Thesis: PTSD and CBD

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Sadly, PTSD is a common problem. Serious emotional trauma affects millions of people around the world each year. In more than 100 countries there is recurring violence based on ethnicity, culture, religion or political orientation. Men, women and children suffer from hidden sexual and physical abuse. The trauma of molestation can cause PTSD[CITATION Sch00 \l 1033]. So can rape, kidnapping, serious accidents such as car or train wrecks, natural disasters such as floods or earthquakes, violent attacks such as mugging, torture, or being held captive and now being widely admitted is military or war time experience[CITATION Fri07 \l 1033]. The event that triggers PTSD may be something that threatened the person's life or jeopardized someone close to him or her[CITATION Olt10 \l 1033]. On the other hand, simply witnessing acts of violence, such as a mass destruction or massacre can cause symptoms[CITATION Col06 \l 1033]. PTSD can affect survivors, witnesses and relief workers, military members and public safety personnel[CITATION Olt10 \y \t \l 1033].

Whatever the source of the problem, PTSD patients continually relive the traumatic experience in the form of nightmares and disturbing recollections and vivid daydreams often referred to as *flashbacks*. They are hyper-alert[CITATION Fri07 \l 1033]. They may experience sleep problems, depression, feelings of emotional detachment or numbness, and may be easily aroused or startled[CITATION Fri07 \y \t \l 1033]. They may lose interest in things they used to enjoy and have trouble feeling affectionate. They may feel irritable, be violent, or be more aggressive than before the traumatic exposure[CITATION PTS09 \l 1033].

Triggers are a big deal with PTSD. They are things that cannot be simply forgotten about that cause symptoms of PTSD. One time, a clinician said to me that I need to "get over it" when I was telling him about a triggering event. That in itself was actually a good trigger for me. It reminded me of an officer yelling at the back of my head to kill, kill, kill, and take the shot. Seeing things that remind them of the incidents may be very distressing, can lead patients to avoid certain places or situations that bring back those memories, a symptom referred

to as avoidance[CITATION Olt10 \l 1033]. Anniversaries of a traumatic event are often difficult. Ordinary events can serve as reminders of the trauma and trigger flashbacks or intrusive images. For me, movies about war or TV footage of the Iraq or Afghanistan wars can be triggers. People with PTSD may respond disproportionately to more or less normal stimuli — a car backfiring, a person walking behind them. A flashback may make the person lose touch with reality and re-enact the event for a period of seconds, hours or, very rarely, days[CITATION Olt10 \l 1033]. A person having a flashback in the form of images, sounds, smells, or feelings experiences the emotions of the traumatic event. They relive it, in a sense of momentary survival.

Symptoms may be mild or severe — people may become easily irritated or have violent outbursts. In severe cases, victims may have trouble working or socializing[CITATION Pos09 \l 1033]. Symptoms can include problems with persistent depression symptoms, explosions or outbursts of suppressed anger and or aggression, loss of sex drive, having amnesia, new or different emotions or feelings of depersonalization. Depersonalization is when you feel strange about yourself[CITATION Olt10 \l 1033], which is not to be confused with self-esteem. Patients can also have a feeling of helplessness, shame, guilt, blaming oneself, self-punishment, and loneliness[CITATION Olt10 \y \t \l 1033]. Alterations in perception of the perpetrator, for instance adopting distorted beliefs, paradoxical thankfulness, idealization of perpetrator and adoption of his system of values and beliefs can also occur[CITATION Fri07 \l 1033]. A major problem for many is that PTSD can lead to distorted relationships with others[CITATION PTS09 \l 1033]. Patients may isolate themselves, retreating into seclusion, unable to trust others, destroying relations with family members, often fearing the inability to protect oneself against becoming a victim again[CITATION Fri07 \y \t \l 1033]. This is when you start to suffer from delusional paranoia. Then there is a loss of hope, trust and previously sustaining beliefs, feelings of hopelessness, despair, suicidal thoughts and preoccupation with death[CITATION Roy06 \l

1033]. Some people have somatization or persistent problems in the digestive system like Irritable Bowel Syndrome[CITATION Fri07 \y \l 1033]. Chronic pain, cardiopulmonary symptoms like having shortness of breath, chest pain, dizziness, palpitations or having an anxiety attack are common during flashbacks and acute episodes[CITATION Fri07 \l 1033].

