The Role of Metacognitive Beliefs in Predicting Problem Gambling: A Review

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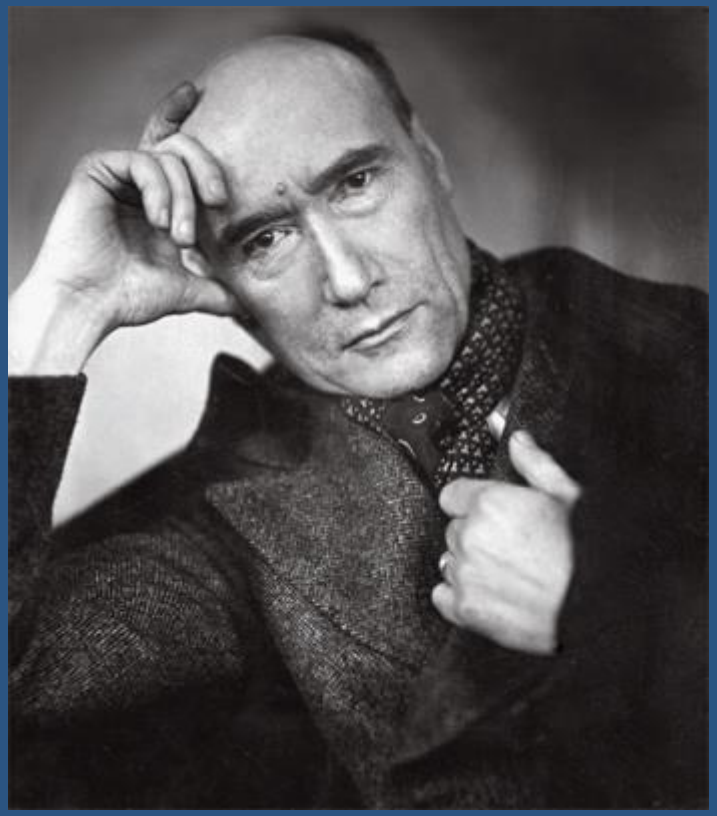
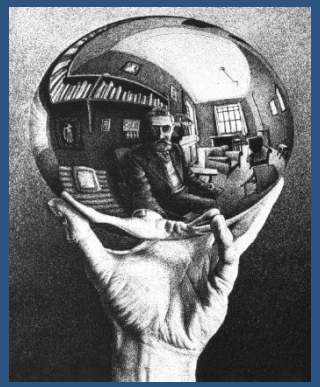
Thinking about metacognition

"As I watch myself act I cannot understand how a person who acts is the same as the person who is watching him act, and who wonders in astonishment and doubt how he can be actor and watcher at the same moment"



