Distress, Coping, and Drug Law Enforcement in a Series of Patients Using Medical Cannabis

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Abstract: Patients using medical cannabis in the United States inhabit a conflicting medicolegal space. This study presents data from a dispensary-based survey of patients using medical cannabis in the state of Washington regarding cannabis-specific health behaviors, levels of psychological distress, stress regarding marijuana criminality, past experiences with drug law enforcement, and coping behaviors. Thirty-seven subjects were enrolled in this study, and all but three completed survey materials. The median index of psychological distress, as measured by the Behavioral Symptom Inventory, was nearly 2.5 times higher than that found in a general population sample but one third less than that found in an outpatient sample. The subjects reported a moderate amount of stress related to the criminality of marijuana, with 76% reporting previous exposure to 119 separate drug law enforcement tactics in total. The subjects reported a wide range of coping methods, and their responses to a modified standardized survey showed the confounding influence of legality in assessing substance-related disorders.

Key Words: Medical marijuana, stress, distress and coping, substance-related legal problems, substance use disorders, cannabis, cannabinoid medicine, cannabinopathic medicine

(*J Nerv Ment Dis* 2013;201: 292–303)

Under the current *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (*DSM-IV-TR*) (American Psychiatric Association, 2000) nosology, when a person engages in a pattern of substance use that leads to mental distress as manifested by recurrent or year-long persisting legal problems related to substance possession, that person's substance use is seen as maladaptive and mentally disordered. However, it is possible that the mental distress seen in substance-using patients who face substance-possession legal problems may, in fact, be a reflection of structural injustice and not a sign of underlying substance abuse mental disorder (Aggarwal et al., 2012). This type of reversal may well be most apparent in the context of therapeutic users of cannabis who experience mental distress at facing possession-related legal problems.

The medical cannabis being used today by patients in the 18 active state programs in the United States (Thompson and Koenen, 2011) is presumed to all be locally cultivated; official government sources of cannabis do not enter the mediation at all. Although thousands of American physicians have made medical cannabis authorizations for several hundreds of thousands of patients (Aggarwal et al., 2009), the US Supreme Court has ruled that federal law "trumps" state law in this area (Gonzales v. Raich, 2005). Patients who follow their physicians' advice are put at risk for up to 1 year in federal prison for possession of marijuana and up to 5 years in federal prison for growing one marijuana plant because federal law does not make a distinction between medicinal and other use (Drug Enforcement Administration). They are seen as being in violation of the federal government's public health program of cannabis abuse prevention and control.

To take this to the extreme, in the states with medical cannabis programs, cannabis is understood as life- and health-promoting medicine, but at the federal level, as in other select countries, cannabis possessed or cultivated in certain quantities is understood as grounds for the imposition of the penalty of death. Death penalty apportionment is specified through United States Code 18 USC 3591(b), which empowers the federal government to put to death one or more individuals involved in a substantial resource-delivering "enterprise" with 60,000 or more "marihuana plants" or 60,000 kg or more of a "mixture or substance containing a detectable amount of marihuana." The US federal code for the marijuana death penalty is spelled out across three sections of legal code:

> 18 U.S.C. 3591(b) **A defendant who has been found guilty** of (1) an offense referred to in section 408(c)(1) of the Controlled Substances Act (21 U.S.C. 848[c][1]), committed as part of a continuing criminal enterprise offense under the conditions described in subsection (b) of that section which involved not less than twice the quantity of controlled substance described in subsection (b)(2)(A) … **shall be sentenced to death**
>
> 21 U.S.C. 848(b)(2)(A): the violation referred to in subsection (c)(1) of this section involved at least 300 times the quantity of a substance described in subsection 841(b)(1)(B) of this title
>
> 21 U.S.C. 841(b)(1)(B): (vii) 100 kilograms or more of a mixture or substance containing a detectable amount of marihuana, or 100 or more marihuana plants regardless of weight. **(emphasis added)**

Although a death penalty sentence for marijuana has not yet been fully judicially apportioned in the United States, its threat remains in defendants' sentencing and plea-bargaining discussions with federal prosecutors.

Federal agencies who are empowered by the Congress to make reclassifications on the basis of scientific and medical considerations maintain the position that, as a Schedule I substance, cannabis "has no currently accepted medical use in treatment in the United States" and that "there is a lack of accepted safety for the use of" cannabis "under medical supervision" (21 USC § 812, 2010). This legal classification is maintained despite the positions of medical expert bodies such as the Institute of Medicine (Joy et al., 1999), the American Medical Association (2009), and the American College of Physicians (2008), which have all called on the federal government to greatly expand its research program around cannabis for medical purposes and/or review its classification of marijuana in federal law, with the anticipated outcome of rescheduling. If these medical expert bodies are judged to be right in their assessment of the legitimacy of cannabis for medical use, state actors who have chosen not to act could be seen as shirking their specific legal "obligation to refrain from prohibiting

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ISSN: 0022-3018/13/20104–0292
DOI: 10.1097/NMD.0b013e318288d333

or impeding traditional preventive care, healing practices and medicines," engaging in the "deliberate withholding or misrepresentation of information vital to health protection or treatment," and aiming for "the suspension of legislation or the adoption of laws or policies that interfere with the enjoyment of any of the components of the right to health"—all specifically enumerated violations of governmental obligations to respect the human right to health in international law (Committee on Economic, Social, and Cultural Rights, 2000). When seen in this light, it truly begs the question: Is the mental stress that patients using medical marijuana may feel with regard to their fear of running afoul of federal laws and regulations a sign that they have an underlying cannabis abuse mental disorder or other psychopathology?