Some treatments are out there for PTSD. I have found most doctors just treat it by the symptom, dealing with individual problems or signs and symptoms. For the treatment of anxiety, many books state that Benzodiazepines are not effective[CITATION Olt10 \l 1033]. However, from personal experience and other Vets I know, I have found this to be incorrect information. Although Benzodiazepines are highly addictive they do very well with general anxiety and fear of leaving the house or staying shut in for safety reasons. The anxiety medication I have seen most used lately is Klonapin or Clonazipam. Oltman's and Emery state SSRIs work great. SSRIs are serotonin re-uptake inhibitors. They control the part of the nerve called the synapse and are used as a mood or feeling stimulator[CITATION Pos09 \l 1033]. SSRIs are more effective for depression. One very basic SSRI on the market that is quite useful in dealing with the depression component of PTSD is Zoloft. Another Anti-depressant commonly used for the depression and sleep problems of PTSD is Elavil.

Another problem that arises with PTSD is drastic mood changes, so the doctors will throw a mood stabilizer into the prescription mix. Now these drugs get funny. There are many out there, but all come with a hefty price of side effects or battery of weekly and monthly tests. The first big one for the severe mood disorders is Lithium. Lithium can be a dangerous toxic drug. This drug comes with a whole battery of weekly and monthly tests to obtain the right blood levels. Next down the line of mood stabilizers is Depakote. This is another big hitter in mood stabilizers. Depakote does not need as much monitoring and control of the blood levels but does have a nasty little side effect of major weight gain. Both medications do combat the

flashbacks, the visual and auditory hallucination of reliving the traumatic experience. A newer, better medication that is gaining favor among physicians is Invega or paliperodone.

Now let us talk about sleep. With PTSD, sleep can be rare. Suffers can either be too manic to sleep, or just plain afraid to try to sleep since nighttime can be a prevalent time to re-experience traumatic events or have horrible nightmares[CITATION PTS09 \l 1033]. The medications prescribed for this range from heavy duty tranquilizers like Temazapam to easy to obtain and abuse Benadryl. Some anti-depressants have a side effect of drowsiness and sleepiness like Elavil and are sometimes prescribed to combat the insomnia too. The treatment for PTSD includes a lot of pills or medications that are taken to combat only a few of the problems, not all, and as with all medications, they do not mix well.

A new, very controversial treatment that combats most the signs and symptoms stemming from PTSD is the use of Cannabis or Marinol. There is a large body of evidence that suggests that cannabis enhances ability to cope with PTSD[CITATION Dav09 \l 1033]. Many combat veterans suffering from PTSD rely on cannabis to control their anger, nightmares and even violent rage[CITATION Dav09 \y \l 1033]. It can also treat the depression, anxiety and Schizophrenias. Recent research sheds light on how cannabis may work. The early studies have been done on animals, not on humans but they still show potential for success[CITATION Dav09 \y \l 1033]. Neuronal and molecular mechanisms underlying fearful memories are often studied in animals by using “fear conditioning”. Scientists give animals PTSD-like symptoms by using neutral or conditioned stimuli, which is typically a tone or a light, pairing the stimuli with an aversive stimulus, typically a small electric shock to the foot[CITATION Dav09 \y \l 1033]. After the two stimuli are paired a few times, the conditioned stimuli alone will evoke the stereotypical physical features of the fearful response, including changes in heart rate and blood pressure and freezing of ongoing movements. Repeated presentation of the conditioned stimulus

alone leads to extinction of the fearful response as the animal learns that it need no longer fear a shock from the tone or light, a condition called Fear Extinction[CITATION Dav09 \y \l 1033].

The limbic system regulates emotions and memory formation, and includes the hypothalamus, the hippocampus, the amygdale, and several other structures in the brain that are particularly rich in CB1 receptors[CITATION Dav09 \l 1033]. The amygdale, a small, almond-shaped region lying below the cerebrum, is crucial in acquiring and, possibly, storing the memory of conditioned fear[CITATION Dav09 \y \l 1033]. It is thought that at the cellular and molecular level, learned behavior including fear involves neurons in the base-lateral part of the amygdale, and changes in the strength of their connection with other neurons [CITATION Dav09 \y \l 1033]. CB1 receptors are among the most abundant neuroreceptors in the central nervous system. They are found in high levels in the cerebellum and basal ganglia, as well as the limbic system[CITATION Roy06 \l 1033]. The classical behavioral effects of exogenous cannabinoids such as sedation and memory changes can be correlated with the presence of CB1 receptors in the limbic system[CITATION Dav09 \y \l 1033].

