Personality disorders and social support in cannabis dependence: A comparison with alcohol dependence

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Abstract

Background: Cannabis use disorder (CUD) has been linked to personality disorders (PDs) and interpersonal problems, though these relationships have been understudied. We examined PDs and social support associated with cannabis dependence and how it may be distinguishable from alcohol dependence on these indices in a large representative sample.

Method: Data on social support and *Diagnostic and Statistical Manual of Mental Disorders-IV* substance dependence and PDs were assessed in Wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions ($N > 34,500$).

Results: Cannabis dependence was associated with higher rates of personality disorders and lower social support. Lifetime cannabis dependence without alcohol dependence was associated with higher rates of all PDs than alcohol dependence without cannabis dependence (with the exception of borderline PD). Cannabis dependence alone was also associated with lower social support than alcohol dependence alone.

Limitations: The survey was conducted in 2004–2005 and relied on DSM-IV criteria.

Conclusions: These findings highlight a broad range of PDs as well as deficits in social support in cannabis dependence. The potential interrelationships between interpersonal dysfunction and CUD as well as the relevance of PDs to treatment for CUD warrant further research.

Keywords

cannabis dependence; personality disorder; social support; alcohol dependence

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1. Introduction

Cannabis use disorder (CUD) is a growing public health concern. In the US, the prevalence of CUDs has increased in recent years, likely due in part to loosening of state laws regarding its use as well as increases in cannabis potency (Hasin et al., 2017). Among regular users, cannabis has been linked to higher rates of dependence than alcohol (Cougle *et al.*, 2016). Prospective research has found that persistent cannabis use and cannabis dependence were associated with financial difficulties, downward social mobility, and workplace problems (Cerda et al., 2016).

There is some evidence to suggest CUDs are associated with poor interpersonal functioning, as well. Research has linked cannabis use to poorer relationship quality in midlife (Cerda et al., 2016), and CUD has been associated with elevated rates of personality disorders (Cougle *et al.*, 2016; Lopez-Quintero *et al.*, 2011), which are characterized by severe interpersonal dysfunction. Further, multiple studies, including those using data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) (Afifi, Henriksen, Asmundson, & Sareen, 2012; Smith, Homish, Leonard, & Cornelius, 2012), have found CUDs are associated with increased intimate partner aggression and victimization (Moore & Stuart, 2005; Testa & Brown, 2015).

Problematic cannabis use may have important direct effects on interpersonal dysfunction. The acute effects of cannabis on working memory, attention, and concentration (Crean, Crane, & Mason, 2011) may impair conversations and interactions individuals have while intoxicated and lead them to avoid certain social settings. Additionally, cannabis-induced alterations in mood and perception may make users less able to show empathy and provide support to their friends while intoxicated; this may also lead them to avoid relationship conflict, which could inhibit the high they experience. Cannabis may also induce an amotivational state (Volkow et al., 2016) that leads users to be anchored to their homes and less willing to take steps to develop relationships or meet up with friends; as such, severe loneliness may be a potential consequence. Cannabis use may contribute to aggression among some users (Moore & Stuart, 2005), perhaps by increasing arousal, paranoia, and disinhibition, or through its effects on attention and information processing (Testa & Brown, 2015). Cannabis withdrawal has also been linked to increased anger and aggression across multiple studies (Budney *et al.*, 2001; Budney and Hughes, 2006; Kouri *et al.*, 1999). Frequent coping-motivated cannabis use could also prevent individuals from developing more adaptive coping skills for handling uncomfortable social situations, relationship conflict, or emotional distress.

Interpersonal dysfunction could also contribute to problematic patterns of cannabis use. Individuals with CUDs commonly report using it to decrease aggression (Arendt et al., 2007), which suggests interpersonal conflict often precipitates cannabis use. Individuals with CUD also report using to cope with or avoid uncomfortable social situations (Buckner, Bonn-Miller, Zvolensky, & Schmidt, 2007); socially anxious individuals, in particular, are at elevated risk for CUD (Buckner et al., 2012). Being unmarried (Cougle *et al.*, 2016) and living alone are risk factors for the progression from frequent use to CUD (Van der Pol et al., 2013).

