AN ANALYSIS OF APPLICANTS PRESENTING TO A MEDICAL MARIJUANA SPECIALTY PRACTICE IN CALIFORNIA

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Abstract

For more than a decade, medical marijuana has been at the forefront of the marijuana policy debate in the United States. Fourteen states allow physicians to recommend marijuana or provide a legal defense for patients and physicians if prosecuted in state courts; however, relatively little is known about those individuals using marijuana for medicinal purposes and the symptoms for which they use it. This study provides descriptive information from 1,655 patients seeking a physician's recommendation for medical marijuana, the conditions for which they sought treatment, and the diagnoses made by the physicians. It presents a systematic analysis of physician records and patient questionnaires obtained from consecutive patients seen during a three month period at a medical marijuana specialty practice operating throughout the state of California. The analysis yields a number of insights that may be useful for future research on medical marijuana and marijuana policy, including: 1) The most common diagnoses reported were for chronic pain, mental health conditions (primarily anxiety and depression), and sleep disorders; and 2) 50% of the applicants reported using marijuana as a substitute for prescription drugs.

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SPECIALTY PRACTICE IN CALIFORNIA

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ABSTRACT

For more than a decade, medical marijuana has been at the forefront of the marijuana policy debate in the United States. Fourteen states allow physicians to recommend marijuana or provide a legal defense for patients and physicians if prosecuted in state courts; however, relatively little is known about those individuals using marijuana for medicinal purposes and the symptoms for which they use it. This study provides descriptive information from 1,655 patients seeking a physician's recommendation for medical marijuana, the conditions for which they sought treatment, and the diagnoses made by the physicians. It presents a systematic analysis of physician records and patient questionnaires obtained from consecutive patients seen during a three month period at a medical marijuana specialty practice operating throughout the state of California. The analysis yields a number of insights that may be useful for future research on medical marijuana and marijuana policy, including: 1) The most common diagnoses reported were for chronic pain, mental health conditions (primarily anxiety and depression), and sleep disorders; and 2) 50% of the applicants reported using marijuana as a substitute for prescription drugs.

1.   INTRODUCTION

Medicinal marijuana has been at the forefront of the marijuana policy debate in the United States for almost 15 years. As of July 2010, fourteen states allow doctors to recommend marijuana or provide medical marijuana users with a medical necessity defense if they are prosecuted in state courts (NORML, 2010). There is a small literature about whether these laws influence the overall demand for marijuana (Gorman & Charles, 2007; Pacula et al., 2010) and a tremendous amount of public discussion about how medicinal marijuana is distributed. This is especially true in California where the City of Los Angeles is in the process of shutting down over 400 dispensaries (Hoeffel, 2010a) and the City of Oakland recently approved licensing four industrial-scale growing facilities for medicinal marijuana (Hoeffel, 2010b).

What remains largely missing from the literature and policy discussions is a good understanding of the individuals who are actually seeking marijuana to treat medical conditions and/or relieve symptoms. This paper helps fill this gap by systematically evaluating the characteristics, ailments, and medical histories of a large group of patients seeking medicinal marijuana allowances. Data are collected from medical charts and doctor interviews with 1,655 patients seen in June, July and August of 2006 from nine MediCann clinics dispersed throughout California.[1] The results provide some interesting insights as to the characteristics of patients seeking medicinal allowances more than a decade after the policy was introduced in California.

The remainder of this paper is organized as follows. In Section 2 we review the literature on the therapeutic value of cannabinoids, provide details of the specific allowances provided for within California state law, and review previously published surveys of populations of medical marijuana users. In Section 3 we discuss the methods that were used in the current study, including our data collection procedures, and in Section 4 we present our results. A general discussion of these findings and the limitations of our study are presented in Section 5.

2. BACKGROUND AND LITERATURE REVIEW

2.1   Research on the therapeutic value of cannabinoids.

Cannabinoids are compounds related to tetrahydrocannabinol (THC) found in the cannabis plant (phytocannabinoids), in animals (endocannabinoids), and synthesized in laboratories (THC analogues, cannabinoid receptor agonists and antagonists) (Pertwee, 2006). The use of cannabis as a medicine originated in Asia thousands of years ago.

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[1] California was the first state to allow medical marijuana when the voters passed Proposition 215 in 1996.