The state of Washington, where the present study was conducted in late 2007 to early 2008, originally passed its Medical Use of Marijuana Act on November 3, 1998, as a ballot initiative (I-692) with a 59% to 41% margin, 2 years after the passage of California's landmark proposition 215. The law took effect on December 3, 1998, and allowed physician-authorized qualifying patients and designated providers to raise a medical marijuana "affirmative defense" to cannabis-related charges in front of a jury. According to state law, "Medical use of 'marijuana' means the production, possession, or administration of marijuana … for the exclusive benefit of a qualifying patient in the treatment of his or her terminal or debilitating illness" (RCW 69.51A.010, Section 1). The Washington State Legislature subsequently amended the Act in 2007 with Engrossed Senate Substitute Bill 6032. This led to a state-mandated rule-making process whereby four statewide public workshops were held by the Washington Department of Health to define the quantity of cannabis that could reasonably be presumed to be a 60-day supply for qualifying patients and to take testimony on what would be an effective statewide distribution system because no such system has existed since the law's passage. The workshops were held in Seattle (September 10, 2007), Spokane (September 11, 2007), Vancouver (September 17, 2007), and Yakima (September 19, 2007). At the time the present study was conducted, no rules had been promulgated. Access points for medical cannabis dispensing in urban centers in the state of Washington did exist at the time this study was conducted; they were only informally tolerated and enjoyed no formal protections aside from legal theories. Nevertheless, a certain level of local tolerance regarding cannabis was and continues to be present in select locales in the state of Washington, which may not been seen in some locations in, for example, Michigan, which has had a medical marijuana law since 2008. For example, in Seattle, voters passed I-75 in 2003, making adult marijuana possession enforcement the "lowest law enforcement priority," which has led to a decrease in such arrests.

METHODS

Study Design

This study was conducted during 4 consecutive operational days during 2007 to 2008, in which a convenience sample was recruited of thirty-seven chronically ill qualifying medical cannabis patients using the same monoclonal strain of "plum" obtained at a dispensary in Washington State pre-selected for study. This was a convenience sample that may or may not have been representative of all patients using the dispensary or all patients using medical cannabis in the state of Washington generally, and there is no way of knowing because no uniform state-level data about patients using medical cannabis are available. The inclusion criteria included age 18 years or older and ability to read and understand English. Patients were excluded if they were using a cannabinoid blocker drug (none were). The study was located at a purposefully chosen medical cannabis dispensary in the state of Washington that delivered locally produced cannabinoid botanical medicines to verified qualifying patients.

This study was approved by the Human Subjects Division at the University of Washington, application number 33070, on October 23, 2007, and a federal Certificate of Confidentiality (National Center for Complementary and Alternative Medicine [NCCAM] 08-01) was issued by the National Institutes of Health's NCCAM on December 4, 2007. The certificate ensures that any sensitive information collected as part of this study will remain shielded from outside parties and that those involved in conducting this study "cannot be compelled in any Federal, State, or local civil, criminal, administrative, legislative, or other proceedings to identify" the study participants or otherwise compromise their privacy. The institutional review board stipulated that the subjects be informed in writing that they may wish to seek legal advice about the potential risks of being in this study but that the University of Washington cannot provide this advice. The other important step taken to protect the subjects' privacy in this study was requesting and receiving approval for necessary waivers, which ensured the absence of any written documentation with the subjects' names or other identifying information on any permission sheet, consent form, or study material. The researcher was a recipient of the National Science Foundation Graduate Research Fellowship, but there was no specific funding for this study, which was conducted as part of the first author's dissertation field research.

The exact location of the urban medical cannabis dispensary where this study was conducted will remain anonymous and undisclosed to protect the subjects' privacy and must remain so as per Human Subjects review. The patients were recruited with the assistance of the dispensary staff, who directed the potential subjects to the researcher stationed in another part of the clinic. They were told explicitly that they are under no obligation to participate in this study, that participation is entirely voluntary, and that they are free to discontinue participation at any time. After oral informed consent, the willing patients were enrolled, assigned a random number, and asked to fill out in a quiet area an on-site questionnaire that assessed medical marijuana treatment history and health-related quality of life using standard and tailored instruments (limited data presented here). The recruited subjects were surveyed with a general inventory of psychological health/distress, asked about their levels of psychological stress related to the criminality of marijuana in federal law, queried about the types of substance control/drug enforcement practices they had been subjected to or were specifically threatened with, and asked how they coped. They were also screened with a modified portion of the National Survey on Drug Use and Health (NSDUH) related to cannabis abuse and dependence, and their views on cannabis abuse and dependence prevention and control were elicited.

Metrics

For measuring psychological distress, the Behavioral Symptom Inventory (BSI-53) psychometric was used. First introduced in 1975 as a short version of a longer 90-item inventory, the BSI-53 is a widely used, rapidly administered and interpreted instrument to gauge the presence and the degree of general psychological distress levels in individuals, not specific to any diagnosis; has been used in both outpatient medical settings and the general population; and has been shown to demonstrate reliability and validity in numerous cross-cultural studies (Derogatis, 1975, 1993). The BSI-53 asks subjects to self-report on the presence of psychological and physical symptoms and to rate the severity of each symptom on a numeric scale ranging from 0 (symptom not present) to 4 (extreme severity). The inventory covers nine symptom dimensions—somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism—and produces three global indices of distress: the Global Severity Index (GSI), the Positive Symptom Distress Index, and the Positive Symptom Total, which measure current or past level of symptoms, intensity of symptoms, and number of

TABLE 1. Diagnosed Qualifying Conditions for the Medical Use of Cannabis in the State of Washington Reported in the Patient Sample

