Approach-Bias Retraining Effects on Stimulant-and Drug-related Memory Associations Among Inpatients with a Primary Stimulant Use Disorder

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INTRODUCTION

- Stimulant use disorders are among the most challenging disorders to treat [1]
- Implicit memory association bias for drug-related stimuli has been shown to be a reliable predictor of drug use across various substance use disorders [2]
- Interventions to decrease an automatic approach towards drugs (e.g., action tendency retraining) have been successful in reducing automatic approach [3,4], but this has not been tested for implicit memory associations in any substance use disorder

OBJECTIVE: Assess whether an automatic approach retraining intervention reduces implicit drug memory associations

METHODS

Participants
- 19 years or older; fluent English
- No history of neurologic disorder or uncorrected visual or auditory deficits
- Inpatients at the Red Fish Healing Centre in Coquitlam, BC; first month of treatment admission; stable on medications; have a primary stimulant use disorder

Experimental Design
Participants were randomized to 14 sessions of active (N = 16; Mage = 38.1 ±12.8; 6F) or control (N = 18; Mage = 41.1 ±11.0; 5F) sham-training across 8 weeks. Behavior- and word- association tasks were conducted at 0 (baseline), 4-, 8- and 12-weeks (follow-up). Participants self-coded their responses as stimulant-, drug-, or non-drug-related.

Statistical Analysis
Proportions of self coded responses that were (1) stimulant-related and (2) drug-related were calculated and used as primary outcomes. Independent samples t-tests were employed to examine differences in demographics and concurrent psychiatric diagnoses between treatment groups. Two-way mixed ANOVAs were performed to evaluate changes in drug and stimulant associations over time (Weeks 0, 4, 8, and 12) with training condition (active, control) as a between-subjects factor. All outcomes were log-10 transformed before analysis to improve distributions. Analyses were conducted using SPSS 29.0.

RESULTS

Training groups (Active vs. Control) did not have significant differences in demographics or concurrent psychiatric diagnoses.
Most prevalent concurrent mental health diagnoses were 70% psychosis, 50% mood, and 33% stress-related disorders, with 90% having ≥2 substance use disorders.

Stimulant-related Associations
A main effect of time (F(1,19) = 3.52, p = .019, ηp² = .128) was observed over treatment. Pairwise comparisons revealed that associations declined from baseline (week 0) to follow-up (week 12; p = .005) and week 8-12 (follow-up; p = .032). No interaction effect was observed between training condition and time.

Drug-related Associations
A main effect of time (F(1,19) = 5.86, p = .001, ηp² = .178) was observed over treatment. Pairwise comparisons revealed that associations declined from baseline (week 0) to week 4 (p = .007) and follow-up (week 12; p < .001) and from week 8-12 (follow-up; p = .048). No interaction effect was observed between training condition and time.

CONCLUSIONS

- A treatment-related decline in drug- and stimulant-related implicit memory associations was observed in patients with stimulant use disorders; this pattern was unaffected by automatic approach retraining
- Findings provide further support for substance use treatment-related improvements in implicit drug memory associations [5]
- Automatic approach retraining did not incur additional benefits to regular treatment in reducing implicit drug memory associations
- Future study may investigate the effects of automatic approach retraining in larger samples, as well as its relation to clinical outcomes (e.g., abstinence)

REFERENCES


ACKNOWLEDGMENTS

This work was supported by the Provincial Health Services Authority (PHSA). The authors have no conflicts to disclose.