After being introduced to the West in the mid-nineteenth century, cannabis-based medicines were popular through the early decades of the twentieth century (Grinspoon, 2005; Zuardi 2006). The virtual disappearance of cannabis-based medicines by the mid 1900s was due to the introduction of new pharmaceuticals (e.g., aspirin, chloral hydrate, barbiturates) for the same conditions, such as pain, migraines, menstrual cramps, and sedation, as well as the legal restrictions associated with the 1937 Marijuana Tax Act (Fankhauser, 2002; Grinspoon 2005).

The Institute of Medicine's (IOM) 1999 report *Marijuana and Medicine: Assessing the Science Base*, concluded that cannabinoid drugs (such as THC) have therapeutic potential, but that smoked marijuana "is a crude THC delivery system that also delivers harmful substances." The panel reported the strongest scientific support for the potential therapeutic value of cannabinoid drugs was for pain relief, control of nausea and vomiting, and appetite stimulation (IOM, 1999). The IOM report recommended that psychological effects of cannabinoids, such as anxiety reduction and sedation, be evaluated through more clinical trials. The report further noted that, "For the most part, the logical categories for the medical use of marijuana are not based on particular diseases but on symptoms…[that] can be caused by various diseases or even by treatments for diseases" (IOM, 1999; pp. 137-138).

A 2006 literature review identified 72 randomized, double-blind, placebo-controlled studies from 1975 to 2004 evaluating the therapeutic effects of cannabinoids (Ben Amar, 2006). The paper concludes that "Cannabinoids present an interesting therapeutic potential as antiemetics, appetite stimulants in debilitating diseases (cancer and AIDS), analgesics, and in the treatment of multiple sclerosis, spinal cord injuries, Tourette's syndrome, epilepsy and glaucoma." It is important to note that only six of the

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trials evaluated smoked marijuana. The remainder used synthetic oral THC, oral THC analog, or a cannabis-based sublingual spray.

In February 2010, the Center for Medicinal Cannabis Research (CMCR) at the University of California San Diego submitted a report to the Legislature and Governor of California describing five completed clinical trials with inhaled marijuana (Grant, 2010). Four demonstrated pain relief effects in conditions secondary to injury or disease of the nervous system (Abrams et al., 2007; Ellis et al., 2008; Wilsey et al., 2008; Wallace et al., 2007), and one suggested reduction of spasticity in multiple sclerosis (Corey-Bloom et al., 2008).

A recent review identified 37 controlled studies from 2005 to 2009 evaluating the therapeutic effects of cannabinoids (Hazekamp & Grotenhermen, 2010). Eight of the studies evaluated inhaled marijuana, four mentioned above in the CMCR report (Abrams et al., 2007; Ellis et al., 2008; Wilsey et al., 2008; Wallace et al., 2007). A prospective observational study suggested benefit to patients undergoing Hepatitis C treatment by helping them adhere to the antiviral medication regimen (Sylvestre, 2006). Two studies found that synthetic THC and inhaled cannabis were both effective for stimulating appetite (Haney et al., 2005; Haney et al., 2007). Twenty-nine studies used a synthetic THC isomer or analog for oral administration, or plant extract in oral or sublingual preparations. Based on the clinical results, the authors conclude that cannabinoids have "therapeutic potential mainly as analgesics in chronic neuropathic pain, appetite stimulants in debilitating diseases (cancer and AIDS), as well as in the treatment of multiple sclerosis." In one of the included studies, Skrabek et al. (2008) performed a randomized, controlled trial to assess the benefit of nabilone, a THC analog, on pain reduction and quality of life improvement in patients with fibromyalgia. They found

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significant decreases in pain and anxiety. Ware et al. (2010) concluded that nabilone "is effective in improving sleep in patients with fibromyalgia and is well tolerated."

2.2 Medicinal Marijuana in California

In California, patients with a physician's recommendation, along with their designated caregivers and recommending physicians, are exempted from state criminal laws against marijuana. Although provision and use remain illegal under federal law, U.S. Attorney General Eric Holder made a statement in March 2009 suggesting that the federal government would not target those who complied with state medical marijuana laws. This was made more official in an October 2009 memo to U.S. Attorneys which noted that: "As a general matter, pursuit of these priorities should not focus federal resources in your States on individuals whose actions are in clear and unambiguous compliance with existing state laws providing for the medical use of marijuana."