Patient	Cancer	HIV	MS	Epilepsy, Other Seizure Disorders	Epilepsy, Other Seizure Disorders	Intractable Pain	Glaucoma[3]	Crohn's Disease[4]	Hepatitis C[5]	Nausea/Vomiting/Wasting/ Appetite Loss/Cramping/ Seizures/Muscle Spasms/Spasticity[6]	Subject Comment
1						X[a]					[a]"Chronic stomach pain/nausea"
2		X									
3						X				X[b]	[b]"Chronic migraines"
4		X									
5						X[c]				X[d]	[c]"Chronic migraines"; [d]"appetite loss caused by migraines"
6								X		X[e]	[e]"Irritable bowel syndrome"
7						X[f]				X[g]	[f]"Back-spine injuries, surgeries, and acute pain. (Nerves and muscles) Arthritis"; [g]"cramping, muscles spasms, pain (instead of "hard" narcotics)"
8	X[h]					X[i]					[h]"Colon cancer"; [i]"migraine headache"
9						X[j]			X		[j]"Hep C"
10						X[k]			X		[k]"Hep C"
11				X							
12				X[l]							[l]"TBI"
13	X[m]										[m]"Breast cancer stage 4"
14						X[n]					[n]"Chronic nerve pain/muscle spasms"
15			X								
16					X[o]					X[p]	[o]"Arthritis of neck, chronic headaches"; [p]"Alternative medicine for severe muscle spasms"
17			X		X[q]						[q]"Leg spasticity related to MS"
18	X[r]					X				X[s]	[r]"Right kidney removed"; [s]"diverticulitis"
19						X[t]					[t]"Migraines"
20			X								
21			X								
22		X									
23					X[u]	X[v]				X[w]	[u]"Spastic colon"; [v]"osteoporisis"; [w]"chronic diarrhea, migraines"
24	X[x]										[x]"Breast cancer"
25					X[y]					X[z]	[y]"Lower back behind the pelvis"; [z]"muscle spasms of the lower back"
26					X[aa]	X				X[bb]	[aa]"Severe osteoarthritis"; [bb]"muscle spasm/very bad cramps"
27				X[cc]	X[dd]	X[ee]				X[ff]	[cc]"Paresthesia disorder"; [dd]"spinal cord injury, C5–C6, incomplete feeling below level of injury"; [ee]"burning parathesias, stomach cramping pain (sharp and dull pain)"; [ff]"spinal cord injury (appetite stimulation)"
28		X									
29		X									

30											X^{gg}	[gg]"I throw up 3 to 5 times a day"
31				X^{hh}		X^{ii}		X			X	[hh]"Gastrointestional disorder"; [ii]"diabetic neuropathy"
32		X						X				
33		X										
34											X^{jj}	[jj]"Charcot-Marie-Tooth disease"
35						X	X				X	
36						X						
37		X^{kk}										[kk]"Full-blown AIDS fewer than 50 T-cells"
Totals	4	6	6	3	8	16	2	1	4		14	

TBI indicates traumatic brain injury.
The qualifying conditions list has since expanded.
[1]Epilepsy or other seizure disorders.
[2]Limited to mean pain unrelieved by standard medical treatments and medications.
[3]Either acute or chronic, limited to mean increased intraocular pressure unrelieved by standard treatments and medications.
[4]With debilitating symptoms unrelieved by standard treatments or medications.
[5]With debilitating nausea and/or intractable pain unrelieved by standard treatments or medication.
[6]Any disease, including anorexia, which results in nausea, vomiting, wasting, appetite loss, cramping, seizures, muscle spasms, and/or spasticity, when these symptoms are unrelieved by standard treatments or medications.
Hep C indicates Hepatitis C Virus, MS indicates Multiple Sclerosis, AIDS indicates Acquired Immunodeficiency Syndrome.
Subject comments were edited for clarity.

reported symptoms, respectively, and are compared with population norms to gauge severity. Any score that exceeds the mean population score by more than two standard deviations is considered to be abnormal (Ruckenstein and Staab, 2001).

Next, coping strategies were measured. Coping is any cognitive, behavioral, or social activity that an individual uses to deal with or avoid stressors and their expression as distress. The goals of coping are to get over a conflict, to adapt to a new situation, or to defend against inconvenience or maladjustment. To gauge coping strategies, the López-Vázquez adaptation of *Échelle Toulousaine de Coping* (Esparbès et al., 1993; López-Vázquez and Marván, 2004) was administered. This scale has been validated previously in Mexico for gauging coping mechanisms in people who endure extremely hazardous situations that are beyond their control, such as living near an active volcano or other areas of high seismic activity, places that frequently flood, or places in proximity to highly polluting industries (López-Vázquez and Marván, 2004). The original scale, the Toulouse Scale of Coping, developed by Pierre Tap and colleagues. in 1993 and first published in a French organizational psychology journal (Esparbès et al., 1993), has recently been applied in the psychiatric literature to studies of coping strategies in Greek nurses, university students, and social workers (Theodoratou et al., 2006a, 2006b, 2006c). It bases its theoretical framework on the idea that stress is a nonspecific response to all externalities that impose upon the body and that coping is a modality through which a subject reacts to a stressful situation. The subjects are asked how often they agree with affirmations that reflect a range of coping strategies. These include acceptance, value changes, denial, social withdrawal, cognitive focalization, distraction, informational social support, emotional control, emotional social support, active focalization, regulation of activities, cognitive control and planning, wordlessness, cooperation, behavioral changes, and mental withdrawal.

Finally, a portion of the NSDUH, an annual survey of American drug use patterns based on in-person interviews conducted on approximately 70,000 persons 12 years and older, sponsored by the Substance Abuse and Mental Health Services Administration, was administered to the subjects. The section of the survey's screening questions having to do with problematic cannabis use was chosen (there is no section querying beneficial uses), which is based exactly on the diagnostic criteria for Cannabis Abuse Mental Disorder (*DSM-IV* Diagnostic Code 305.20) and Cannabis Dependence Mental Disorder (*DSM-IV* Diagnostic Code 304.30). After each screening question item, the question "Would you have answered this question differently if marijuana were treated like other herbal medicines?" was added.

Statistical Analysis

To calculate sample descriptive statistics and explore correlations between variables, Microsoft Excel was used. Graphical representations of the data set were visually inspected for any grossly apparent geometric correlations. These were fitted with computed trend lines, and definite outliers were marked and bracketed.

