

# How treatment improvement in ADHD and cocaine dependence are related to one another: A secondary analysis

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Abstract

## BACKGROUND:

Attention-deficit hyperactivity disorder (ADHD) is overrepresented among individuals seeking treatment for substance use disorders. We previously reported that treatment with extended release mixed amphetamine salts (MAS-XR) increased abstinence, compared to placebo, among patients with co-occurring ADHD and cocaine dependence. This secondary analysis investigates the temporal relationship between ADHD improvement and cocaine abstinence in the first six weeks of the trial.

## METHODS:

The study was a three-arm, randomized, double-blinded, placebo-controlled, 14-week trial comparing MAS-XR (60 mg or 80 mg daily) versus placebo among 126 participants with ADHD and cocaine dependence. An autoregressive cross-lagged structural equation model was fit and evaluated weekly ADHD improvement (defined as  $\geq 30\%$  reduction in the Adult ADHD Investigator Symptom Rating Scale) and urine-confirmed abstinence over the first six weeks.

## RESULTS:

The proportion of patients with each of the possible overall patterns of response was: ADHD improves before cocaine abstinence: 24%; Cocaine abstinence occurs before ADHD improvement: 12%; ADHD improvement and abstinence occur during the same week: 6%; ADHD improves but abstinence never achieved: 34%; Abstinence achieved but ADHD never improves: 6%; Neither ADHD improvement nor abstinence: 18%. A significant cross-lagged association was found; subjects with ADHD improvement at week 2 had significantly higher odds of cocaine abstinence at week 3 ( $p = .014$ ).

## CONCLUSION:

When treating co-occurring ADHD and cocaine dependence with stimulant medication, abstinence is most likely preceded by improvement in ADHD, which tends to occur early with medication treatment. Other observed temporal patterns suggest the potential complexity of the relationship between ADHD and cocaine dependence.