The California medical marijuana law, passed through voter referendum (Proposition 215) in 1996, permits the use of marijuana for "cancer, anorexia, AIDS, chronic pain, spasticity, glaucoma, arthritis, migraine, or any other illness for which marijuana provides relief." California Senate Bill 420, signed into law on October 12, 2003, named additional ailments such as severe nausea, cachexia, seizures, and persistent muscle spasms (regardless of whether they are associated with multiple sclerosis). In an effort to provide better guidance to law enforcement agencies, SB 420 allowed patients and primary caregivers to possess up to six mature plants (or 12 immature plants) and eight ounces of marijuana; however, it granted local governments the authority to establish larger maximum quantities.

Many of the early studies about medicinal marijuana users in California focused on individuals with HIV or AIDS (e.g., Harris et al., 2000; Sidney, 2001; Prentiss et al.,

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2004; De Jong, 2004). Based on analyses of several unpublished surveys of clients entering cannabis buyer clubs in the San Francisco Bay Area, Geiringer (2002) found that the share of clients that were AIDS and cancer patients declined after the passage of Proposition 215. More recent research in California shows that medicinal marijuana patients are largely men who present with pain and/or emotional/mental health concerns (O'Connell and Bou-Matar, 2007; Reiman 2007; Reiman, 2009). An informal survey of several California medical marijuana specialty physicians revealed that more than 95% of the patients of each physician were already "self-medicating" prior to the receipt of their recommendation, leading Mikuriya et al. (2007) to conclude that the physicians were really "approving" the medical use of marijuana as opposed to simply "recommending" it.

Our study contributes to this literature by providing a careful examination of the medical and background characteristics of a large number of patients seeking treatment with marijuana as well as a look at the conventional treatments tried for these indications. Because we use data from ten years after the date of enactment of the policy (2006), we are able to provide a look at the type of patients that actually seek marijuana and benefit from this policy, now that the policy has been in place for some time.

3.   METHODS

The data used in this study come from medical records of 1,745 patients consecutively presenting to one of nine MediCann clinics located in large and small cities throughout California.[2] The sample is based on visits in June, July, and August 2006, roughly ten years after the original law was enacted. Patient charts were reviewed and

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[2] Since 2006, MediCann has expanded to 20 locations throughout the California.

data entered within days to weeks of the patient visit. Our final sample excludes 90 individuals who are either missing diagnosis information (N=35) or did not report using marijuana before seeking a recommendation (N=55).[3]   There are no statistically significant differences in terms of age, race/ethnicity, and gender between those included and excluded in the analysis sample.

We drew on consecutive visits from all nine clinics in hopes of approximating a representative sample of applicants seeking recommendations. The sample is not generalizable to all individuals applying for a medical marijuana recommendation as it only represents those individuals selecting this particular network of physicians.

As California law allows medical marijuana use for any illness, and allows the physician to determine what constitutes a "serious" illness eligible for treatment under Proposition 215, physicians must use their own judgment for each applicant. Based on the first author's clinical experience, if a patient with cancer is using marijuana for nausea from chemotherapy, most physicians would agree on a medical allowance. Similarly, it would probably be acceptable to most physicians if a patient with chronic pain inadequately controlled by morphine and oxycodone used marijuana to help manage their pain or manage the side effects of their pain medication.

MediCann's medical records include two standard forms specifically created for MediCann. One form is filled out by the patient and includes demographic information, medical history, and marijuana use history. The second form is filled out by the evaluating physician and contains clinical information related to the health problem and symptoms for which the patient is seeking help. Clinic physicians relied on patient histories, physical exams, and the supporting medical documents when they assigned

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[3] While in many ways the patients who report not using marijuana prior to seeking this recommendation are perhaps the most interesting, there are an insufficient number of these types of patients in our sample for robust comparisons.

diagnoses. The supporting medical documents included laboratory and radiological evaluations to validate patient claims of use of marijuana for relief of symptoms due to a medical condition. Patients were required to be under the care of a medical professional, to demonstrate an understanding of the etiology of their symptoms, and to pursue other treatments that address the underlying condition. Over two-thirds of patients (67.8%) brought medical record documentation with them at the time of the visits analyzed in our study. Qualifying patients would be given a recommendation and would be reassessed periodically to review the course of treatment and any new information about their health, and to monitor response to treatment as indicated by a decrease in symptoms, an increase in level of function, or an improvement in quality of life.