RESULTS

Collectively, at least 138 person-years of medical marijuana authorization were represented in the sample. The sample included 13 women and 24 men, with a mean age of 41 years and a median age of 39 years, 4 of whom had cancer; 6, human immunodeficiency virus (HIV); 6, multiple sclerosis (MS); 3, epilepsy; 4, hepatitis C virus (HCV); 16, intractable pain; 2, glaucoma; and 1, Crohn's disease, although these categories were not mutually exclusive, among other illnesses and hardships. Identified qualifying diagnoses are shown in Table 1. The findings of this study reviewed here are from the portion of the study questionnaire that begins with the prompt: "Now please think about your experiences with substance control/drug

TABLE 2. BSI-53 GSI and Self-reported Level of Psychological Stress Related to Criminality of Marijuana in Federal Law in the Patient Sample

Patient	BSI-53: GSI (0–4)	How Stressed Regarding Criminality of Marijuana in Federal Law?	Explanation
1	1.68	Extremely	NA
2	0.75	Extremely	"As someone who wants to grow while having Section 8 housing it is stressfull, Also volunteering with local Cannabis Clubs causes fear of arrest, loss of housing, and benefits."
3	0.64	Moderately	"I think it should be legal for Medical use and much easier to get for medical use."
4	0.62	A little bit	"travel w/ med. Mj is extremely stressful & difficult especially by plane. Sometimes I worry my association w/ med mj clubs could get me into federal trouble. Ie: 'drug ring' mentality"
5	1.75	Extremely	"Outside of my marijuana use, I am a law-abiding citizen. I feel it is an outrage that I'm forced to break the law simply to acquire & use marijuana to provide an acceptable quality of life."
6	0.30	Quite a bit	"I believe it has a lot of tightening up to do with the laws specifically in Washington. So people could grow enough medicine. For our patients without Fear that the number of plants you have might get you 5–10 yrs."
7	1.057	Extremely	"Marijuana in the State of WA is *legal for patients like me*, although- 'illegal-federally'→ would you be nervous? YES, I'm very nervous!"
8	1.34	Moderately	"I fear punishment by law for possession or use of marijuana."
9	NA	NA	NA
10	NA	NA	NA
11	0.36	Not at all	NA
12	2.68	Not at all	NA
13	1.075	A little bit	"If I am busted and go to jail"; "The benefits outweigh the punishments" "Pros: No pain, No nausea, No dizziness Again, no pain, Less pills, Less toxic pills, No addictions"; "Cons: ticket, jail time"
14	0.42	Extremely	"MEDICINAL USE OF MARIJUANA VIA PRESCRIPTION USE AS DIRECTED THROUGH CARE PROVIDED QUALIFYING PATIENTS BY THEIR PRIMARY CARE PHYSICIAN AS LICENSED BY GOVERNING STATE SHOULD BE LEGALIZED"
15	0.25	Moderately	"I am concerned that my medical use limits my employment options and would negatively impact my family if I was arrested."
16	0.5	A little bit	"Cops get wild hair up ass and bust patients just to be an asshole. Lol."
17	0.30	Moderately	"Yes, as a co-signer of the initiative, which became law in Washington State in 1998-I feel I have a responsibility to represent the patients which are too ill. I am passionate about my convictions-and I have the full support of my remote community. Ie: sherriff, school teachers, family, friends"
18	3.057	A little bit	"feel that at times that the police may stop me because I have it in my car or home."
19	0.36	Not at all	"I followed All proper channels to obtain the treatment."
20	0.91	Not at all	"I believe in the sovereignty (sp?) of states' rights & my right to control my body/illness."
21	0.92	A little bit	"Of course I do, the feds do not acknowledge my need and benefit from cannabis. I have a family and need to protect them"
22	0.77	Moderately	"I am always worried if I travel w/ medicine in my vehicle. Also am worried work might ask me T take a drug test."
23	2.64	Extremely	"I get so depressed & I can't eat anything without pot. So I hear about all the pain and lack of money to buy it from others & myself—I know it should be legal. It's the only reason I am still here and I can experience any joy."
24	1.17	Extremely	"I live in small town and laws are diff than ___ County it would be nice if they were all the same." "I would like to grow" "to afraid."
25	0.13	Moderately	"Some people don't understand what marijuana can do for you because they are so set on thinking it's just a drug, and I'm Just a pot head for using it."
26	2.13	Moderately	"don't quite understand the big picture"
27	1.49	A little bit	"It's legal on a state level but not federal and that bothers me."
28	0.11	Not at all	"I feel it should be legalized across the board. I have never had any legal confrontation w/ law enforcement"
29	0.43	A little bit	"There is a slight risk but I know there isn't much chance I'll get in any trouble"
30	0.53	Not at all	NA

31	0.64	Not at all	"I am not concerned with the Feds."
32	NA	NA	NA
33	0.28	Not at all	"Marijuana has been a part of my life and my family's both recreationally and medicinally for a long time. I feel 100% just with my usage regardless of what the American Legal system may say."
34	0.25	Quite a bit	"It sometimes angers me when people do not give the effectiveness that marijuana has in relieving pain due credit"
35	0.74	Moderately	"You Never Know when they may be busted."
36	1.038	Moderately	"B A little nervous as WA state becomes more observant of who is getting how much med and how often"
37	1.38	Not at all	"It should be legalized."
Mean ± SD	0.96 ± 0.76	~3/4 from A little bit to Moderately	
Median	0.745		
Range	0.11–3.057		

NA indicates not available.

enforcement." Table 2 shows the subjects' responses to the following question designed to elicit their level of specific psychological stress/worry/concern: "Do you feel any distress related to the criminality of marijuana in federal law?" For options, they were presented with a 5-point scale to choose from—"not at all," "a little bit," "moderately," "quite a bit," and "extremely"—and then asked to explain their choice. Columns 3 and 4 show the results. Three subjects, subjects 9, 10, and 32, did not complete the survey because of time constraints. Table 2 also quantifies psychological distress in the patient sample in showing how the patients scored on the BSI-53. In this study, the patient sample's median GSI score on a scale of 0 to 4 was 0.745 and ranged from 0.11 to 3.057.