Despite evidence to suggest an important bi-directional relationship between interpersonal dysfunction and CUD, several gaps in the literature exist. Some studies have relied on smaller, non-representative samples (Feingold *et al.*, 2008). Additionally, research has compared cannabis users to non-users (DuRant et al., 2007; Temple & Freeman, 2011) or combined cannabis abuse and dependence in comparisons to the rest of a sample (Afifi et al., 2012; Smith et al., 2012). Multiple characteristics distinguish cannabis users from non-users (Cougle *et al.*, 2016; Lopez-Quintero *et al.*, 2011), and combining cannabis dependence with less severe (and more common) cannabis abuse likely dilutes associations that may be present between cannabis dependence or more severe CUD and interpersonal dysfunction. Indeed, one study of the NESARC found that the relationship between cannabis dependence with schizotypal personality disorder (OR = 7.32) was stronger than that found for cannabis abuse and this PD (OR = 2.83; Davis, Compton, Wang, Levin, & Blanco, 2013). Similarly, a more recent study relying on NESARC-III, which used DSM-5 criteria, found severe CUD showed stronger associations with presence of three PDs (OR = 8.0) than mild CUD (OR = 3.2; Hasin et al., 2016). Severe CUD was also associated with higher rates of outpatient treatment (8.7%) compared to mild CUD (1.1%).

Research is needed to examine whether interpersonal dysfunction is linked to severe patterns of cannabis use specifically rather than cannabis use more generally. Though personality disorders have been linked to cannabis use problems (Cougle *et al.*, 2016; Lopez-Quintero *et al.*, 2011), relations between specific PDs and such problems have been given little consideration. Lastly, while the consequences of cannabis dependence have been found to equal or exceed that for alcohol dependence (Cerda *et al.*, 2016), differences between these disorders have been given little attention, especially with regard to interpersonal functioning. Alcohol dependence has also been linked to reduced social support (Dutton *et al.*, 2014; Schuckit & Smith, 2001) and elevated rates of PDs (Cougle *et al.*, 2016; Lopez-Quintero *et al.*, 2011). Comparisons between cannabis and alcohol dependence could help distinguish interpersonal problems related to substance use disorders in general from those with specific relations to CUD. It could also potentially inform treatments for CUD populations, which may require strategies that are distinct from those used for other substance use disorders.

The goal of the present study was to examine personality disorders and social support in cannabis dependence using a large representative sample. We considered personality disorders, specifically, given the severity and range of interpersonal dysfunction they represent. We also focused on social support, given its strong connection to interpersonal functioning and its important role in many mental and physical health outcomes (Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015). We hypothesized that cannabis dependence would be associated with lower social support and greater rates of all PDs. Given that interpersonal problems have also been linked to alcohol dependence (Afifi et al., 2012; Smith et al., 2012; Whisman, 2007), we considered our comparisons between cannabis and alcohol dependence exploratory and had no a priori hypotheses for these analyses, though we predicted having both diagnoses would be related to greater rates of PDs and lower social support than either diagnosis alone.

2. Methods

2.1. Sample and Procedures

The present sample was Wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions conducted by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) (Grant, Kamplan, Moore, & Kimball, 2007). The NESARC sample is reflective of the national non-institutionalized U.S. population, with young adults and under-represented minorities (e.g., African Americans) over-sampled to ensure adequate representation. Wave 2 data were collected in 2004–2005, with 34,653 total participants. Descriptive information for the sample used for the comparisons between alcohol and cannabis dependence is presented in Table 3.

2.2. Measures

2.2.1. Diagnostic assessment—Substance use disorders (SUDs) and personality disorders (PDs) were assessed using NIAAA's Alcohol Use Disorder and Associated Disabilities Interview Schedule-IV (AUDADIS-IV) (Grant *et al.*, 2001). Cannabis dependence and alcohol dependence were outcomes of interest in the present analyses. All personality disorders were considered as predictor variables.

2.2.2. Perceived social support.—Perceived social support was assessed using the twelve item Interpersonal Support Evaluation List (ISEL) (Cohen & Hoberman, 1983). This is a widely used measure that has shown good reliability and validity (Merz et al., 2014; Ruan et al., 2008). Sample items include "There is someone I can turn to for advice about handling problems with my family." Participants responded on a scale from 1 (definitely true) to 4 (definitely false). Items were averaged and coded such that higher scores indicated greater perceived social support.

2.3. Data Analytic Plan

All analyses were conducted with Statistical Analysis Software (SAS), version 9.4 PROC SURVEYLOGISTIC procedure. Multivariate logistic regression analyses were conducted controlling for age, gender, race, and ethnicity (Hispanic vs. non-Hispanic). Because income and marital status are likely to be a cause or consequence of substance use disorders (Cougle *et al.*, 2016), we did not include these variables as covariates in analyses. Demographic variables were also compared between cannabis and alcohol dependent groups. For continuous outcomes, particularly the number of PDs endorsed and social support, least squares difference in means were calculated to provide the difference in means between those with cannabis dependence and those without.

Additional analyses examined ORs or least squares differences in means for those with lifetime cannabis dependence and those with co-occurring cannabis and alcohol dependence compared to an alcohol dependence reference group on PDs and social support, as well as the demographic variables. Thus, the reference group was again shared for both predictor variables, allowing for comparison of effect sizes. Past-year analyses were underpowered for these specific comparisons but are presented in Supplemental Table 1.