4. RESULTS

4.1 Patient Characteristics

Patient demographic information is shown in Table 1 both for the full sample and by gender, since almost 73% of the patients seeking a recommendation were male. Interestingly, this gender difference is larger than what is seen among recreational (i.e. past month) users from the 2006 NSDUH (65.3% male). It is also larger than the gender difference for those who reported that they purchased marijuana in the previous year (59.7% male; NSDUH 2006).[4] Female patients seeking recommendations were, on average, older and more likely than men to be African American, have some college education, have Medicaid (MediCal) health insurance, or to be unemployed and disabled (19.5% of women reported being unemployed due to disability). In general, the population of patients seeking recommendations were insured (73.0% currently insured,

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[4] Based on the ICPSR on-line analysis tool for the 2006 NSDUH.

of whom 24.2% were covered through Medicare or Medicaid), have at least a high school degree (only 8.8% have less than a high school degree), and are generally employed (68.7%).

The age distribution of patients is perhaps the most interesting finding, as at least half of the population of patients seeking medical recommendations through this physician group is over the age of 35. For comparison, the median age for those in the 2006 NSDUH who reported purchasing marijuana in the previous year was 23 years old.[5]

[Insert Table 1 about here]

4.2   Patient Perception of the Therapeutic Benefits of Marijuana

The IOM report noted that, "For the most part, the logical categories for the medical use of marijuana are not based on particular diseases but on symptoms…[that] can be caused by various diseases or even by treatments for diseases" (IOM, 1999; pp. 137-138). In light of this, we examined the self-reported therapeutic benefit received from marijuana and the symptoms it helped relieve. Patients were asked "Which of the following best describe the therapeutic benefit you receive from medicinal cannabis? (Check the most important reasons you use cannabis.)" The results are presented in Table 2.

[Insert Table 2 about here]

Patients most frequently reported using medical marijuana for pain relief (82.6%), improved sleep (70.6%), and relaxation (55.6%). The next most frequently reported benefits included relief of muscle spasms (41.3%), headache (40.8%), relief of anxiety (38.1%), improved appetite (38.0%), relief of nausea and vomiting (27.7%), and relief of

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[5] Since very few individuals under the age of 18 showed up in our patient sample, the NSDUH analysis should exclude those under 18. However, doing so makes little difference in terms of the age differential, as it only raises the median age of purchases in NSDUH to 25 years. A discrepancy of 10 years persists between the sample of patients and buyers who self-identify in NSDUH.

depression (26.1%). Half the patients (50.8%) reported using marijuana as a substitute for prescription medication and 13.2% reported using marijuana as a substitute for alcohol.

Interestingly, women were statistically more likely than men to report that they used marijuana to relieve most of the indications listed, including headaches, anxiety, nausea, depression, panic, and medication side-effects. The only indication for which men were more likely than women to report use of marijuana was to help with focus. One in four men reported marijuana improved focus.

4.3   Physician Diagnosis

Table 3 presents the highest frequency diagnoses and the diagnoses specifically listed in the Compassionate Use Act. Recall that treating physicians make their diagnoses based on a review of patient's history, the medical records from treating physicians (in two-thirds of the cases), and on their own physical examination of the patients. Evaluating physicians were then asked to "circle only diagnoses related to patient's medicinal marijuana use" from a list of 162 diagnoses.

[Insert Table 3 about here]

In general, chronic pain disorders were the most common diagnoses made by physicians, with nearly 60 percent (58.2%) of patients being diagnosed with some sort of musculoskeletal or neuropathic chronic pain condition. Indeed, the most common singular diagnosis reported by physicians was low back pain, presenting in over one quarter (26.2%) of patients seen during this three month period, with lumbar and cervical degenerative disc disease (together 21.8%) and arthritis (18%) the next most common diagnoses in the chronic pain group. Mental health disorders were the next largest group of diagnoses made (22.9%), followed closely by sleep disorders (21.3%). Diagnoses in

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the grouping "neurological disorders," including migraine and other headache, were made in 16.6% of patients. Only 3% of the patients were diagnosed with either cancer or HIV/AIDS.