The subjects were then asked whether they had been subjected to the following enumerated substance control/drug law enforcement tactics or whether they had received threats about being subjected to them or specifically feared enduring them. The results are shown in Table 3. In sum, there were 119 tactics reported that were either specifically threatened or to which the subjects reported being subjected. By tactic, 12 patients had been subjected to searches and 11 had been specifically threatened with them—one patient commented: "had officer want to go threw [sic] house but changed his mind"; 4 had been subjected to and 5 threatened with surveillance; 4 had been subjected to and 6 threatened with raids; 0 had been subjected to and 3 threatened with confidential informant placement; 11 had been subjected to and 10 threatened with arrest; 7 had been subjected to and 5 threatened with trial; 5 had been subjected to and 9 threatened with incarceration; 0 had been subjected to and 0 threatened with child removal; 4 had been subjected to and 3 threatened with job loss; 9 had been subjected to and 6 threatened with home eviction; 0 had been subjected to and 1 threatened with asset forfeiture; 0 had been subjected to and 2 threatened with financial aid suspension; 5 had been subjected to and 3 threatened with biometabolite screen of excrement or hair—one patient commented: "Didn't pass urine test for a job"; 4 had been subjected to and 3 threatened with robbery of their medical marijuana; 6 had been subjected to and 1 threatened with assault by law enforcement—one patient commented: "more than once!!!/Torn shoulder during arrest"; 2 had been subjected to and 3 threatened with assault/injury related to violent elements from the underground market in controlled substances. Other comments the patients made in this section included "neighbors who smell medicine have called police," "no but I've seen patients be raided! (very sick people)," "son got ticket in my car for my pipe," and "I've lost friends who don't understand."

Next, a scale for measuring coping with extreme risks, the López-Vázquez et al. (2004) adaptation of *Échelle Toulousaine de Coping* (Esparbès et al., 1993), was administered to ascertain how the patients using medical cannabis adapt to and cope with the extreme uncertainty of substance control/drug enforcement in their lives. Complete results (not shown) indicate that the subjects used a widely divergent set of coping strategies and mechanisms and that no particular strategy of the ones presented was favored over others. Although there was a very even spread in the reported use of these various coping strategies, active focalization (acknowledging the situation and directly addressing the problem) was the most reported strategy and cognitive control and planning (giving oneself objectives, planning ahead, and treating the problem in an abstract and logical way) was the second most. Denial and cooperation were the lowest and the second lowest reported coping strategies in the patient sample, respectively.

Turning next to the question of the applicability of cannabis abuse nosology, what follows is a selection of the results from the modified NSDUH screening questions. In the subject sample of 34 patients screened, half (17) said yes to the question: "During the past 12 months, was there a month or more when you spent a lot of your time getting or using marijuana or hashish?" and, of these, four said that they would have answered this question differently if marijuana were treated like other herbal medicines. One patient

TABLE 3. Substance Control/Drug Enforcement Tactics Reported in the Patient Sample Using Medical Cannabis

Enforcement/Control Tactics Subjected to (S) or Specifically Threatened(T) Patient	Searches	Surveillance	Raids	Confidential Informant Placement	Arrest	Trial	Incarceration	Child Removal	Job Loss
1	S, T	T	T		S, T	S, T	T		S
2					S				S
3					S[b]	S[b]	S[b]		
4	S, T	S, T	T		T	T	T		
5	S, T	S, T	S						
6	S, T		S, T	T	S, T		S, T		
7									
8					T		T		
9 (NA)									
10 (NA)									
11	S		S		S	S			
12	S								
13									
14	S				S	S			
15	S, T		T		S	T	T		S, T
16		S[d]							
17									
18					T				
19									
20	S,T	S, T			S	S	S		T
21									
22	S, T			T	S, T		T		T
23					T				
24	T[n]								
25									
26	T				T		T		S
27									
28									
29									
30	S, T	T	T	T	S, T	S, T	S, T		
31	S		S		S	S	S		
32 (NA)									
33									
34									
35	T		T		T	T	T		
36									
37									
Totals	12 S, 11 T	4 S, 5 T	4 S, 6 T	0 S, 3 T	11 S, 10 T	7 S, 5 T	5 S, 9 T	0 S, 0 T	4 S, 3 T

NA indicates not available. The subject did not complete this portion of questionnaire.
[a]"More than once!!!/Torn shoulder during arrest"
[b]"—minimal marijuana charge"
[c]"no but I've seen patients be raided! (very sick people)"
[d]"As a patient only"
[e] "(police returned it!)"
[f] "I've lost friends who don't understand."
[g]"son got ticket in my car for my pipe."
[h]"Not related to marijuana"
[i]"Piss tests for jobs"
[j]"Didn't pass urine Test for a job"
[k]"threats from patients when you can't meet their needs."
[l]"neighbors who smell medicine have called police"
[m]"no, but, medical patients at our clinic do"
[n]"had officer want to go threw house but changed his mind."
[o]From the underground market in controlled substances.

Home Eviction	Asset Forfeiture	Financial Aid Suspension	Biometabolite Screening of Excrement/Hair	Robbery of Their Medical Marijuana	Assault by Law Enforcement	Assault/Injury Related to Violent Elements[o]	Total No. Unique Tactics Reported
					S[a]		8
S							4
							3
T		T		T		T	11
S					S, T	S	6
							5
							1
							2
							4
S					S		3
							0
							3
T	T	T	S, T	S, T		T	12
							1
							0
							1
							0
S, T			S, T	S[e]	S		10
							0
S			S, T	S			8
S,T							3
							2
							0
S				T			6
							0
S[h]							1
							0
				S	S	S, T	10
					S		6
							0
							0
			S[i]				1
T			S[j]				7
							0
S, T							1
9 S, 6 T	0 S, 1 T	0 S, 2 T	5 S, 3 T	4 S, 3 T	6 S, 1 T	2 S, 3 T	119