3. Results

3.1. Cannabis Dependence vs No Cannabis Dependence

Tables 1 and 2 show the associations between cannabis dependence and personality disorders and social support in the past year and lifetime, respectively. Both past-year and lifetime cannabis dependence diagnoses were associated with a significantly higher risk of all PDs. Past-year and lifetime cannabis dependence were also associated with lower social support.

3.2. Cannabis Dependence versus Alcohol Dependence

Table 3 show the associations between interpersonal problems with lifetime diagnoses of cannabis dependence-only and comorbid cannabis and alcohol dependence, with alcohol dependence only as the reference group. Cannabis dependence only was associated with a significantly higher risk of all PDs, with the exception of borderline PD. Cannabis/alcohol dependence was associated with lower risk of dependent PD diagnosis and higher risk for all other PDs except avoidant PD. Compared to cannabis dependence-only, cannabis/alcohol dependence was associated with higher rates of antisocial, paranoid, and borderline PDs, and lower rates of avoidant and dependent PDs. Cannabis/alcohol dependence met for more PDs than either those with cannabis or alcohol dependence alone. Cannabis dependence with and without alcohol dependence was also associated with lower social support relative to alcohol dependence alone.

4. Discussion

The goal of the current study was to examine PDs and social support in those with cannabis dependence. Overall, we found PDs were very common in those with cannabis dependence, with this group endorsing two PDs on average and 72% having at least one PD. Unsurprisingly, cannabis dependence was also associated with reduced social support.

It was interesting to note higher rates of all PDs in cannabis dependence compared to those without the disorder. The relationship between antisocial PD and cannabis dependence makes sense, given that cannabis was illegal in most states at the time of the survey, and engaging in illegal behavior is one of the criteria for antisocial PD diagnosis (American Psychiatric Association, 2013). However, borderline and narcissistic PDs were more common in those with cannabis dependence and (along with schizotypal PD) were more strongly related to cannabis dependence than antisocial PD in past year analyses.

We had no a priori hypotheses for the comparisons between cannabis and alcohol dependence, though we found higher rates of every PD except borderline PD in cannabis dependence alone compared to alcohol dependence alone. Most individuals with lifetime history of cannabis dependence also had a lifetime history of alcohol dependence, and, unsurprisingly, those meeting for both diagnoses (and a more severe substance use disorder profile) had a significantly higher rate of PD and a greater number of PDs compared to either diagnosis alone. This study set out to examine whether differences in PDs exist between cannabis and alcohol dependence, not *why* they might exist. We did not control for co-occurring substance use or comorbidity in our analyses, as these variables could be a

cause or consequence of these disorders. A range of characteristics may help explain the differences between these two diagnoses, and future research may wish to examine these differences more rigorously, using longitudinal designs, for example.

Surprisingly little research has examined social support in CUD, though strong correlates of low social support such as depression (Zimet, Dahlem, Zimet, & Farley, 1988) have been linked to cannabis dependence (Cougle *et al.*, 2016; Lopez-Quintero *et al.*, 2011). The current study's findings of a relationship between cannabis dependence with lower social support represents a novel contribution to this literature. Alcoholism is characterized by intense feelings of loneliness (Åkerlind & Hörnquist, 1992), so it was also interesting to note lower social support in cannabis dependence alone compared to alcohol dependence alone. The lower perceived social support in cannabis dependence may be a consequence of the social withdrawal effects of cannabis use (Volkow et al., 2016), though individuals who are anxious in social situations or avoid contact with others may also be prone to use as a means to cope with such feelings or escape such situations. The elevated rates of PDs in cannabis dependence may also contribute to reduced social support in this group.

The vast range of personality dysfunction linked to cannabis dependence in this study begs for an examination of potential mediating mechanisms in future research. Problems of impulsivity and emotion regulation are found in PDs (Linehan, 1987) as well as CUDs (Bujarski *et al.*, 2012) and may represent factors accounting for their co-occurrence. Individuals with interpersonal problems may also be more likely to use cannabis to cope, and coping motives have been found to predict the progression to dependence (Van der Pol et al., 2013). Prolonged cannabis use may also contribute directly to greater isolation, distrust of others, and a general deterioration in social functioning. Experimental and longitudinal research is needed to examine these relationships.

The current study possesses a few limitations. First, the survey was conducted in 2004–2005, and multiple states have passed laws legalizing recreational cannabis use since then. Thus, the population of cannabis users has changed since the survey. Additional research is needed to examine these relationships in newer data and different populations, including samples from other countries. The current survey also relied on DSM-IV criteria for substance use disorders instead of more recent DSM-5 criteria. However, DSM-IV substance dependence has excellent concordance with DSM-5 moderate to severe substance use disorder (Goldstein et al., 2015). It is noteworthy that the newer NESARC-III survey did not assess most personality disorders and other aspects of interpersonal functioning (e.g., social support) (Grant et al., 2014); thus, the survey we chose seemed particularly well-suited for addressing our specific study aims. Interestingly, in the NESARC-III survey, which was collected in 2012, the rates of borderline PD among those with moderate to severe cannabis use disorder actually exceeded we found in the NESARC among those with cannabis dependence (Kerridge *et al.*, 2018). Lastly, some of the past-year analyses may have been underpowered. The fact that past year findings were highly consistent with lifetime analyses, which had much greater power, give us more confidence in these effects.

