



The Impact of Cannabis Use on the Neuropsychological Functioning of Individuals with HIV/AIDS (Raul Gonzalez –PI)

“The Mind Matters Study: A Healthy Brain Project”

Cannabis is the most commonly used illicit drug among individuals with HIV/AIDS. Its recreational use is widespread, medical use for HIV symptom management has gained acceptance, and recent changes in state laws facilitate access to cannabis by those with HIV/AIDS. Given these trends, it is critical to more fully understand how use of cannabis may affect the health and functioning of HIV+ individuals. Ample evidence shows that illicit drug use often worsens HIV-associated neurocognitive disorders, but most studies have focused on cocaine, heroin, and methamphetamine. The few published studies on cannabis use among those with HIV/AIDS suggest that it may be harmful to their neurocognitive functioning, but little is known regarding the magnitude and type of neurocognitive deficits observed among HIV-seropositive (HIV+) individuals who use cannabis, the impact that such deficits may have on their daily functioning, and the mechanisms underlying such deficits.

The proposed study will address these critical questions by characterizing rigorously how chronic cannabis use and HIV relate to neuropsychological functioning in a large cohort of 500 community-dwelling adults, stratified by their HIV serostatus and history of cannabis use. We will examine neurocognitive domains with demonstrated sensitivity to HIV and cannabis selected from the neuroAIDS and cannabis neuroscience literature. Additionally, we will determine if HIV and cannabis use confer independent, additive, and/or interactive effects on neurocognitive functioning. Our second aim will examine how cannabis use may adversely affect important functional “real-world” behaviors among HIV+ individuals (e.g., management of finances and medications). Our final aim takes a prudent, first step toward testing a theory-driven model identifying potential biological mechanisms by which cannabis use may affect HIV-associated neurocognitive disorders. This exploratory aim is informed by convincing evidence from the preclinical literature showing two competing mechanisms through which cannabis may influence neurocognitive functioning; namely, through its immunosuppressive and anti-inflammatory effects. Thus, our overarching aims are threefold: 1) to examine the presence, pattern, and magnitude of cannabis and HIV effects on neurocognition; 2) to determine the impact of such effects on important functional behaviors; 3) to begin elucidating mechanisms for cannabis/HIV interactions on neurocognition. Our results will address important gaps and move forward neuroAIDS research on cannabis, as well as help patients, healthcare providers, and policy makers better gauge the consequences of cannabis use among those who are HIV+.