TABLE 4. Input of Patients Using Medical Cannabis Into Cannabis Use Policy

Patient	Is There Anything You Would Like to Say About the Prevention and Control of Cannabis Abuse and/or Dependence?
1	"As a CDPT [Chemical Dependency Professional Trainee] I do not believe there is physical or psychological dependence, however I do believe some cases are special due to dual addictions"
2	"Yes, Safeguards for children should be used."
3	"Medically, it should be totally legal and recreationally—it should be legal over 21 years old."
4	"Like any prescription drug it's up to the user to be responsible with dosage."
5	"I've never had a problem with marijuana abuse as I've always been able to stop whenever I want. I don't see dependence as an issue, I simply use it for my chronic, severe pain."
7	"Allowing medical patients control of their own cannabis will deter abuse within our communities."
8	"I don't feel Cannabis is treated fairly as an herbal medicine."
12	"I Believe That Cannabis is a Healthy way to Treat MANY Ilnesses Without the toxic effects of pills"
13	"Legalize it. The medical use is better than suffering the side effects of the toxins I get from the legal pills"
15	"I am Far more concerned about law enforcement than dependence, although I am concerned about the long term health effects of smoking cannabis."
16	"it is better than pharmacy drugs that are known to be carceinogenic or cancer causers."
17	"I think that patient networks are the best way to regulate consistency and supply of this medicine that has a 'protective' effect according to my neurologist. I also am very vocal about discouraging young people from recreational use-I mainly tell them that it dilutes your focus-makes it difficult to concentrate on one subject and you may be putting yourself in legal jeopardy."
18	"It is Great for my Medical Problems and it helps me a Great Deal."
20	"Legalize it. _ Tax & regulate?"
22	"1. At times it can cause a lack of motivation or energy (But is still necessary to aid with medical issues). 2. I have *NEVER* felt or acted in a violent way when using medical cannabis!!!"
23	"It's the only thing that makes me happy."
24	"I have a good memory, good teeth and it helps in maintaining a good attitude and eating habits and helps with chronic pain."; "Thank you"
25	"It's better for my condition than prescription medication"
26	"I see no problem with pretty much anything that makes me feel better"
27	"No"
28	"LEGALIZE IT! It is a joke 4 Cannabis to be illegal when alcohol kills so many people. Cannabis is a naturally ocurring green plant, a gift from God."
33	"Nothing"
34	"It is the best thing I have found for the relif of pain and cramps"; "All perscription drugs I've been given either make me nauseated or uneasy"
36	"Pot should be easier to get ahold of for everyone. Non patients need it too."
37	"If it wasn't for cannabis I would not be able to stomach the medicine or keep my weight up and would definitely be dead by now. Cannabis has saved my life."

wrote the following comment: "what is a lot of time? Every day I use; I get it every two weeks." Twenty-two said yes to the question: "During the past 12 months, did you try to set limits on how often or how much marijuana or hashish you would use?" and, of these, six said that they would have answered this question differently if marijuana were treated like other herbal medicines. The comments the patients wrote about this question were "it depends on quantity and quality"; "2° to financial availability." Eighteen said yes to the question: "During the past 12 months, did you need to use more marijuana or hashish than you used to in order to get the effect you wanted?" and, of these, five said that they would have answered this question differently if marijuana were treated like other herbal medicines. Two patients answered yes to the question: "During the past 12 months, did using marijuana or hashish cause you to do things that repeatedly got you in trouble with the law?" and one responded that he would have answered this question differently if marijuana were treated like other herbal medicines. With regard to the pair of questions: "During the past 12 months, did you have any problems with family or friends that were probably caused by your use of marijuana or hashish?" and "Did you continue to use marijuana or hashish even though you thought it caused problems with family or friends?" five and nine patients, respectively, said yes, and six said they would have answered these questions differently if marijuana were treated like other herbal medicines. Several subjects disputed the premises of several of the yes or no questions such as "Did you continue to use marijuana or hashish even though you thought it was causing you to have physical problems?" with comments such as "I never thought that."

Finally, in the spirit of soliciting input from those who are directly affected by policies when crafting them, a basic tenet of due process, the patients were asked if they had anything that they would like to say about the prevention and control of cannabis abuse disorder. The input from those who responded is shown in Table 4.

DISCUSSION

The median GSI of psychological distress in the sample as measured by the BSI-53 was 0.745 and ranged from 0.11 to 3.057. For normative comparison, in a sample of 719 adult individuals who were randomly selected from the US general population that was 49% women, 12% African-American, and had a mean age of 49 years, the mean GSI score was 0.30, with an SD of 0.31 (Derogatis and Melisarotos, 1983; Francis et al., 1990). In a psychiatric outpatient sample of 1002 patients in the United States, the mean GSI was 1.19, with an SD of 0.87 (Derogatis and Melisarotos, 1983; Ryan, 2007). When compared with these norms, the median