The findings of the current study add uniquely to the literature on the potential causes and consequences of CUD. The high rates of PDs and low social support found in cannabis

dependence may contribute to the high relapse and attrition rates associated with cannabis cessation interventions (Budney, Moore, Rocha, & Higgins, 2006). Treatments for CUDs may benefit from incorporating components that address interpersonal and emotion regulation problems found in personality disorders such as borderline personality disorder (e.g., Dialectical Behavior Therapy) (Linehan, 1987). Research is needed to understand the mechanisms underlying personality dysfunction in CUD.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgements

Reference

Afifi TO, Henriksen CA, Asmundson GJG, & Sareen J. (2012). Victimization and Perpetration of Intimate Partner Violence and Substance Use Disorders in a Nationally Representative Sample. The Journal of Nervous and Mental Disease, 200(8), 684–691. 10.1097/NMD.0b013e3182613f64 [PubMed: 22850303]

Åkerlind I, & Hörnquist JO (1992). Loneliness and alcohol abuse: A review of evidences of an interplay. Social Science & Medicine, 34(4), 405–414. 10.1016/0277-9536(92)90300-F [PubMed: 1566121]

American Psychiatric Association. (2013). Diagnostic and Statistical Manual of Mental Disorders: DSM-5. American Psychiatric Association, 991 10.1176/appi.books.9780890425596.744053

Arendt M, Rosenberg R, Fjordback L, Brandholdt J, Foldager L, Sher L, & Munk-Jorgensen P. (2007). Testing the self-medication hypothesis of depression and aggression in cannabis-dependent subjects. Psychological Medicine, 37(07), 935 10.1017/S0033291706009688 [PubMed: 17202003]

Buckner JD, Bonn-Miller MO, Zvolensky MJ, & Schmidt NB (2007). Marijuana use motives and social anxiety among marijuana-using young adults. Addictive Behaviors, 32(10), 2238–2252. 10.1016/j.addbeh.2007.04.004 [PubMed: 17478056]

Buckner JD, Heimberg RG, Schneier FR, Liu S-M, Wang S, & Blanco C. (2012). The relationship between cannabis use disorders and social anxiety disorder in the National Epidemiological Study of Alcohol and Related Conditions (NESARC). Drug and Alcohol Dependence, 124(1–2), 128–134. 10.1016/j.drugalcdep.2011.12.023 [PubMed: 22266089]

Budney AJ, & Hughes JR (2006). The cannabis withdrawal syndrome. Current Opinion in Psychiatry, 19(3), 233–238. 10.1097/01.yco.0000218592.00689.e5 [PubMed: 16612207]

Budney AJ, Hughes JR, Moore BA, & Novy PL (2001). Marijuana Abstinence Effects in Marijuana Smokers Maintained in Their Home Environment. Archives of General Psychiatry, 58(10), 917 10.1001/archpsyc.58.10.917 [PubMed: 11576029]

Budney AJ, Moore BA, Rocha HL, & Higgins ST (2006). Clinical trial of abstinence-based vouchers and cognitive-behavioral therapy for cannabis dependence. Journal of Consulting and Clinical Psychology, 74(2), 307–316. 10.1037/0022-006X.74.2.307 [PubMed: 16649875]

Bujarski SJ, Norberg MM, & Copeland J. (2012). The association between distress tolerance and cannabis use-related problems: The mediating and moderating roles of coping motives and gender. Addictive Behaviors, 37(10), 1181–1184. 10.1016/J.ADDBEH.2012.05.014 [PubMed: 22698896]

Cerda M, Moffitt TE, Meier MH, Harrington H, Houts R, Ramrakha S, … Caspi A. (2016). Persistent Cannabis Dependence and Alcohol Dependence Represent Risks for Midlife Economic and Social Problems: A Longitudinal Cohort Study. Clinical Psychological Science, 4(6), 1028–1046. 10.1177/2167702616630958 [PubMed: 28008372]

Cohen S, & Hoberman HM (1983). Positive Events and Social Supports as Buffers of Life Change Stress. Journal of Applied Social Psychology, 13(2), 99–125. 10.1111/j.1559-1816.1983.tb02325.x

