

Testimony in Support of Adding Post-Traumatic Stress Disorder as a Qualifying Medical Condition for the Vermont Marijuana Program

Submitted by Sue Sisley, M.D., to the House Human Services Committee

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Thank you for the opportunity to speak today on behalf of adding PTSD to the list of debilitating medical conditions covered under Vermont's medical marijuana law.

As this subject is controversial, and many people have strong opinions on this subject, I think it is important to know how solid the information you are hearing is, and how credible and qualified the speaker is. Therefore I would like to briefly establish my credentials as a physician qualified to comment on this question.

I have been a practicing Arizona Physician for 14 years in internal medicine and psychiatry. I served as clinical faculty at St. Joseph's Hospital internal medicine clinic and now at the University of Arizona College of Medicine. As a board certified psychiatrist, I have a long standing interest in psychiatry and substance abuse. My practice is filled with many combat veterans and first responders with treatment resistant PTSD. Which is why I am now serving as principal investigator of an FDA approved randomized controlled trial looking at the safety and efficacy of marijuana in treating PTSD.

I mention all of this as there are so many conflicting opinions, so much misinformation, so many vested interests, that it is important to consider the source when evaluating what you hear or read. And, on my part, when I read medical articles and studies I look for solid, peer reviewed studies, by reputable researchers from unimpeachable institutions. Examples would include studies from the our own government's National Institute of Mental Health, articles from our top medical schools, like the University of California, New York University, the University of Arizona and the Mayo Clinic.

I have no financial ties to the medical marijuana industry. I am not a dispensary owner nor a certifying physician. I do not use medical marijuana nor recreational marijuana. Have never even tried it. Not once. But from my scientific background and clinical experience, I do believe that medical marijuana, for some patients, and for some conditions, may be the best and most effective form of treatment.

As one that cares for combat vets, I have had several patients that were killed or injured in various conflicts over the years.

Of those that came home, several have suffered from PTSD, hence my strong interest in today's subject.

But while that is my personal motivation, it is important to remember that military service members, or firemen, or policemen, are not the only people that suffer from

PTSD. Any traumatic life event or loss can trigger PTSD, and more women than men suffer from PTSD.

Post Traumatic Stress Disorder (PTSD)

About 50% of all American adults will encounter a severely stressful event at least once in their lives. This could be combat, a bad accident, a beating, sexual abuse, rape, an earthquake, fire, a severe health issue or other similar happening. A person may experience it directly or they may see a friend or loved one as the victim of such event.

When faced by such a traumatic or life threatening situation, our bodies immediately go into a fight or flight response. Our bodies focus totally on survival. Nothing else matters. We have a heightened awareness, our heart beats fast, our blood flows to our muscles, our hormones surge. We are ready for the fight of our lives.

Now, if that person survives that severely stressful encounter, over the next few hours the physical responses will return to normal. And in a few days, weeks or months our memory, and emotional response to that stress will fade.

But for some people, about 15% of those exposed to such major stress, memory and emotions don't fade and adapt. Instead they continue to react as if the original event was reoccurring, time and time again. The reaction that served them well during the original stressful event, now becomes a problem in their everyday life. This abnormal, or delayed, reaction may last for years. And the initial re-occurrence of the stress reaction may occur years after the initial stress.

Heart beating out of your chest, muscles tense, epinephrine cascading through your body, eyes dilated, ready to fight...all good if you are confronted by maximum danger...a snarling tiger...but not so good if just reacting to the family cat plopping on your lap. This is PTSD. Abnormal reaction to everyday stimuli... as if it was the original event.

How Common is PTSD?

Of those Americans that do encounter, and survive, a major stressful happening, most adapt normally with eventual fading of the memory and emotions. But for about 15% of those people this does not occur. These are people with PTSD. About 7% of all adult Americans will suffer PTSD at some time in their life. And in any one year almost 3% of adult Americans will suffer with PTSD. That is around 6,000,000 adults.

So, PTSD is pretty common. It can also affect children and teens. And, even though we often think of wars and combat veterans when we think of PTSD. There are actually more women suffering from PTSD than men. But, for those who have served in combat, both the frequency and toxicity of PTSD is increased.

What is PTSD?

It is the failure to adapt to the original stress. Victims re-experience the original stress time after time. In memories, flashbacks and dreams. They try to avoid situations and stimuli that might trigger such memories. They have heightened arousal, have difficulty sleeping, can't concentrate and may be irritable. They are hyper vigilant and fearful. They are feeling danger. What's around that corner?

What does PTSD lead to?

Individuals with PTSD suffer a decreased quality of life. Anxiety increases along with depression. They are at increased risk of poor health. Relationships suffer, divorce rates increase, success in school fades and many become unemployed. At this moment, over 100,000 veterans, many with PTSD, are homeless.

PTSD leads to an increased risk of suicide. Combat related PTSD is particularly severe and difficult to treat. Every day in the USA, 22 veterans commit suicide. That is a shocking number.

