(70%). Participants were stratified by lifetime methamphetamine (M-/M+) and cannabis (C-/C+) DSM-IV abuse/dependence disorder into four groups: M-C- (n=187), M-C+ (n=68), M+C-, (n=82) and M+C+ (n=135) and completed a comprehensive neurobehavioral assessment. Demographically corrected T-scores and deficit scores were used for analyses. Group differences in global and domain NC performances (i.e., T-scores) were examined using multiple linear regression, holding constant covariates that were associated with study groups and/or cognition. Specifically, M+ participants displayed higher rates of Hepatitis C infection (p=.004), higher current depressive symptom scores (p<.001), and higher rates of detectable plasma HIV RNA (p=.014). Multiple logistic regression was used to test for group differences in probability of neurocognitive impairment (i.e., deficit scores≥0.5), including the same covariates. Pooling data with a sample of HIV-negative participants (n=423), we used generalized linear mixed effect models to examine how neurocognitive performance and impairment profiles varied by methamphetamine and/or cannabis use group, HIV disease characteristics, and their interactions.
Results: Compared to M+C+, M+C- performed worse on measures of executive functions (β=-3.17), learning (β=-3.95), memory (β=-5.58), and working memory (β=-4.05) and were more likely to be classified as impaired in the learning (OR=2.93), memory (OR=5.24), and working memory (OR=2.48) domains. M-C- performed better than M+C+ on measures of learning (β=3.46) and memory (β=5.19), but worse than M-C+ on measures of executive functions (β=-3.90), learning (β=-3.32), memory (β=-3.38), and working memory (β=-3.38). Generalized linear mixed effect models indicate that detectable plasma HIV RNA (β=-1.85) and low nadir CD4 T-cell counts (nadir CD4<200; β=-1.07) were associated with worse neurocognitive performance, and these effects did not differ in size or direction by substance use group.
Conclusions: In PWH, lifetime methamphetamine use disorder and both current and legacy markers of HIV disease severity are associated with worse neurocognitive outcomes. Cannabis use disorder does not appear to exacerbate methamphetamine-related deficits in PWH. Instead, results are consistent with findings from preclinical studies that cannabis use may protect against methamphetamine's deleterious effects. Profile analysis models showed that participants

with a history of cannabis use disorder display better overall neurocognitive performance than comparison (M-C-) participants. Mechanisms underlying a potential protective effect of cannabis may be elucidated by examining the temporal relationship between cannabis and methamphetamine consumption and neurocognitive performance.

Categories: Addiction/Dependence
Keyword 1: HIV/AIDS
Keyword 2: methamphetamine
Keyword 3: cannabis
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5 Psychomotor Speed and Duration of Use in Alcohol Dependent Individuals

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Objective: Chronic alcohol consumption has been associated with widespread cognitive deficits, including psychomotor speed. Researchers have found impairments in reaction speed, information processing, and fine-finger movement in alcoholics (Oscar-Berman et al., 2015). There have also been mixed findings on the impact of duration of alcohol use on neurocognitive functioning (Beatty et al., 2000; Oscar-Berman et al., 2004). This meta-analytical study examines: (a) the performance of abstinent alcohol-dependent individuals on psychomotor speed using the Trail Making Test-A (TMT-A), and (b) the effect of duration of alcohol use on TMT-A.
Participants and Methods: As part of a larger study, two researchers independently searched eight databases, extracted required data, and calculated effect sizes on neuropsychological data in alcohol dependent (AD) individuals. Inclusion criteria for articles were: (a) comparison of abstinent alcohol-dependent

patients to healthy controls, (b) matched control group on age, education, or IQ, and (c) standardized neuropsychological testing. Exclusion criteria included: (a) diagnosis of Axis I disorders (other than alcohol dependence), (b) comorbidity with other disorders that impact neuropsychological functioning, or (c) not published or translated into English. Twenty-seven articles (AD n= 840 and HC n = 881) were analyzed in this study.

Results: The TMT-A evidenced a statistically significant and medium effect size estimate (g = 0.624, p < 0.001). The heterogeneity of TMT-A was statistically significant (Q=61.935, df=26, p=0.000) and moderate (I2=58.021%). The meta-regression analysis between duration of alcohol use in days and TMT-A was not statistically significant (Q=0.012, df=1, p=0.913).

Conclusions: TMT-A detects psychomotor speed deficits associated with alcohol dependence. Duration of alcohol use did not affect TMT-A performance, suggesting that other factors may have moderated this relationship. Further research should analyze other factors that affect psychomotor performance in alcohol dependent individuals.

Categories: Addiction/Dependence
Keyword 1: alcohol
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6 Semantic and Phonemic Fluency in Alcohol Dependent Individuals

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Objective: Verbal fluency consists of semantic and phonemic fluency and is often used to detect verbal ability and executive control (Shao et al., 2014). While research has found general verbal fluency impairments in chronic alcohol use, few studies have examined semantic and phonemic fluency separately (Stavro et al.,

2012; Stephan et al., 2017). This meta-analytical study examines the performance of abstinent alcohol-dependent individuals on semantic fluency (categories) and phonemic fluency (letters).

Participants and Methods: As part of a larger study, two researchers independently searched eight databases, extracted required data, and calculated effect sizes on neuropsychological data in alcohol dependent (AD) individuals. Inclusion criteria for articles were: (a) comparison of abstinent alcohol-dependent patients to healthy controls, (b) matched control group on age, education, or IQ, and (c) standardized neuropsychological testing. Exclusion criteria included: (a) diagnosis of Axis I disorders (other than alcohol dependence), (b) comorbidity with other disorders that impact neuropsychological functioning, or (c) not published or translated into English. A total of 31 articles (AD n=1,080 and HC n=1,090) was analyzed in this study.

Results: Semantic fluency evidenced a statistically significant and medium effect size estimate (g = 0.632, p < 0.001). The heterogeneity for semantic fluency was statistically significant (Q=152.468, df=20, p=0.000). Phonemic fluency evidenced a statistically significant and medium effect size estimate (g = 0.572, p < 0.001). The heterogeneity for phonemic fluency was also statistically significant (Q=236.697, df=24, p=0.000).

Conclusions: Deficits in semantic and phonemic fluency are both associated with alcohol dependence. Although some previous research has reported more frontal lobe impact of alcohol, which would be expected to impact phonemic more readily than semantic fluency, this is not evident in the current data. There are many possible reasons for this failure to observe this dissociation meta-analytically. Some potential reasons include the possibility that alcohol affects multiple regions of the brain, that both these measures are affected by alcohol but miss the subtlety associated with frontal damage, or the likelihood that when studies are aggregated in meta-analysis the heterogeneity results in a regression to the mean effect size. These and other reasons are not mutually exclusive and future research should attempt to examine these and other hypotheses.

Categories: Addiction/Dependence
Keyword 1: alcohol