Cougle JR, Hakes JK, Macatee RJ, Zvolensky MJ, & Chavarria J. (2016). Probability and correlates of dependence among regular users of alcohol, nicotine, cannabis, and cocaine: Concurrent and prospective analyses of the National Epidemiologic Survey on Alcohol and Related Conditions. Journal of Clinical Psychiatry, 77(4). 10.4088/JCP.14m09469

Cougle JR, Hakes JK, Macatee RJ, Chavarria J, & Zvolensky MJ (2015). Quality of life and risk of psychiatric disorders among regular users of alcohol, nicotine, and cannabis: An analysis of the National Epidemiological Survey on Alcohol and Related Conditions (NESARC). Journal of Psychiatric Research, 66, 135–141. 10.1016/j.jpsychires.2015.05.004 [PubMed: 26022838]

Cougle JR, Hakes JK, Macatee RJ, Zvolensky MJ, & Chavarria J. (2016). Probability and correlates of dependence among regular users of alcohol, nicotine, cannabis, and cocaine: Concurrent and prospective analyses of the National Epidemiologic Survey on Alcohol and Related Conditions. Journal of Clinical Psychiatry, 77(4), e444–e450. 10.4088/JCP.14m09469 [PubMed: 27137428]

Crean RD, Crane NA, & Mason BJ (2011). An evidence based review of acute and long-term effects of cannabis use on executive cognitive functions. Journal of Addiction Medicine, 5(1), 1–8. 10.1097/ADM.0b013e31820c23fa.An [PubMed: 21321675]

DuRant R, Champion H, Wolfson M, Omli M, McCoy T, D'Agostino RB Jr, … Mitra A. (2007). Date Fighting Experiences Among College Students: Are They Associated With Other Health-Risk Behaviors? Journal of American College Health, 55(5), 291–296. 10.3200/JACH.55.5.291-299 [PubMed: 17396402]

Dutton CE, Adams T, Bujarski S, Badour CL, & Feldner MT (2014). Posttraumatic stress disorder and alcohol dependence: Individual and combined associations with social network problems. Journal of Anxiety Disorders, 28(1), 67–74. 10.1016/j.janxdis.2013.11.010 [PubMed: 24462749]

Feingold A, Kerr DCR, & Capaldi DM (2008). Associations of substance use problems with intimate partner violence for at-risk men in long-term relationships. Journal of Family Psychology : JFP : Journal of the Division of Family Psychology of the American Psychological Association (Division 43), 22(3), 429–438. 10.1037/0893-3200.22.3.429

Goldstein RB, Chou SP, Smith SM, Jung J, Zhang H, Saha TD, … Grant BF (2015). Nosologic Comparisons of DSM-IV and DSM-5 Alcohol and Drug Use Disorders: Results From the National Epidemiologic Survey on Alcohol and Related Conditions-III. Journal of Studies on Alcohol and Drugs, 76(3), 378–388. 10.15288/JSAD.2015.76.378 [PubMed: 25978823]

Grant BF, Amsbary M, Chu A, Sigman R, Kali J, Sugawana Y, … Goldstein R. (2014). Source and Accuracy Statement: National Epidemiologic Survey on Alcohol and Related Conditions-III (NESARC-III). Rockville, MD.

Grant B, Kamplan K, Moore T, & Kimball J. (2007). 2004–2005 Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions: Source and Accuracy Statement.

Grant BF, Dawson DA, & Hasin DS (2001). The Alcohol Use Disorder and Associated Disabilities Interview Schedule-DSM-IV Version. National Institute on Alcohol Abuse and Alcoholism.

Hasin DS, Sarvet AL, Cerdá M, Keyes KM, Stohl M, Galea S, & Wall MM (2017). US Adult Illicit Cannabis Use, Cannabis Use Disorder, and Medical Marijuana Laws 1991–1992 to 2012–2013. JAMA Psychiatry, 10032, 1–10. 10.1001/jamapsychiatry.2017.0724

Holt-Lunstad J, Smith TB, Baker M, Harris T, & Stephenson D. (2015). Loneliness and Social Isolation as Risk Factors for Mortality. Perspectives on Psychological Science, 10(2), 227–237. 10.1177/1745691614568352 [PubMed: 25910392]

Kerridge BT, Pickering R, Chou P, Saha TD, & Hasin DS (2018). DSM-5 cannabis use disorder in the National Epidemiologic Survey on Alcohol and Related Conditions-III: Gender-specific profiles. Addictive Behaviors, 76, 52–60. 10.1016/j.addbeh.2017.07.012 [PubMed: 28755613]

Kouri EM, Pope HG, & Lukas SE (1999). Changes in aggressive behavior during withdrawal from long-term marijuana use. Psychopharmacology, 143(3), 302–308. 10.1007/s002130050951 [PubMed: 10353434]

Linehan MM (1987). Dialectical Behavioral Therapy: A Cognitive Behavioral Approach to Parasuicide. Journal of Personality Disorders, 1(4), 328–333. 10.1521/pedi.1987.1.4.328