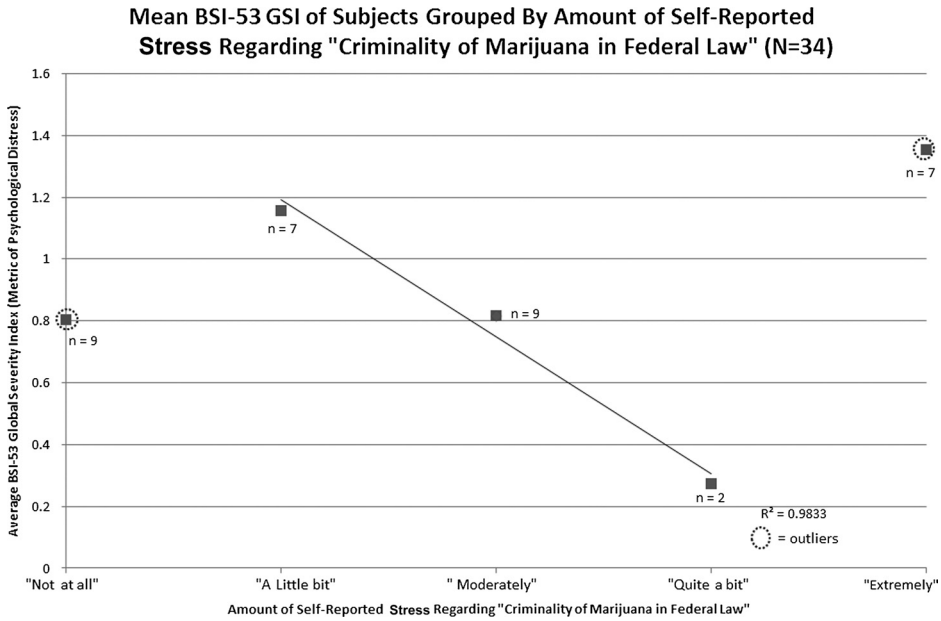

FIGURE 1. Mean BSI-53 GSI of the subjects grouped by amount of self-reported stress regarding criminality of marijuana in federal law. Stress regarding criminality of marijuana corresponds to an attitude of worry or stress related to this, about which the subjects were queried using a 5-point scale.

level of psychological distress in this patient sample, as measured by the BSI-53 GSI, was nearly 2.5 times higher than the mean found in a general population sample, although still less than 1½ standard deviations above the mean population norm. In addition, the patient sample median GSI score was one third lower than that found in a psychiatric outpatient sample.

Although increased psychological distress levels such as those found in the sample are certainly to be expected in patients with major and chronic medical illnesses, might some of this increased distress be secondary to the stress of their criminalized status and previous/ongoing exposure to the matrix of socially pervasive drug control tactics? To address this question, stress-distress correlations in the sample were investigated using regression analyses. Two variables in this study that stand for stressors included a) the subjects' answers to the five-option question regarding their degree of subjective "distress" (stand-in term for "stress" or "worry") felt related to criminalization of marijuana in federal law and b) the absolute number of substance control/drug enforcement tactics the subjects reported being exposed to, either through specific threat or actual subjection. When the subjects are separately pooled by their responses to these two questions, these two stressor variables can be shown to be correlated in revealing ways with the subjects' psychological distress, as measured by the mean BSI-53 GSI score of each pooling.

Figure 1 shows a graph of the mean GSI of the subjects grouped by their amount of self-reported psychological stress regarding federal marijuana criminality. A clear negative linear relationship ($R^2 = 0.98$)

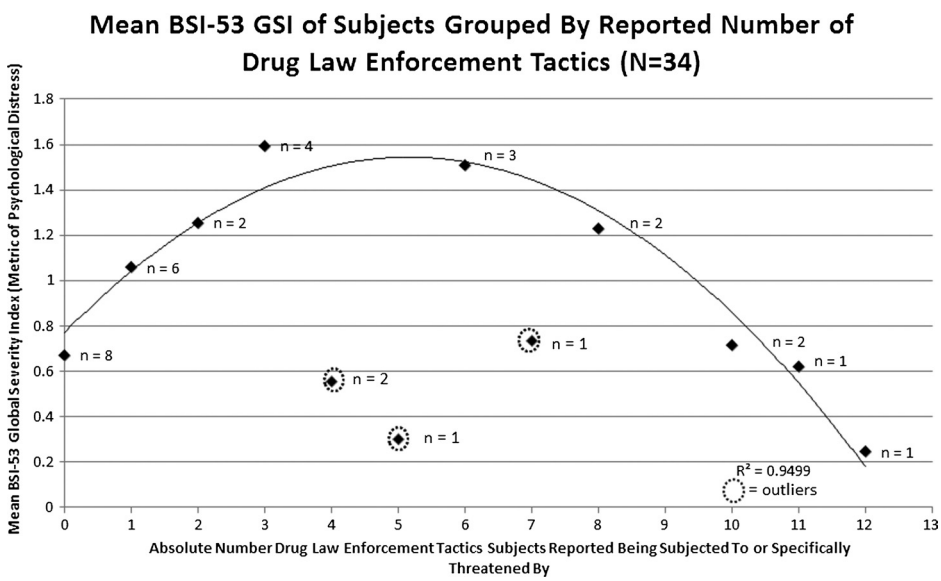

FIGURE 2. Mean BSI-53 GSI of the subjects grouped by reported number of substance control/drug law enforcement tactics. If the subjects indicated that they had both been threatened with and subjected to a particular tactic, this was counted as one exposure.

exists in the middle: the higher the amount of self-reported psychological stress felt regarding the criminality of marijuana in federal law, the lower the level of global psychological distress as measured by the BSI-53. This seems to indicate that the subjects with higher levels of psychological health, irrespective of age, diagnosis, or other factors, tended to report greater amounts of stress/worry/concern regarding the federal law's criminalization of marijuana. It is possible that those who have higher levels of psychological health would be likely to use superior coping strategies, thereby allowing themselves to self-report greater "stressful" loads with which they are equipped to cope. Notably, this linear relationship does not hold at either extreme end of the spectrum of self-reported stress, implying that other unknown factors modulate such responses there.

Turning now to specific stressors, Figure 2 graphically illustrates the relationship between the mean GSI when the subjects are pooled by the number of substance control/drug enforcement tactics reported. Here, aside from three outliers, a definite negative parabolic relationship is seen on regression analysis ($R^2 = 0.95$). To wit, an increasing amount of previous exposure to substance control/drug enforcement tactics is correlated in the sample, with increasing mean psychological distress up to a peak level of approximately five to six separate exposures. After this, an inflection point is reached (parabolic vertex), and further exposure to substance control/drug enforcement tactics is correlated with decreasing amounts of mean psychological distress. This could imply two possibilities. One, assuming that previous exposure to substance control/drug enforcement tactics can independently influence measured psychological well-being at the time of study participation, it is possible that a delayed adaptive process takes place whereby initial exposures worsen psychological health, but, after repeated exposures, improved psychological health develops as the subjects adapt to the stress of tactics via coping strategies. The subjects in the sample could perhaps be at various points along the spectrum of exposures and psychological adaptations at the time at which they participated in this study. Another possibility is that what is seen in the study are those patients who already have preexisting superior psychological health and were therefore able to withstand and cope with 5 to 12 exposures to substance control/drug enforcement tactics and still have the ability to be functionally participatory in pursuit of medical cannabis access. Furthermore, the others whose psychological distress significantly worsened after repeated exposures were just not functionally capable of presenting to the dispensary and enrolling in this type of study and are hence undetected. The four subjects represented in the three outlier points collectively represent 25.6% of the total number of person-years of medical cannabis authorization in the sample. Possibly, their lower BSI-53 scores could represent an overwhelming psychologically protective effect of a prolonged exposure to the protections of medical cannabis laws, despite their imperfections, thereby taking them off the curve.