In 2003, Giovanni Marsicano of the Max Planck Institute of Psychiatry in Munich and his co-workers showed that mice lacking normal CB1 readily learn to fear the shock-related sound, but in contrast to animals with intact CB1, they fail to lose their fear of the sound when it stops being coupled with the shock[CITATION Dav09 \l 1033]. The results indicate that endo-cannabinoids are important in extinguishing the bad feelings and pain triggered by reminders of experiences[CITATION Dav09 \y \l 1033]. The discoveries raise the possibility that abnormally low levels of cannabinoid receptors or the faulty release of endogenous cannabinoids may be involved in post-traumatic stress syndrome, phobias, and certain forms of chronic pain.

This suggestion is supported by observations of people who smoke marijuana to decrease their anxiety and veterans who use marijuana to decrease their PTSD symptoms. It is also possible, that chemicals that mimic cannabis could help heal PTSD. Many medical marijuana users are aware of a signaling system within the body that their doctors learned nothing about in medical school: the endocannabinoid system. Nicoll and Alger describe this system as "an entirely new signaling system in the brain: a way that nerve cells communicate that no one anticipated even 15 years ago. Fully understanding this signaling system could have far-reaching implications. The details appear to hold a key to devising treatments for anxiety, pain, nausea, obesity, brain injury and many other medical problems". This is a system that the doctors will not all yet accept, and which needs to be understood better to treat and help people with post traumatic stress disorder. I think this system shows the greatest potential for curing PTSD.

Now that we have already discussed an illegal drug, I feel it is easy now to discuss self-medicating. Self-medicating is common with PTSD suffers and unfortunately with our veterans[CITATION Col06 \l 1033]. Self-medicating is anything and everything from drinking a beer to relax to popping Benadryl to sleep. Now this may look like drug dependency and it can lead to dependency issues but I am going to explain the thought process with self-medicating with every drug imaginable and show a difference between self-medicating and addiction. People self medicate because of lack of health care insurance, affordability of health care or simply the patient does not feel it is worth letting a doctor know about their ailments. Sometimes, the doctors miss diagnose or they feel the problems are not worth treating.

Let us start with Beer and alcohol. Beer is a social lubricant and is also helpful with anxiety and general aches and pain. Beer is low in alcohol and can be drunk all day long to help coping mechanisms. Alcohol or Liquor is a good sedative for sleep and major pain like dental or orthopedic pain. The quantities I'm referring to here are only like a 6-pack of beer or a couple of

ounces of liquor. When you start drinking cases of beer and bottles of the booze in one setting, you are getting into dependency issues. In addition, with too much alcohol flash backs and depression can be triggered more severely. Over the counter sleep-aides are used for self-medication too. Drugs with anti-histamines like Benadryl and Nyquil are used for sleep aides.

Okay here is the nitty gritty. My opinion right off the start here is that illegal street narcotics are just that, illegal. They are used a lot to self-medicate and do hang on the line of addiction. Marijuana was discussed prior, and shows some potential in studies to treat PTSD. Other street drugs PTSD suffers may take are cocaine or its smoke-able cousin crack. Cocaine is a sedative and partly euphoric. This drug is used to relax and step out of reality. The next drug is Opiates or its derivatives like Vicodin and Heroin. Both are highly addicting but can be used in small amounts to relax and generally feel good, either just in the head or through the whole body. All of these drugs are sadly very easily obtained on the street, much easier than just going to a doctor and getting the appropriate professional care. Once again these are illegal for a reason.

Humans have been suffering from Post Traumatic Stress Disorder for ages. The official titles have been whatever society could accept due to the humanistic coping mechanism of not accepting truth that may show weakness. Some of the great labels that have been placed on PTSD sufferers in the past were “heartsick” during the Crimean War, “weak heart” in the Civil War, and “shell shock” in World War I and II. It was not until 1983 that the term *posttraumatic stress disorder* was coined to describe the symptoms suffered by Vietnam Veterans [CITATION Sch00 \l 1033]. People suffering from PTSD have found ways to deal and cope or just get by with this ailment in the past. In the past, there was no treatment, or people who would listen. Even now, PTSD patients find it hard to find people they feel understand them.

Living with PTSD can be a challenge. A cure is not in sight, but advances in treatment options and understanding of the biological mechanisms happen all the time. Perhaps one day we can find a way to prevent or cure PTSD.

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