Distress Tolerance, Anxiety Sensitivity, and the Use of Cannabis as a Coping Mechanism


1 Undergraduate Student, Department of Psychological Sciences, Auburn University
2 Graduate Student, Department of Psychological Sciences, Auburn University
3 Doctoral Candidate, Department of Psychological Sciences, Auburn University
4 Associate Professor, Department of Psychological Sciences, Auburn University

Rates of cannabis use and Cannabis Use Disorder (CUD) have continued to grow in the United States as the legalization of cannabis has increased (Hasin et al., 2016; Compton et al., 2019). CUD has been linked to poorer quality of life and worse health outcomes, making it important to identify who may be at increased risk for developing this condition (Connor et al., 2021; Gutkind et al., 2021). One potential risk factor of CUD is distress tolerance (DT), or one’s ability to tolerate negative affective states. Those with low DT have evidenced increased rates of cannabis use, cravings, use-related problems, and dependence, all of which are associated with CUD (Peraza et al., 2019; Buckner et al., 2020). Increased cannabis use in those with low DT may be a way to regulate negative internal experiences (e.g., anxiety). For individuals with low DT, increased cannabis use has been identified as a mechanism to regulate negative internal experiences and cope with sleep-related problems found in individuals with anxiety and post-traumatic stress disorders (Bonn-Miller et al., 2010; Buckner et al., 2020; Potter et al., 2011). While initial use may aid the individual in coping with distress in the short term, the repeated use of cannabis as a coping strategy may increase the individual’s risk for CUD in the long term, resulting in increased distress levels and functional impairment (Potter et al., 2011). The current study aims to explore the relationship between DT, cannabis-use related problems, coping motives, and anxiety symptom severity.

We hypothesized that the strength of the positive relationship between distress intolerance (DI) and greater cannabis use-related problems would increase as reports of cannabis use for coping increased. Secondly, we hypothesized that DI would moderate the relationship between anxious arousal and the use of cannabis for coping such that the strength of the positive relationship between anxious arousal and coping motivated cannabis use would increase as DI increased.

Data was collected from a sample of English-speaking, young weekly cannabis users aged 18-30 (N=163; uses cannabis at least 2 days a week for the past year; Figure 1). Participants completed a battery of self-report measures. The Distress Intolerance Index (DII) is a 10-item self-report measure that assesses one’s ability to experience or withstand negative emotional, physical, or psychological states (McHugh & Otto, 2012). The Marijuana Problems Scale (MPS) is a 19-item self-report that assesses the impact of marijuana use on several areas of the participant’s life (e.g., interpersonal problems, financial troubles; Stephens et al., 1994). The Marijuana Motives Measure (MMM) is a 25-item self-report measure that assesses several different marijuana use motives (Simons et al., 1998). We used the 4-question Coping subscale of this measure. Finally, the Mood and Anxiety Symptom Questionnaire (MASQ-D) is a 30-item questionnaire that assesses for general anxiety and depressive symptoms (Clark & Watson, 1991). We used the Anxious Arousal subscale of the measure.

* Corresponding author: mer0084@auburn.edu
Linear regression was conducted to evaluate the relationship between DI and increased cannabis-use related problems with coping motives as a moderator. The overall model was significant, $F(3, 159) = 5.068$, $p= .002$, $R^2 = 0.873$, but the interaction was not significant, $F(1, 159) = .322$, $p= .571$, $\Delta R^2 = .002$ (Figure 2). Linear regression was conducted to evaluate the relationship between increased anxious arousal and coping cannabis use motives with DI as a moderator. The overall model was significant, $F(3, 160) = 6.571$, $p= .0003$, $R^2 = .110$, but the interaction was not significant, $F(1, 160) = 1.690$, $p = .196$, $\Delta R^2 = .009$ (Figure 3).

Results indicate that coping motives do not moderate the relationship between DI and cannabis-use related problems. Additionally, DI does not moderate the relationship between greater reported anxious arousal and cannabis use for coping motives, contrary to Potter et al. (2011).

There are several potential explanations for why our analyses were not statistically significant. Firstly, the MMM may not be the best measure for this study as it may exclude self-report data from individuals with lower levels of insight into the motives of their cannabis use. Additionally, the MMM may not effectively assess the relationship between respondents’ experienced anxious arousal and their use. For example, MMM Item #17, “I use marijuana to…forget about my problems” does not specifically measure how much these problems are negatively impacting the respondent. It may be beneficial for future research to investigate the relationship between anxiety-related cannabis cravings on coping motivated use (Farrelly et al., 2022). Further research on the relationship between DI, anxiety, cannabis use for coping motives, and CUD is needed to inform and develop individualized treatment modalities for individuals with comorbid CUD and anxious disorders.

This study is not without limitations. Within the sample, White young adults were overrepresented, which does not provide a representative sample of the Southeast region of the United States; Further research should focus on recruiting a generalizable sample. Finally, this research is correlational and cross-sectional in nature; longitudinal study designs are needed to understand temporal relationships among study constructs.

**Statement of Research Advisor**

For the past year, Madeleine has worked in the BRAINS Lab as a lead undergraduate research assistant. Madeleine led the development of the present project by identifying variables of interest, reviewing the existing literature, and crafting her research question. Under the supervision of graduate students, Mallory Cannon and Julia Y. Gorday, Madeleine has gained experience in conducting and interpreting statistical analyses. Recently, Madeleine has presented this data at the Auburn University Student Symposium (April 2024).

- Richard Macatee, Department of Psychological Sciences, College of Liberal Arts

**References**

Bonn-Miller, M. O., Babson, K. A., Vujanovic, A. A.,


Authors Biography

Madeleine E. Rein is a senior-year student graduating summa cum laude in May 2024 with a B.A. in Psychology from Auburn University. She was awarded a Research Fellowship for the 2023-2024 school year. Her research interests include how mental health issues such as posttraumatic stress and suicidal thoughts and behaviors are evaluated and treated in a forensic setting and the impact these factors have on competency.
Mallory J. Cannon, B.A. is a second-year graduate student in the Department of Psychological Sciences at Auburn University. Mallory's research interests are focused on studying how higher-level processes, such as emotional regulation and decision-making, relate to anxiety and fear-related disorders and problematic substance use – and how delineating these processes may help us implement strategies to improve therapeutic techniques and interventions.

Julia Y. Gorday, M.S. is a doctoral candidate in the Department of Psychological Sciences at Auburn University. She received a M.S degree in Clinical Psychology at Auburn University. Julia's research interests are focused on cognitive factors that impact the etiology and maintenance of anxiety and fear-related disorders and problematic cannabis use (e.g., metacognition, information processing biases).

Dr. Macatee is the director of the BRAINS Lab and an associate professor in the clinical psychology department at Auburn University. Dr. Macatee earned his Ph.D. in clinical psychology from Florida State University in 2018 after he completed a pre-doctoral clinical internship at the Department of Psychiatry at University of Illinois - Chicago. At the BRAINS Lab, Dr. Macatee focuses on the multi-method measurement and treatment of biobehavioral risk and maintenance factors for internalizing and substance use disorders, with a particular emphasis on co-morbid presentations. and substance use disorders, with a particular emphasis on co-morbid presentations.