Lopez-Quintero C, Cobos JP de los, Hasin DS, Okuda M, Wang S, Grant BF, & Blanco C. (2011). Probability and predictors of transition from first use to dependence on nicotine, alcohol, cannabis, and cocaine: Results of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). Drug and Alcohol Dependence, 115(1–2), 120–130. 10.1016/j.drugalcdep.2010.11.004 [PubMed: 21145178]

Merz EL, Roesch SC, Malcarne VL, Penedo FJ, Llabre MM, Weitzman OB, … Gallo LC (2014). Validation of Interpersonal Support Evaluation List-12 (ISEL-12) scores among English- and Spanish-speaking Hispanics/Latinos from the HCHS/SOL Sociocultural Ancillary Study. Psychological Assessment, 26(2), 384–394. 10.1037/a0035248 [PubMed: 24320763]

Moore TM, & Stuart GL (2005). A review of the literature on marijuana and interpersonal violence. Aggression and Violent Behavior, 10(2), 171–192. 10.1016/j.avb.2003.10.002

Ruan WJ, Goldstein RB, Chou SP, Smith SM, Saha TD, Pickering RP, … Grant BF (2008). The Alcohol Use Disorder and Associated Disabilities Interview Schedule-IV (AUDADIS-IV): Reliability of new psychiatric diagnostic modules and risk factors in a general population sample. Drug and Alcohol Dependence, 92(1–3), 27–36. 10.1016/j.drugalcdep.2007.06.001 [PubMed: 17706375]

Schuckit MA, & Smith TL (2001). A comparison of correlates of DSM-IV alcohol abuse or dependence among more than 400 sons of alcoholics and controls. Alcoholism: Clinical and Experimental Research, 25(1), 1–8. 10.1111/j.1530-0277.2001.tb02120.x

Smith PH, Homish GG, Leonard KE, & Cornelius JR (2012). Intimate partner violence and specific substance use disorders: Findings from the National Epidemiologic Survey on Alcohol and Related Conditions. Psychology of Addictive Behaviors, 26(2), 236–245. 10.1037/a0024855 [PubMed: 21823768]

Temple JR, & Freeman DH (2011). Dating Violence and Substance Use Among Ethnically Diverse Adolescents. Article Journal of Interpersonal Violence, 26(4), 701–718. 10.1177/0886260510365858 [PubMed: 20587475]

Testa M, & Brown WC (2015). Does marijuana use contribute to intimate partner aggression? A brief review and directions for future research. Current Opinion in Psychology. 10.1016/j.copsyc.2015.03.002

Van der Pol P, Liebregts N, de Graaf R, Korf DJ, Van den Brink W, & Van Laar M. (2013). Predicting the transition from frequent cannabis use to cannabis dependence: A three-year prospective study. Drug and Alcohol Dependence, 133(2), 352–359. 10.1016/j.drugalcdep.2013.06.009 [PubMed: 23886472]

Volkow ND, Swanson JM, Evins AE, DeLisi LE, Meier MH, Gonzalez R, … Baler R. (2016). Effects of Cannabis Use on Human Behavior, Including Cognition, Motivation, and Psychosis: A Review. JAMA Psychiatry, 73(3), 292 10.1001/jamapsychiatry.2015.3278 [PubMed: 26842658]

Whisman MA (2007). Marital distress and DSM-IV psychiatric disorders in a population-based national survey. Journal of Abnormal Psychology, 116(3), 638–643. 10.1037/0021-843X.116.3.638 [PubMed: 17696721]

Zimet GD, Dahlem NW, Zimet SG, & Farley GK (1988). The Multidimensional Scale of Perceived Social Support. Journal of Personality Assessment, 52(1), 30–41. 10.1207/s15327752jpa5201_2

Highlights

- Compared personality disorders (PD) and social support between cannabis and alcohol dependence

- Cannabis dependence alone had higher rates of most PDs than alcohol dependence alone

- Cannabis dependence alone was associated with lower social support than alcohol dependence alone

Table 1.

Demographics, personality disorders and interpersonal functioning by past-year cannabis dependence diagnosis.

