical and nonmedical marijuana or other drug use might be drawn nor how it might be effectively policed".

Differences found between countries raises some interesting questions. First, how to explain that medical growing was so clearly more prevalent in Australia, Finland and the UK than in other countries? Is it somehow reflecting differences in national drug policies. For example, Finland is running a harsher drug policy against users and home growers than Denmark and Belgium do (Athey et al., in press). Or, is it a

reflection of the different sampling strategies and resultant sampling compositions, or a reflection of different cultures around the most effective justifications for cannabis use in those countries? Second, are there any special motives behind the higher prevalence of inflammation of the joints, anxiety and bowel problems as reasons for growing among Australian and British medical growers? Third, what explains the higher Scandinavian prevalence in ADHD or German and Finnish shares in anorexia?

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