I INTRODUCTION
- Executive working memory capacity (eWMC) is important to adaptive functioning, including decision-making and impulse control (Baddeley & Hitch, 1974; Cowan, 1995; Finn, 2002).
- Low eWMC is associated with alcohol use disorders (AUDs) and poor self-regulation (e.g., Bobova et al., 2009, Finn, 2002).
- A recent influx of studies have attempted to improve eWMC using various training methods (Chein & Morrison, 2010; Rabipour & Raz, 2012).
- However, many working memory training studies have been hampered by lack of appropriate control groups, questionable training methods, narrow outcome measures, and lack of assessment of the predictors of training adherence and improvements.

Current study: This study presents a well-controlled and methodologically rigorous study testing the efficacy of a previously successful rigorous and adaptive WM training protocol (Harrison, 2013) in those with AUDs along with an adaptive training control condition (visual search training).

Main Objectives:
1. To examine training task improvement and transfer effects of eWMC training in AUDs at immediate and 1 month follow-up.
2. To identify the individual predictors of training improvement, adherence, and transfer.

METHOD

Materials
- SSAGA-IV interview (Semi-Structured Assessment for the Genetics of Alcoholism: COGA, 2005) to assess group criteria (Alcohol Use Disorder, Antisocial Personality Disorder, Conduct Disorder, etc.)
- Active WM Training: Operation Span (OS) and Symmetry Span (SS) tasks
- Visual Search (Control) Training: Visual Searches (VS-L) and Hands (VS-H) (Harrison et al., 2013)

Both training conditions:
- 15 total sessions
- Adaptive
- Monetary Incentives
- Increasing span
- Set size (number of equations/judgements + string) is increased as subject improves

RESULTS

Program Adherence
- Training program adherence did not differ by gender, χ²(1) = 7.44, p = 1, group, χ²(1) = 1.15, p = .28, or condition χ²(1) = .40, p = .53.

Training Task Improvement
- Mixed effects model revealed main effects of session, condition, and session by condition interaction (ps < .001), suggesting both groups and conditions improved with increased sessions, those in the visual search training improved more than those in the active training, and control subjects improved more in both training conditions.

Conclusion & Future Directions
- When analyzed with factorial design (active vs visual search), there was weak evidence of transfer, however it is important to note the considerable variance in learning within the active training condition.
- When data was analyzed considering training performance, clear transfer was evident; those who achieved higher levels on the training had greater evidence of transfer.
- Baseline IQ was an important predictor of training task improvement.
- Future studies should investigate training in a more cognitively diverse and larger sample.
- Studies should also examine the role of motivation to improve working memory.

REFERENCES

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