	Descriptives, mean (s.e.) or N (wtd. %, [s.e.])		OR (95% CI) or least squares difference in means from "No Cannabis Dependence" baseline (SE)
	No Cannabis Dependence	**Cannabis dependence**	
Personality disorder			
Antisocial	1100 (3.5 [0.07])	30 (26.8 [1.7])	5.45 (4.42–6.72) ***
Avoidant	800 (2.3 [0.05])	<15	[D]
Dependent	150 (0.4 [0.02])	<15	[D]
Obsessive-compulsive	2700 (8.0 [0.09])	20 (17.4 [1.1])	2.09 (1.80–2.44) ***
Paranoid	1700 (4.3 [0.07])	20 (14.2 [1.1])	2.54 (2.06–3.13) ***
Schizoid	1100 (3.0 [0.06])	<15	[D]
Histrionic	650 (1.8 [0.04])	<15	[D]
Borderline	2200 (5.8 [0.08])	50 (40.8 [2.1])	7.72 (6.45–9.24) ***
Schizotypal	1500 (3.9 [0.06])	40 (25.8 [1.9])	6.20 (5.02–7.65) ***
Narcissistic	2400 (6.1 [0.08])	50 (39.0 [1.6])	6.90 (5.95–8.00) ***
Any PD	7700 (21.2 [0.15])	90 (72.4 [1.6])	6.93 (5.89–8.14) ***
PD count (wtd. mean [s.e.])	0.390 [0.003]	2.02 [0.06]	1.49 (0.06) ***
Social support (wtd. mean [s.e.])	3.54 [0.002]	3.41 [0.021]	−0.18 (0.02) ***
N f	34,500	100	34,500

Notes:

*
p<.05

**
p<.01

***
p<.001.

Cannabis dependence was compared to all other participants without cannabis dependence. All analyses controlled for age, gender, race, and ethnicity (Hispanic vs. non-hispanic). [D] Suppressed due to small cell count and low statistical power. Census Bureau authorization CBDRB-FY19–130.

Table 2.

Demographics, personality disorders and interpersonal functioning by lifetime cannabis dependence diagnosis.

	Descriptives, mean (s.e.) or N (wtd. %, [s.e.])		OR (95% CI) or least squares difference in means from "No Cannabis Dependence" baseline (SE)
	No Cannabis Dependence	**Cannabis dependence**	
Personality disorder			
Antisocial	950 (3.1 [0.07])	200 (34.6 [1.4])	11.0 (9.50–12.6) ***
Avoidant	750 (2.2 [0.05])	70 (11.7 [1.0])	4.94 (4.03–6.07) ***
Dependent	100 (0.3 [0.02])	20 (4.9 [0.4])	12.9 (10.1–16.4) ***
Obsessive-compulsive	2600 (7.7 [0.09])	150 (26.3 [1.5])	3.86 (3.28–4.54) ***
Paranoid	1600 (4.0 [0.07])	150 (21.8 [1.5])	5.54 (4.57–6.72) ***
Schizoid	1100 (2.9 [0.06])	70 (11.7 [0.8])	3.86 (3.24–4.59) ***
Histrionic	600 (1.6 [0.03])	60 (11.3 [0.8])	5.07 (4.25–6.05) ***
Borderline	2100 (5.5 [0.08])	150 (28.4 [1.1])	5.29 (4.70–5.95) ***
Schizotypal	1400 (3.7 [0.06])	100 (19.2 [0.9])	5.07 (4.46–5.75) ***
Narcissistic	2300 (5.8 [0.08])	150 (25.0 [1.0])	4.21 (3.74–4.73) ***
Any PD	7400 (20.6 [0.14])	400 (69.7 [1.0])	7.04 (6.38–7.76) ***
PD count (wtd. mean [s.e.])	0.369 [0.003]	1.95 [0.04]	1.49 (0.04) ***
Social support (wtd. mean [s.e.])	3.54 [0.002]	3.46 [0.015]	−0.127 (0.016) ***
N	34,000	550	34,500

Notes:

*
p<.05

**
p<.01

***
p<.001.

Cannabis dependence was compared to all other participants without cannabis dependence. All analyses controlled for age, gender, race, and ethnicity (Hispanic vs. non-hispanic). Census Bureau authorization CBDRB-FY19–130.

Table 3.

Demographics, personality disorders and interpersonal functioning by lifetime cannabis and alcohol dependence diagnosis.