Turning now to standard cannabis abuse screening tools, with an unmodified or noncritical reading of the subjects' responses to the NSDUH screening questions, as many as 22 of 34 or 65% may have been at risk for being classified as having a cannabis use mental disorder had they been administered the NSDUH because that is the highest percentage of subjects who answered yes to the question designed to screen for aberrant substance-related behavior. However, this interpretation would be ill informed. Indeed, the NSDUH data are used by federal agencies to generate nationwide figures on the number of people in the population "abusing or dependent on drugs." Substance abuse mental disorders are understood, in fact, to be residual diagnoses for individuals who do not meet the diagnostic criteria for substance dependence mental disorders. The *DSM-IV-TR (American Psychiatric Association, 2000)* notes: "diagnosis of Substance Abuse is preempted by the diagnosis of Substance Dependence if the individual's pattern of substance use has ever met the criteria for Dependence for that class of substances (Criterion B)." For substance dependence, one must demonstrate a "maladaptive pattern of substance use, leading to clinically significant impairment or distress" as manifested by satisfying at least three simultaneous diagnostic criteria (none are pathognomonic). Two of the criteria pertain to tolerance and withdrawal, the hallmarks of physiological dependence. There is nothing to suspect about these, aside from the potential of confusing the negative effects of ceasing consumption of a substance that provides therapeutic benefits with a syndrome of withdrawal from that substance. In addition, behaviors described in other substance dependence diagnostic criteria could be demonstrated to be present in a particular substance consumer simply because of the fact that the substance is prohibited. For example, a portion of Criterion A5—"a great deal of time is spent in activities necessary to obtain the substance (e.g., visiting multiple doctors or driving long distances)"—could be satisfied solely because of the fact the substance is prohibited and therefore unavailable for local or home production and/or distribution. Furthermore, if a substance is being used medicinally or therapeutically, it could certainly be the case that, as Criterion A3 states, "the substance is often taken in larger amounts or over a longer period than was intended." Often, individuals "discover" the therapeutic benefits of a substance that was initially intended to be consumed sparingly under an environment of prohibition. Once this therapeutic discovery is made, more of the substance will be needed than was previously intended. Moreover, one may go to greater lengths to obtain it (Criterion A5), similar to the lengths that people may go to in order to obtain any effective medicine, even if the medicinal benefit is palliative rather than curative or complementary rather than central. Given the environment of prohibition and the importance of the consumption of the substance to the maintenance of one's health, the time and the effort involved in procurement may cut into the time that could be used for doing other activities, such as those enumerated in Criterion A6: "important social, occupational, or recreational activities are given up or reduced because of substance use."

CONCLUSIONS

In summary, for this convenience sample of patients with chronic illness using medical cannabis, the average state of psychological stress related to the criminality of marijuana in federal law was nearly three quarters of the way from "a little bit" to "moderately." Their explanatory comments speak for themselves—their stress seems to have rational foundation. Indeed, when the severity and application frequency of federal criminal penalties for marijuana are fully comprehended, such attitudes seem rational. The pooled mean BSI-53 GSI scores are linearly negatively correlated with middle-range self-ratings of stress related to criminality of marijuana in federal law, implying that attitudes of increasing worry or stress related to the criminality of marijuana are actually indicative of the subjects' increasing degree of underlying psychological well-being, rather than the opposite. However, it should be noted that it is also possible that there is some degree of mismatching between what the BSI-53 is measuring and what the question regarding stress caused by the conflicted legal status of medical cannabis is measuring, making this correlation more difficult to interpret. Further work is needed on this.

Responses to the drug enforcement tactics screening show that these patients using medical cannabis have been subjected to a wide range of human rights violations by law enforcement under the color of authority granted to them from the substance abuse prevention and control laws, at all levels of governance. Collectively, the patients in the sample had been subjected to or specifically threatened by each substance control/drug enforcement tactic presented in the survey, with the sole exception of child removal, which may have been because of the fact that none of the patients had young children living with them at home. Seventy-six percent (26 of 34) of the sample

reported being subjected to or specifically threatened by the tactics listed. Despite these clear examples of drug law enforcement experience, the patients found ways of coping with the continual deprivation of their internal locus of control, and the fact that they use positive coping mechanisms is indicative of their development of constructive adaptive strategies for dealing with the contraband status of cannabis. Finally, the patients' responses to the NSDUH screening questions, which were often very complex and dealt with multiple individual and social factors whose influences cannot be specifically ascertained with a basic set of yes or no questions, demonstrated that cannabis abuse and dependence nosologies are deficient in incorporating many of the sociolegal and sociomedical contexts of cannabis use, including self-administered use under medical supervision. This study was limited by the small sample size, which limits generalizability. Note that the outliers are separated out in the regression analysis because of their ability to significantly skew trends, given the overall small sample size in this study.

ACKNOWLEDGMENT

The authors thank Prashanti Inamti, M.Eng, for his assistance with manuscript revisions and quantitative analysis.

DISCLOSURES

This study was based upon work supported by the National Science Foundation Graduate Research Fellowship under Grant DGE-0718124. Dr Ethan Russo is acknowledged as a member of SKA's doctoral supervisory committee by which this work was originally overseen.

The authors declare no conflict of interest.

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