4.4   Previous Treatments and Physician's Recommendations for Additional Treatment

Because self-reported information was collected from patients and most patients provided medical documentation from their treating physician that could be reviewed by the evaluating physician, it was possible to consider the extent to which previous therapies had been used to cope with or treat the primary symptoms for which patients were seeking a medical allowance.   In Table 4 we provide a list of therapies or approaches that were previously tried or currently being used.   Almost half of the patients seen (47.6%) reported taking prescription medication at the time of their evaluation, but nearly 4 out of 5 (79.5%) reported having taken prescription medication in the past for their problems.   As chronic pain was the leading diagnosis for which marijuana was being recommended, we were curious to see what percent of patients had previously been prescribed or were currently using opioids or opiate medication to deal with their problem. On the physician evaluation form, evaluating physicians were asked to check yes or no if the patient was currently using or had used in the past opioids or opiate medication prescribed by another physician for their chronic pain.   Evaluating physicians determined that almost half of all patients (48%) experiencing chronic pain either currently or in the past had been prescribed opioids or opiate medication.

[Insert Table 4 about here]

Non-prescription therapies tried by patients seeking medicinal marijuana allowances included physical therapy (48.6%), chiropractic services (37.2%), surgery

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(21.9%), psychological counseling (20.7%), and acupuncture (19.6%). Thus, these data do not suggest that patients immediately seek marijuana recommendations as the first strategy to deal with their symptoms. In many cases, the patients have tried more traditional forms of medicine.

5. DISCUSSION

This study provides descriptive information from 1,655 patients seeking a physician's recommendation for medical marijuana in California, the conditions for which they sought treatment, and the diagnoses made by the physicians. The most common diagnoses reported were for chronic pain, mental health conditions (primarily anxiety and depression), and sleep disorders (insomnia). For physicians who make medical marijuana recommendations, the risk of being deceived is not dissimilar to the risk of deception faced by those who prescribe oxycodone and other painkillers; however, those prescribing the latter can limit the number of pills and refills.[6] For medical marijuana, existing laws and policies only allow physicians to make recommendations to patients, they cannot control the number of purchases, what is purchased (e.g., % THC or CBD), where it is purchased, or the route of administration (e.g., inhale smoke or vapor, ingest an edible, apply topically).

The majority of patients reported that they tried other therapies, including prescription drugs, to manage their symptoms prior to seeking the medicinal allowance. Fifty percent of the sample reported that they used marijuana as a substitute for prescription medicine. This is consistent with other studies (e.g., Reiman 2007; Reiman, 2009) and raises important questions about the specific drugs they are replacing. Future

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[6] However, doctors prescribing oxycodone cannot prevent patients from crushing the pill to deactivate the time-release functionality and then snorting or injecting it.

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research with this population should focus on previous and concurrent prescription medication use to examine claims that marijuana enables people to reduce or eliminate their use of prescription medications. These data could also be useful for understanding whether there could be cost-savings associated with substituting certain prescription medicines with marijuana.

This also raises the issue about whether the legalization of marijuana for non-medicinal purposes would influence the consumption of prescription drugs. Not only will legalization increase availability and reduce the price of marijuana (Kilmer et al., 2010), but the reduced stigma may increase the likelihood that some individuals try it for medicinal purposes. It could also be the case that doctors may be more willing to discuss marijuana use with their patients if it was not prohibited.

Less than 5% of the applicants were diagnosed with HIV/AIDS, cancer, or glaucoma. While these were not the only diseases/conditions discussed when Prop 215 was on the ballot, they did receive a lot of attention. This is not surprising since we would expect the number of patients presenting with HIV/AIDS, cancer, or glaucoma to be relatively low compared to the number presenting with pain and anxiety due to the relative prevalence of these conditions.

Finally, the age profile observed in the sample of patients is intriguing, especially when compared with those who report using or purchasing marijuana in the 2006 NSDUH. One should not assume these differences are statistically meaningful in light of the non-representativeness of our patient sample and the fact that it is drawn exclusively from California. However, if these age differences continue to appear in future studies, it could offer important insights about age-related risk aversion and/or age-specific access to distribution networks—each with different policy implications. Thus, future work

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should explore the robustness of these differences and consider their implications for policy.

We conclude by reminding readers that we did not examine randomly-selected representative sample of all individuals in California seeking the use of marijuana for medicinal purposes. We were merely able to collect data from a sample of individuals who presented themselves within a three month window to a group of doctors that they expected would be willing to provide them with a recommendation. The patients receiving recommendations from these doctors may differ from those in the general population in important ways that we are unable to know. As patients receiving physician recommendations are not required by law to register with county or state health officials,[7] we have no way of knowing the extent to which the population served by this particular physician group might differ from that served by other medical marijuana specialists or by primary care physicians. Knowledge about the number and type of patients that receive recommendations from other specialists or from primary care physicians would improve our understanding of the population of medical marijuana patients in California.

