VETERANS PTSD

Clinical Summary

by HARVEST MEDICINE | 2021

Veterans & PTSD

Veteran in Canada is broadly defined as any former member of the Canadian Armed Forces.[1] Owing to their unique combat experience, they have a disproportionately high rate of mental health disorders and post-traumatic stress in comparison to civilians.[2] It is estimated that in Canada, up to 10% of war zone Veterans will eventually experience a chronic condition known as post-traumatic stress disorder (PTSD).[3] Active or retired combat veterans, career veterans and civilians may also exhibit PTSD symptoms as it can affect people of any age, culture or gender.[4]

Photo by Ryan on Unsplash

PTSD is a psychological response to the experience of intense traumatic events, particularly those that threaten life.[3] Traumatic events are not limited to single scenarios and may also include prolonged exposure to stressful situations. Symptoms are broadly divided into 3 groups: reexperiencing, avoidance and numbing, and hyperarousal. Reexperiencing refers to having flashbacks, nightmares, and reliving the traumatic experience.[5] Avoidance-numbing refers to emotional numbness, as well as avoiding certain factors (such as places or activities) that may remind the individuals of the traumatic events.[5] Hyperarousal symptoms include difficulty sleeping or concentrating and irritability.[5] While psychotherapy is considered the first-line treatment, psychiatric medications are generally used adjunctively.[4] However, these drugs have questionable efficacy and are associated with significant undesirable side effects.[4]

The development of additional treatment agents is important because current medications, including selective serotonin reuptake inhibitors, serotonin/norepinephrine reuptake inhibitors, antiadrenergic agents, & second-generation antipsychotics, have questionable efficacy and often carry significant undesirable side-effect profiles.[4]

Although not clearly understood, endocannabinoid system is thought to play a role in extinction of aversive memories.

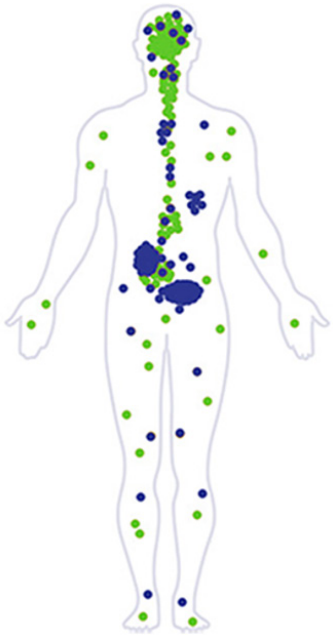
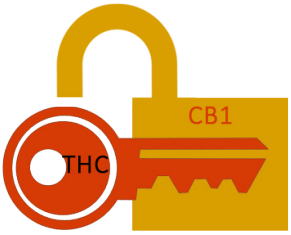


Figure 1 CB1 & CB2 receptor sites[9]
Adapted from GreenLight Medicines

A study demonstrated that once a deficiency in endocannabinoid system was corrected in mice, stress inducing memories reduced. This enabled them to overcome their conditioned response to traumatic shock treatments.[5]

Figure 2 THC & CB1 receptor activation[10]
(de Sanctis, 2021)



Also, activation of CB-1 receptors (Figure 1 & 2) by cannabinoids modulates neurotransmitter release such that it prevents excessive neuronal activity and decreases anxiety.[4] These findings suggest that MC may be an effective treatment for PTSD.

The effects of medical cannabis (MC) in PTSD treatment have been demonstrated in different clinical studies. A retrospective case series review of adult patients with PTSD revealed that CBD treatment, when used in addition to routine psychiatric treatment, led to reduction of scores on the Post-Traumatic Stress Disorder Checklist for DSM-5 (PCL-5), a checklist for assessing the severity of PTSD symptoms.[4]

Veterans & PTSD

The baseline mean PCL-5 score was 51.82, which decreased by 21% to 40.73 after 4 weeks of treatment (Figure 3).[4]
Their symptom severity scores were significantly reduced when they were using MC relative to when they were not
($p < 0.0001$).[5] In a cross-sectional study of Canadians, PTSD was strongly linked to major depressive episode and suicidal ideation in patients not using MC, but this association was not found in MC users.[6] This suggests that MC plays a role in decreasing symptom severity in PTSD. Harvest Medicine's self-reported data, with a sample size of 2471 patients treating PTSD symptoms with MC, shows that 87.98% have experienced a somewhat or very positive impact on their quality of life.[7]

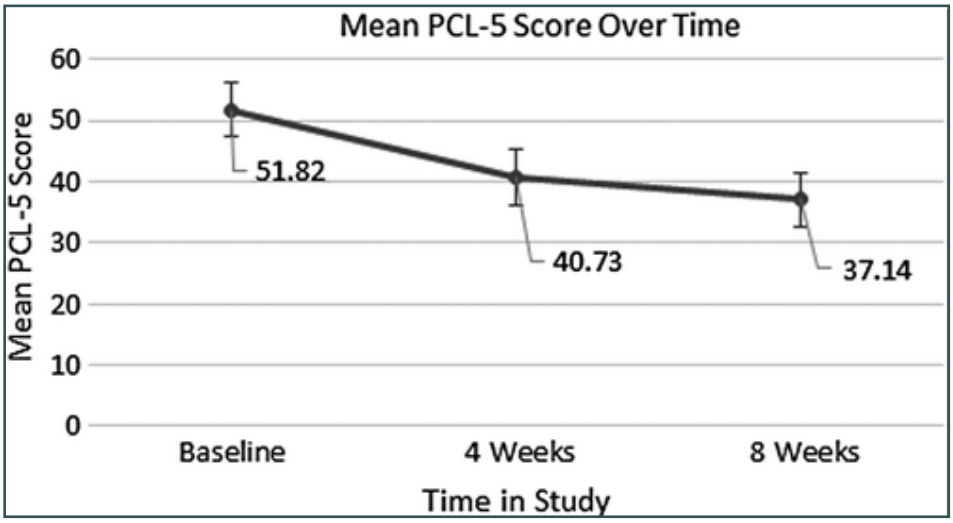


Figure 3 Mean PCL-5 score of the sample over the course of the study depicted as a function of time showing the observed decrease. PCL-5, Post-Traumatic Stress Disorder Checklist for the DSM-5.[4]

