Memory-focused cognitive therapy for cocaine use disorder: theory, procedures and preliminary evidence from an external pilot randomized controlled trial

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Background

- Cocaine is a powerfully addictive stimulant linked to a substantial global burden of disease.

- Several forms of cocaine, including a hydrochloride powder and a solid alkaloid (known as crack, and usually inhaled after heating).

- 18.3 million people aged 16–64 use cocaine each year worldwide and 6.9 million people worldwide have cocaine use disorder (CUD) ¹

¹ World Drug Report 2016
How does CUD develop and persist?

- Adaptive learning processes mediated by conditioning and motivation.
- Neurobiological circuits in the frontal-striatal region and nucleus accumbens, amygdala, insula and hippocampus.
- Learning models of emphasise quick-forming episodic memories of drug reward.
- Neutral and drug-related exteroceptive stimuli become cue-associated.
- As CUD becomes established, liking and wanting beliefs and expectancies strengthen and attention is biased towards conditioned cues.
- Usually tolerance to cocaine's pleasurable reinforcing effects and decreased responsiveness to natural rewards.
- As implicit-autonomous processes strengthen, many find it very hard to control impulses and desires to use cocaine.
To date, results of medications studies have been disappointing.

Cognitive Behavioural Treatment (CBT) is among the most extensively studied. Meta-analysis of 53 controlled trials for CUD and other substance use disorders, estimated that CBT achieves only a small overall treatment effect (mean difference for cocaine use 0.15; 95% CI 0.07 to 0.24).

### Memory-focused Cognitive Therapy for CUD

1. Cognitive case conceptualisation of maintaining processes
2. Education about cocaine's effects on cognition and behaviour
3. Cocaine-related cue-induction to elicit images and affective responses
4. Cocaine-related memory reconsolidation procedures
5. Behavioural experiments to build cognitive and affective control

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**Therapy format – 17.5 hours in 15 weeks**

- 3 x 90 minute case formulation sessions over 2 weeks
- 5 x 120 therapy sessions on consecutive days in 1 week
- 3 x 60 minute ‘top up’ sessions at 1-week, 1-month and 3-months
Study protocol

Acknowledgements

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Drug-neutral object
(now conditioned stimulus by repeated exposure)

**Approach thoughts/feelings:**
Images/gut feelings
“I need/want”

**Permission giving:**
“I’ve got money, a little is OK”
“I’ve been good this week”

**Anxious thoughts:**
“I’m too weak to resist...”

**Avoidant strategies:**
Thought blocking, Distraction
- Exposure
- Learning
- Conditioning

- Imaginal exposure
- New appraisals
- Imagery rescripting
Cumulative distribution function of % days abstinent at follow-up

Outcomes at 1 and 3 months in favour of MFCT

<table>
<thead>
<tr>
<th>Outcome</th>
<th>1-month (n=30)</th>
<th>3-months (n=30)</th>
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<tbody>
<tr>
<td>Increase in abstinence</td>
<td>31.4%</td>
<td>25.5%</td>
</tr>
<tr>
<td>Hedge’s g</td>
<td>95% 1.19</td>
<td>80% 0.79</td>
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<tr>
<td>Bayes factor</td>
<td>6.59</td>
<td>3.41</td>
</tr>
<tr>
<td>Cohen’s U₃</td>
<td>14 of 16</td>
<td>14 of 16</td>
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Cumulative proportion

worse ← no change → better
Study findings

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