Since California law allows for medical marijuana use for any "illness for which marijuana provides relief", we have an enormous opportunity to further our understanding of the risks and benefits of marijuana with careful questioning of some of the thousands of patients willing to discuss their use of marijuana.

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[7] State law only encourages people to register with the county health department; it does not require it.

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Table 1. Characteristics of applicants seeking physician recommendations for medical marijuana

	All	Females	Males	P value
	N=1655	N=452	N=1203	
Male	72.7%	--	--	--
White	58.5%	60.0%	58.0%	0.477
Hispanic	14.5%	13.1%	15.0%	0.305
Black	10.9%	14.2%	9.7%	*0.010*
Native American/Asian	6.9%	5.3%	7.6%	0.108
Mixed Race or Other	8.9%	8.0%	9.3%	0.393
12-18 years old	0.2%	0.0%	0.2%	0.288
18-24 years old	17.8%	12.6%	19.8%	*0.001*
25-34years old	27.9%	26.8%	28.3%	0.546
35-44 years old	21.8%	19.9%	22.5%	0.251
45-54 years old	19.3%	26.1%	16.8%	*0.000*
55+ years old	13.0%	14.6%	12.4%	0.232
Not a High School Grad*	8.8%	8.6%	8.9%	0.866
High School Graduate*	42.5%	35.7%	45.1%	*0.001*
Some College*	27.1%	31.0%	25.6%	*0.031*
College Graduate*	21.6%	24.7%	20.4%	0.064
Employed	68.7%	60.4%	71.8%	*0.000*
Disabled	15.5%	19.5%	14%	*0.006*
Previous military service	10.5%	2.1%	13.6%	*0.000*
Currently insured	73.0%	78.2%	71.1%	*0.004*
Worker's Comp	3.5%	2.9%	3.7%	0.394
MediCare	9.2%	11.9%	8.2%	*0.020*
MediCal	15.0%	21.7%	12.6%	*0.000*
Private	42.4%	41.4%	42.7%	0.619
Veterans Administration	3.2%	2.0%	3.7%	0.086

Notes: Missing employment/disability data for 3 patients, insurance information for 13 patients, education information for 51 patients, and military information for 86 patients. Education variables denote highest level obtained.

Table 2. Patient self report of therapeutic benefits of medical marijuana

	All	Females	Males	P value
	N=1655	N=452	N=1203	
To relieve:				
Pain	82.6%	82.7%	82.5%	0.924
Spasms	41.3%	44.2%	40.1%	0.132
Headache	40.8%	49.3%	37.6%	*0.000*
Anxiety	38.1%	51.1%	33.3%	*0.000*
Nausea	27.7%	44.9%	21.3%	*0.000*
Depression	26.1%	35.4%	22.6%	*0.000*
Cramps	19.0%	33.4%	13.5%	*0.000*
Panic	16.9%	27.2%	13.1%	*0.000*
Diarrhea	4.8%	4.9%	4.7%	0.913
Itching	2.7%	1.1%	3.3%	*0.013*
To improve:				
Sleep	70.6%	69.0%	71.2%	0.397
Relaxation	55.6%	60.2%	53.9%	*0.023*
Appetite	38.0%	35.0%	39.2%	0.117
Focus	23.3%	19.7%	24.6%	*0.035*
Energy	15.5%	17.7%	14.7%	0.135
To prevent:				
Anger	22.7%	21.9%	22.9%	0.653
Medication Side Effects	22.6%	27.0%	20.9%	*0.009*
Involuntary Movements	6.2%	7.3%	5.8%	0.266
Seizure	3.0%	3.8%	2.7%	0.239
As a substitute for:				
Prescription Medicine	50.8%	51.1%	50.7%	0.885
Alcohol	13.2%	11.3%	13.9%	0.164

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Table 3. High frequency diagnoses and diagnoses listed in Prop 215 and SB 420