Is there good current therapy for PTSD?

Not really. The current use of SSRI type anti-depressants, and anti-anxiety medications, as the mainstay of treatment, are of limited value for many patients. Either they don't work well or the side effects, such as obesity, grogginess or decreased sexual function, cause many patients to discontinue therapy. Psychotherapy may be helpful for some, but is of limited availability. An additional pharmacological agent to treat PTSD could be very beneficial for many patients.

What is the role of medical marijuana in treating PTSD?

A review of the current medical literature demonstrates many recent articles on PTSD. They share a common theme. Current therapy is not adequate for many patients. And in particular SSRIs do not treat, or help extinguish, toxic memories, the core problem of PTSD.

Here is a typical quote. It appears in an article by Drs. Trezza and Campolongo in *Frontiers in Behavioral Neuroscience*, August 2013: "Although SSRIs emerge as the first line treatment to treat the anxiety symptoms of PTSD, a large proportion of those patients fail to respond to those medications. Furthermore, no treatment is currently available to treat the mal-adaptive cognitive features of PTSD." "Studies point to the endo-cannabinoid system as a possible ideal therapeutic target to treat both the emotional and cognitive dysfunction characterizing PTSD."

Another 2013 article, by Dr. Akirav in *FBN*, September 2013, states "The endo-cannabinoid enhancers may be the ideal pharmacologic treatment for PTSD by blocking the pathological over-consolidation and continuous retrieval of the traumatic event on the one hand, and enhancing its extinction and reducing the anxiety symptoms on the other hand. These effects fit well with the concept of reducing fear memory."

In 2012 Drs. Emrich et al, in *Drug Test Analytics*, July-August 2012 writes "This review shows that recent studies provided supporting evidence that PTSD patients may be able to cope with their symptoms by using cannabis products. Cannabis may dampen the strength or emotional impact of traumatic memories through synergistic mechanisms that might make it easier for people with PTSD to rest or sleep and feel less anxious and less involved with flashback memories."

Recent research with functional MRIs and PET scanners demonstrate that PTSD is more than just an emotional or psychological condition. It is a process that affects both neuro-hormones and functional neuroanatomy.

Dr. Rabinak, of the University of Michigan, reports a human study, using functional MRI, in *Neuro-biological Learning*, September 2013. It states, "This study provides the first evidence that pre-extinction administration of THC modulates the prefrontal-limbic circuits during fear extinction in humans."

Good, double-blind prospective research studies on the effectiveness of medical marijuana are very difficult to perform in the United States due to the well known opposition to these studies by NIDA and the DEA.

But, we have a very good retrospective study from the State of New Mexico Medical Advisory Board. New Mexico was the first state to approve PTSD as a qualifying condition for treatment under their medical cannabis program.

The study is known as "PTSD Symptom Reports of Patients Evaluated for the New Mexico Medical Cannabis Program."

This study was approved for study by the Institutional Review Board of UCLA. It states, "The Clinician Administered Post-traumatic Scale (CAPS) was administered retrospectively and symptom scores were collected and compared in a chart review of the first 80 patients evaluated."

"Results: Greater than 75% reduction in CAPS symptom scores were reported when patients were using cannabis than when they were not... There is extensive evidence that cannabinoids may facilitate extinction of aversive memories." The New Mexico report concludes "There are currently 3350 patients enrolled in the PTSD program. To date, there have been no incidents or adverse events."

Briefly, on the subject of adverse events and risk factors, it appears that medical marijuana is rather safe when used under informed medical supervision. The NYU Institute of Human Development states "While marijuana is not physically addicting it is habit forming. Regular users sometimes experience withdrawal symptoms such as grogginess, irritability, nausea, insomnia and agitation. These generally wear off in one to two days". They also state "It is nearly impossible to overdose on marijuana."

It should be noted that marijuana does become habit forming in about 9% of users. Those at increased risk for habituation are youths and proper caution should be observed. Also note the rate of habit formation is much lower than for tobacco and alcohol.

To conclude:

PTSD is a common but serious disorder.

Almost 6,000,000 Americans are affected each year.

It is a disabling condition leading to a poor quality of life.

Many patients become depressed and are at increased risk of suicide.

Combat related PTSD is particularly toxic and hard to treat.

18 US veterans commit suicide every day.

Conventional treatments are of limited value.

New research is showing the value of medical marijuana, not only in the treating of symptoms, but possibly treating the root cause of PTSD...the inability of some people to extinguish traumatic memories.

Writing in the *Mayo Clinic Proceedings*, February 2012, Dr. Raphael Mechoulam, the Israeli scientist that first synthesized THC, and who led the team that discovered the endo-cannabinoid system in humans, said "I believe that medical marijuana as a therapeutic entity is here to stay. It is being used in numerous medical conditions, at times with considerable success. Are we entitled to neglect such a valuable drug?"

I strongly encourage approval of PTSD as a qualifying medical condition under the Vermont Marijuana Program.

Thank you

Sue Sisley MD