**The Effects of Chronic Pain and Stress: Cannabis Presented as an Alternative to Opioids**

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Cognitive function refers to the mental processes involved in acquiring knowledge and understanding through thought, experience, and sensory perception. Cognitive function is vital for maintaining an independent life in older adults, and cognitive impairment disrupts their quality of life (Lee, 2019). Due to this, the need to maintain and improve cognitive function in older adults is vital. Subjective cognitive decline (SCD) is defined as self-reported cognitive decline in daily life and is a core criterion for the diagnosis of mild cognitive impairment (MCI). Studies have shown associations between SCD and various factors, including disease, activities of daily living (ADL), depression, and anxiety. SCD can negatively impact the health-related quality of life of older adults, making it an important issue. The prevalence of cognitive impairment is associated with poorer perceived health status, more severe depression, and lower physical and cognitive activity levels (Lee, 2019). Further, the effects of pain as well as the psychological distress that comes along with it is a factor that impacts cognitive functioning as well as quality of life, especially in the older adult population. To mediate these concerns, the use of cannabis for the treatment of pain as well as its detrimental effects on subjects’ emotional state of mind has been increasingly researched in recent years.

**The Significance of Pain and Stress on Cognitive Function**

Chronic pain is a very common problem within the US population, and other issues seemingly come along with it. Some of these often co-existing health problems can include deficits to attention, memory, or executive functions. More specifically, a correlation is shown between chronic pain and patients’ performance regarding information processing speed, verbal memory, and working memory. Hart (2003) emphasizes the detrimental effects in quality of life due to chronic pain, as these measures of cognitive performance are tied to daily functioning. Chronic pain has shown to have a correlation with cognitive decline, as well as emotional distress and mood changes with symptoms such as increased somatic concerns, abnormal sleep patterns, fatigue, and struggles with daily functioning. Cognitive impairment caused by stress affects one’s overall wellbeing, as routine activities will demand an increased amount of energy and effort. Pain is a multifaceted experience, with sensory, emotional, cognitive, and behavioral components. Pain is prevalent at the end of life stage, with one in three respondees reporting moderate to severe pain in their last months of life. Notably, one out of every five patients experiencing pain at this stage requires medical attention due to the distress it causes (Croker, 2019). Leaving chronic pain untreated can induce several psychological stressors, such as a loss of control, hopelessness, or fear. Experiencing these things can cause a lack of motivation as well as the exacerbation of physical symptoms (Hart, 2003). It is also mentioned that chronic pain patients often experience abnormally high levels of stress and anxiety.

The brain region that regulates emotional responses, known as the anterior cingulate cortex (ACC), is a piece of the body’s neural network which mediates pain-related emotional distress on cognitive functioning. This distress also leads to dysregulation of the HPA axis, leading to memory deficits due to its harmful effects on hippocampal function (Hart, 2003). Findings suggest that the physiological response to repeated stress has been linked to potential changes in brain structure and function over time.

**The Risks of Opioid Medications & Cannabis as an Alternative**

Opioids are very effective in pain management but become a subject of concern in older adults. The rate of prescription for opioids have increased substantially over the past decade. Older adults are among the most common users of these medications. Pain leads to a decline in quality of life, functional status, and independence (Gazelka, 2020). It is known that opioids can offer relief, but pose substantial risks in older individuals due to age-related physiological changes. Additionally, opioids often have side effects such as constipation, nausea, and dizziness. Opioids may also lead to tolerance and hyperalgesia, which need to be closely monitored and managed (Gazelka, 2020). The risk of opioid addiction in older adults is another risk. Further, the potential interactions of opioids with other medications as well as detriments to renal and hepatic function also raise concern.