	All	**Females**	**Males**	**P-value**
	N=1655	N=452	N=1203	
Musculoskeletal and Neuropathic Chronic Pain				
Low Back Pain	26.2%	20.4%	28.4%	*0.001*
Arthritis	18.0%	17.0%	18.4%	0.529
Lumbar Degenerative Disc Disease	15.6%	16.6%	15.3%	0.518
Muscle Spasm	11.7%	9.5%	12.5%	0.095
Cervicalgia	8.9%	11.7%	7.9%	*0.015*
Cervical Degenerative Disc Disease	6.2%	6.2%	6.2%	0.976
Peripheral Neuropathy	5.8%	8.8%	4.7%	*0.001*
Fibromyalgia	1.6%	4.0%	0.7%	*0.000*
Spasticity	0.2%	0.0%	0.2%	0.288
Any of these Chronic Pain ICDs	58.2%	57.3%	58.5%	0.654
Mental Disorders				
Anxiety Disorders	18.7%	28.5%	15.0%	*0.000*
Depression	9.3%	14.2%	7.5%	*0.000*
Bipolar Disorder	2.5%	4.9%	1.7%	*0.000*
Attention Deficit Disorder	3.1%	2.0%	3.6%	0.100
Any of these Mental Disorder ICDs	22.9%	33.6%	18.9%	*0.000*
Sleep Disorders				
Persistent Insomnia	13.5%	13.9%	13.4%	0.769
Insomnia due to pain	8.0%	8.4%	7.9%	0.734
Any of these Sleep Disorder ICDs	21.3%	21.9%	21.1%	0.727
Gastrointestinal Disorders				
Nausea and vomiting	7.4%	9.5%	6.6%	*0.041*
Anorexia	4.6%	4.4%	4.7%	0.842
Abdominal Pain	2.9%	4.9%	2.2%	*0.004*
Gastritis and GERD	2.5%	4.0%	1.9%	*0.016*
Irritable Bowel Syndrome	1.1%	0.4%	1.3%	0.121
Any of these Gastrointestinal Disorder ICDs	13.3%	16.6%	12.1%	*0.015*
Neurologic Disorders				
Migraine Headache	9.2%	16.2%	6.7%	*0.000*
Other Headache	6.5%	6.6%	6.5%	0.910
Seizure	1.4%	1.5%	1.3%	0.735
Multiple Sclerosis	0.6%	1.1%	0.4%	0.106
Any of these Neurologic Disorder ICDs	16.6%	24.8%	13.5%	*0.000*
Gynecologic Disorders				
Dysmenorrhea		7.7%		
Endometriosis		1.8%		
Any of these Gynecologic Disorder ICDs		9.3%		
Other				
HIV/AIDS	1.6%	0.9%	1.9%	0.142
Cancer	1.5%	2.4%	1.1%	*0.040*
Glaucoma	1.3%	1.1%	1.3%	0.717

Note: Does not include all ICD9s, and excludes those that were written in.

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Table 4. Previous treatments and physician's recommendations for additional treatment

	All	Females	Males	P-value
	N=1655	N=452	N=1203	
Other treatment modalities patients tried for medical conditions				
Current prescription medication	47.6%	57.1%	44.2%	*0.000*
1-2 prescriptions	36.7%	36.1%	37.0%	0.727
3-5 prescriptions	4.4%	9.1%	2.7%	*0.000*
6+ prescriptions	6.5%	11.9%	4.5%	*0.000*
Previous prescription medication	79.5%	86.5%	76.8%	*0.000*
Past or current RX for opioids for pain	48.0%	52.3%	46.4%	*0.040*
Physical therapy	48.6%	54.4%	46.5%	*0.004*
Chiropractic	37.2%	42.3%	35.2%	*0.009*
Surgery	21.9%	22.3%	21.8%	0.804
Psychological counseling	20.7%	33.4%	16.0%	*0.000*
Acupuncture	19.6%	26.8%	16.9%	*0.000*
Therapeutic injection	15.0%	21.5%	12.6%	*0.000*
Other types of treatment	8.6%	11.1%	7.7%	*0.032*
Referrals for further evaluation and treatment				
Primary care provider	22.4%	22.6%	22.3%	0.900
Medical specialist	16.2%	16.2%	16.2%	0.977
Physical therapy	8.2%	7.1%	8.6%	0.327
Chiropractor	6.5%	3.8%	7.5%	*0.006*
Psychological counseling	5.6%	7.1%	5.0%	*0.098*
Acupuncture	1.8%	2.2%	1.6%	0.382
Homeopathy	0.2%	0.2%	0.2%	0.815
Biofeedback	0.1%	0.0%	0.1%	0.540