	Descriptives, mean (s.e.) or N (wtd. %, [s.e.])			OR (95% CI) or least squares difference in means from alcohol dependence alone (SE)	
	Cannabis dependence alone	Alcohol dependence alone	Both cannabis and alcohol dependence	Cannabis dependence alone	Both cannabis and alcohol dependence
Age	35.4 (0.4)	40.9 (0.2)	34.5 (0.3)	5.48 (0.43) ***	6.42 (0.28) ***a
Female	70	1800	150	1.20 (1.01–1.41) *	0.76 (0.64–0.89) ***b
	38.2 [1.8]	34.1 [0.5]	31.9 [1.2]		
Marital status					
Married/cohabitating	70	2200	150	0.77 (0.67–0.88) ***	0.73 (0.63–0.84) ***
	50.1 [1.6]	56.6 [0.5]	42.1 [1.3]		
Widowed/divorced/separated	40	1100	90	1.03 (0.89–1.19)	1.18 (0.99–1.39)
	17.9 [1.0]	17.5 [0.4]	20.4 [0.4]		
Never married	60	1200	150	1.35 (1.17–1.56) ***	1.28 (1.08–1.51) **
Race/Ethnicity					
	32.0 [1.5]	25.9 [0.4]	37.5 [1.5]		
White	90	3000	250	0.56 (0.51–0.63) ***	1.47 (1.21–1.79) ***c
	65.9 [1.2]	75.2 [0.4]	72.0 [1.4]		
Black	<15	<15	<15	[D]	[D]
Hispanic	30	700	60	0.80 (0.68–0.94) **	1.04 (0.83–1.29)
	8.7 [0.7]	10.8 [0.2]	9.1 [0.2]		
Other race/ethnicity	<15	<15	<15	[D]	[D]
Income [ln(income)]	40,270 (982)	34,520 (248)	26,840 (657)	0.24 (0.02) ***	0.44 (0.16) **
Education					
High school dropout	20 19.5 [1.5]	550 11.8 [0.3]	60 15.8 [1.1]	1.80 (1.49–2.18) ***	0.78 (0.58–1.04) c
Diploma/	100	2800	300	0.91 (0.81–1.03)	1.74 (1.43–2.12) ***c
Some college	60.5 [1.5]	62.7 [0.4]	72.7 [1.1]		
College graduate	30	1100 25.5	50	0.73 (0.65–0.82) ***	0.52 (0.44–0.61) ***b
	20.0 [0.8]	[0.4]	11.5 [0.6]		
Personality disorder					

		Descriptives, mean (s.e.) or N (wtd. %, [s.e.])			OR (95% CI) or least squares difference in means from alcohol dependence alone (SE)	
		Cannabis dependence alone	Alcohol dependence alone	Both cannabis and alcohol dependence	Cannabis dependence alone	Both cannabis and alcohol dependence
	Antisocial	30	450	150	1.91 (1.64–2.23 ***	3.10 (2.50–3.84) ***b
		(18.0 [1.1])	(10.0 [0.3])	(41.0 [1.7])		
	Avoidant	<15	200 (4.9 [0.2])	60 (11.9 [1.2])	2.38 (1.82–3.12) ***	1.12 (0.85–1.47) b
	Dependent	<15	40 (0.7 [0.09])	20 (4.4 [0.6])	8.57 (6.62–11.1) ***	0.65 (0.49–0.88) **c
	Obsessive-compulsive	30 (18.8 [1.0])	650 (13.4 [0.3])	100 (29.1 [2.0])	1.54 (1.34–1.77) ***	1.82 (1.48–2.23) ***
	Paranoid	30 (14.8 [0.6])	450 (9.2 [0.3])	100 (24.4 [2.0])	1.46 (1.29–1.65) ***	2.06 (1.66–2.56) ***b
	Schizoid	20 (8.7 [0.3])	300 (5.9 [0.2])	60 (12.9 [1.2])	1.47 (1.33–1.63) ***	1.60 (1.28–2.00) ***
	Histrionic	<15	250 (5.0 [0.2])	50 (12.4 [1.1])	1.53 (1.37–1.71) ***	1.56 (1.26–1.93) ***
	Borderline	40 (16.5 [1.1])	700 (14.5 [0.3])	150 (32.9 [1.6])	1.02 (0.87–1.21)	2.69 (2.16–3.35) ***c
	Schizotypal	30 (14.1 [1.1])	400 (7.8 [0.3])	90 (21.2 [1.3])	1.77 (1.44–2.16) ***	1.76 (1.36–2.28) ***
	Narcissistic	40 (21.1 [1.1])	550 (11.1 [0.3])	100 (26.5 [1.4])	1.97 (1.70–2.30) ***	1.44 (1.16–1.78) **
	Any PD	100 (50.4 [1.7])	1900 (40.0 [0.5])	300 (77.1 [1.0])	1.41 (1.23–1.61) ***	3.48 (2.92–4.15) ***c
	PD count (wtd. mean [s.e.])	1.38 [0.04]	0.83 [0.012]	2.16 [0.05]	0.49 (0.04) ***	1.30 (0.05) ***c
Social support (wtd. mean [s.e.])		3.47 [0.012]	3.52 [0.004]	3.46 [0.020]	−0.07 (0.02) ***	−0.10 (0.02) ***
N f		150	4500	400		

Notes:

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p<.05

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p<.01

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p<.001.

Difference between ORs or means for the cannabis dependence and combined cannabis/alcohol dependence group is significant at

a
p<.05

b
p<.01

c
p<.001.

Cannabis dependence and combined cannabis/alcohol dependence were compared to those with alcohol dependence alone. Demographic analyses did not control for covariates. All other analyses controlled for age, gender, race, and ethnicity (Hispanic vs. non-hispanic). [D] Suppressed due to small cell count and low statistical power. Census Bureau authorization CBDRB-FY19–130.