Even though the effects of MC in PTSD treatment are promising, it is important to note that there are limitations. First, a randomized controlled study with a large sample size has yet to be published to produce more robust evidence. Second, some reported adverse effects of MC include somnolence, amnesia, cough, nausea, dizziness, and euphoric mood.[8] Third, the optimal dosing of MC in PTSD treatment has not been determined. However, when assessing risk factors, overdose from MC is unlikely due to the nature of the endocannabinoid system and the lack of endocannabinoid receptors in the cardio-respiratory centers of the brainstem. In comparison to opioids, MC does not have the same potential to impact the cardiovascular or respiratory systems. Yet, underlying medical conditions can be exacerbated by using MC. Therefore, to ensure safe and effective MC use, experienced healthcare practitioners should be involved when considering initiating, and throughout, a cannabinoid-based treatment plan.

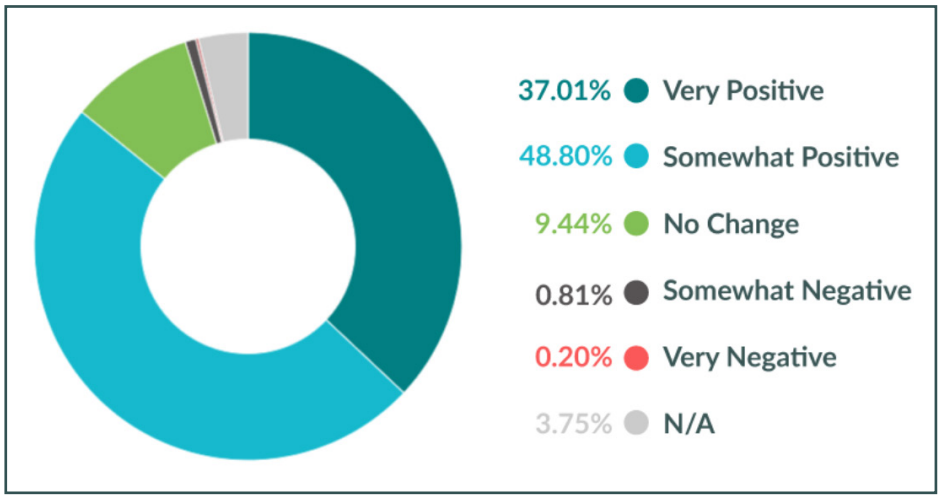


Figure 4 Harvest Medicine. (2021). PTSD patient self-reported outcomes[7]

-Harvest Medicine 2021
& Kang, A., University of Toronto
Pharmacy Intern 2021

References

1. Veterans Affairs Canada (2019, February 12). Mandate, Mission, Vision, Values and Ethics. https://www.veterans.gc.ca/eng/about-vac/what-we-do/mandate
2. Olenick, M., Flowers, M., & Diaz, V. J. (2015). US veterans and their unique issues: enhancing health care professional awareness. Advances in medical education and practice, 6, 635–639. https://doi.org/10.2147/AMEP.S89479 retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4671760/#:~:text=Veterans%20experience%20mental%20health%20disorders,44%20are%20most%20at%20risk
3. Veterans Affairs Canada (2019, August 22). Post-traumatic stress disorder (PTSD) and war-related stress. https://www.veterans.gc.ca/eng/health-support/mental-health-and-wellness/understanding-mental-health/ptsd-warstress
4. Elms, L., Shannon, S., Hughes, S., & Lewis, N. (2019). Cannabidiol in the treatment of post-traumatic stress disorder: a case series. The Journal of Alternative and Complementary Medicine, 25(4), 392-397. https://doi.org/10.1089/acm.2018.0437
5. Betthauser, K., Pilz, J., & Vollmer, L. E. (2015). Use and effects of cannabinoids in military veterans with posttraumatic stress disorder. American Journal of Health-System Pharmacy, 72(15), 1279-1284. 10.2146/ajhp140523
6. Lake, S., Kerr, T., Buxton, J., Walsh, Z., Marshall, B. D., Wood, E., & Milloy, M. J. (2020). Does cannabis use modify the effect of post-traumatic stress disorder on severe depression and suicidal ideation? Evidence from a population-based cross-sectional study of Canadians. Journal of psychopharmacology, 34(2), 181-188. 10.1177/0269881119882806
7. Harvest Medicine. (2021). PTSD patient self-reported outcomes. Retrieved July 2021 from https://hmed.ca/patient-outcomes/
8. Ware, M. A., Wang, T., Shapiro, S., Collet, J. P., Boulanger, A., Esdaile, J. M., ... & O'Connell, C. (2015). Cannabis for the management of pain: assessment of safety study (COMPASS). The Journal of Pain, 16(12), 1233-1242. 10.1016/j.jpain.2015.07.014
9. GreenLight Medicines. Fig. 1 Cannabinoid receptor locations in the human body. Retrieved February 2021 from What is the Endocannabinoid System (ECS)? - GreenLight Medicines
10. Dr. de Sanctis, O. (2021, February 17). Medical Cannabis and Neuropathic Pain [PowerPoint slides]. Harvest Medicine Inc.