Alternatively, individuals with chronic pain may explore cannabis for use as a pain management option. According to Boehnke (2019), approximately 80% of participants substituted cannabis for conventional pain medications, including opioids (53%) and benzodiazepines (22%). Few adverse effects were reported, as was improved symptom management. Findings identified conclusive or substantial evidence for the effectiveness of cannabis or cannabinoids in treating chronic pain in adults and as an antiemetic for chemotherapy-induced nausea and vomiting (Croker, 2019). These subjects tend to report better health outcomes associated with cannabis use in contrast to other pharmaceutical medications like opioids. Additionally, the nationwide increase in states that have passed legal medical cannabis laws has shown a correlation to a 25% reduction in opioid overdose deaths in comparison to states where cannabis remains illegal. Moreover, states that have enacted laws to enable medical cannabis dispensaries continue to see a decline in the number of opioid prescriptions. Chronic pain is reported to be the most common reason for obtaining a medical cannabis license. This supports clinical research supporting cannabis as a potential substitute for opioids. Participants reported fewer side effects while using cannabis as compared with opioid pain medications (Boehnke, 2019). Subjects also reported using cannabis for a variety of pain-related symptoms and mood disorders such as anxiety. It is also important to note that the dosage, frequency of use, and ratio between cannabidiol (CBD) and tetrahydrocannabinol (THC) are factors that affect pain management outcomes. There is an increasing use of cannabis among older adults, particularly for pain management. A significant percentage of older medical cannabis users reported using it for pain relief, with many experiencing improvements in their pain symptoms (Croker, 2019). However, more research is necessary to determine effective pain management strategies for individuals and medicinal cannabis use. Since cannabis remains classified as a Schedule I substance, clinical trials will continue to be limited.

**Older Americans’ Past Prejudice and the Uprise of Medicinal Cannabis**

Findings suggest that older Americans are highly influenced by generational beliefs, current events in both medical and political culture, and their individual health needs which influence decisions to use medical cannabis. The use of cannabis has been influenced by both subcultural factors and medical culture. The majority of older adults in Staton’s (2022) study reported being discouraged from using cannabis while encouraged to use opioids. The legalization of medical cannabis increased access and availability. Due to the clear separation of the state medical cannabis system from traditional medicine, some participants viewed cannabis use as illegitimate. In addition to this, physical pain was reported to play a significant role in the use of cannabis among older adults. Many participants reported experiencing chronic pain along with other physical conditions led them to consider cannabis as a treatment option. This age-related pain was a key factor influencing their decision to use medical cannabis. Symptoms of opioids such as dizziness and an increased risk of falls led to participants discovering cannabis as a solution (Staton, 2022). As a result, many older adults have begun viewing cannabis as a potentially safer and more effective option for managing pain.

**Cannabis Use for Cognitive Enhancement and Symptom Management**

Previous studies have frequently focused on investigating the non-medicinal use of cannabis and its psychoactive effects. However, Uebersax (2021) brings attention to the different findings that suggest cannabis and its different effects that can potentially have positive effects on cognition. Cannabis use is generally associated with its unique experience that could be described as euphoric, psychoactive, or intoxicating. However, these words are far from encapsulating the many potential positive effects of consuming medical cannabis. The findings of Uebersax’s (2021) study suggest that reports of cognitive enhancement are consistent throughout the studies examined. A sense of clarity and lucidity, improved concentration and memory, enhanced creativity, as well as many other positive effects on the mind are noted. Participants also reported that cannabis helps to speed up thought processing and clarity of mind, as well as reduce anxieties and worrisome thoughts. All of these characteristics seem to contradict the stereotypically common views on the effects of cannabis.

Cannabis does have the potential for misuse, and the negative stigma around this has limited research around its useful medical effects in the past. It is important to pay attention to dosage, frequency of use, as well as the purpose/ reason for consuming cannabis. Further, different strains of the plant also produce varying effects, which in turn can also lead to treatment of different conditions. According to Uebersax (2021), the claim that cannabis has positive effects on cognition is supported by data. Cannabis is generally assumed to be detrimental to the mind, especially the pace at which it functions. History has shown prejudice and negative propaganda towards the herb, constricting the potential for its benefits to be openly studied or utilized. The stereotypes are challenged by the evidence examined.

 Overall, the medicinal potential for cannabis is becoming increasingly prevalent in the research field. There are numerous positive effects produced due to the use of cannabis, the common issue of treating chronic pain being the most common. Pain is tremendously frequent in the senior population, and providing a safe and effective treatment is of utmost importance. The presence of pain and the coexisting psychological stress produces detrimental effects on cognition/brain function. Additionally, the over prescribing of opioids is reduced in areas that have legalized cannabis, as well as a notable reduction in overdoses. Opioid medications have detrimental side effects, especially on the older adult population, which pose risks that are absolved if cannabis is used as a substitute. Health risks, overdoses, and dependency are also not an issue with cannabis. In fact, it is shown that cannabis can produce positive effects on cognitive function (Uebersax (2021).

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