Andre Gide
The Counterfeiters
Nobel laureate for Literature, 1947



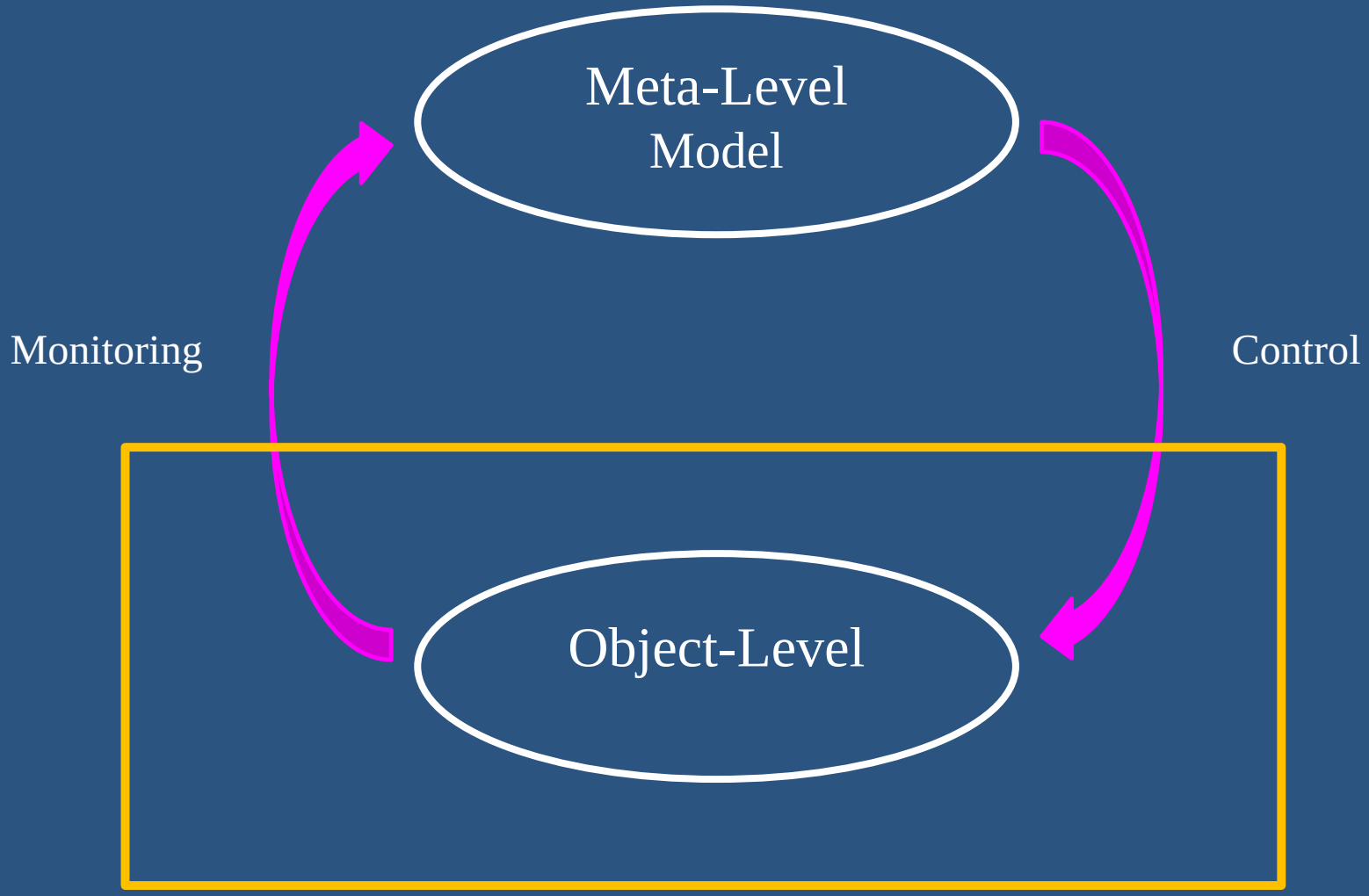
Metacognition in action

- 'Tip of the tongue effect'
  - When unable to remember a name we may feel sure that the name is stored in memory - in other words we have a **metacognitive experience, a feeling of knowing** that an item of information is somewhere in memory though inaccessible
- Knowledge of mnemonic strategies
  - We may also know that a good way to memorise the name is to pair it with something significant or to repeat it to ourselves numerous times (rote learning) – these are forms of **procedural metacognitive knowledge**
- Beliefs about our cognitive experience
  - We may believe that we have an excellent memory – **declarative metacognitive knowledge or metacognitive belief**
- Monitoring for signals of goal achievement
  - We may have a specific signal that indicates that the name has been memorised properly – **metacognitive monitoring and goal selection**

Metacognition in psychopathology

- Since everyone has negative thoughts/memories/cravings what is it that **controls** these internal experiences and determines whether they can be dismissed or not?
- According to Adrian Wells and Gerald Matthews (1996) **metacognitive beliefs** play a central role in driving **coping strategies** which are responsible for the persistence of negative thoughts and cognitive experiences
- Psychological disorder develops when an individual's **coping strategies** inadvertently lead to the **persistence** and **strengthening** of negative internal experiences and associated aversive emotional states (Wells, 2000)

The metacognitive paradigm



Nelson & Narens, 1990

CBT: modest outcomes in addictive behaviours

- CBT only has modest treatment effectiveness and high relapse rates
- Residual symptoms are often present increasing the likelihood of relapse
  - ‘Dangerous’ internal experiences such as craving
  - Obsessional thoughts about engaging in addictive behaviours
  - Perception of lack of control over the mind and behaviour

The central metacognitive question

- What metacognitive structures may be fuelling these residual symptoms?
  - Metacognitive beliefs (or ‘metacognitions’)
  - Repetitive negative thinking
  - Thought suppression
  - Metacognitive monitoring

Metacognitive beliefs

- These are beliefs we hold about our cognitive experiences and ways of controlling such experiences
- For example
  - “I need to control my thoughts at all times”
  - “Having thought X means I am weak”
  - “If I worry I will be prepared”
  - “If I ruminate I will understand”
- These beliefs have been found to be powerful predictors of psychopathology in hundreds of studies (Wells, 2000; 2013; 2019)
  - Activate and maintain unhelpful coping strategies aimed at managing intrusive thoughts, including rumination, worry, thought suppression, threat monitoring and avoidance

Generic metacognitive beliefs

- The role of **generic** metacognitive beliefs in psychopathology has been explored using the Metacognitions Questionnaire (MCQ; Cartwright-Hatton & Wells, 1997; Wells & Cartwright-Hatton, 2004)
  - Positive beliefs about worry (perseverative thinking)
    - "If I worry I will be prepared"
  - Negative beliefs about thoughts concerning uncontrollability and danger
    - "I cannot control my negative thoughts"
  - Cognitive confidence
    - "I don't trust my memory"
  - Beliefs about the need to control thoughts
    - "I need to control my thoughts at all times"
  - Cognitive self-consciousness
    - "I pay close attention to how my mind works"

Generic metacognitive beliefs in gambling

- Cognitive confidence and beliefs about the need to control thoughts predict gambling behavior independently of negative affect (Lindberg, Fernie & Spada, 2008)
- MCQ factors are higher in clinical than non-clinical samples, particularly beliefs about the need to control thoughts (Mansueto et al. 2016; Jauregui, Urbiola & Esteves, 2016)
- Beliefs about the need to control thoughts predict severity of gambling in clinical samples (Spada & Roarty, 2015)
- These findings align themselves with what has been observed across all addictive behaviours*
  - The central importance of **beliefs about the need to control thoughts** in predicting addictive behaviours

*** For a review of generic metacognitive beliefs in addictive behaviours see: Hamonniere, T. & Varescon, I. (2018). Metacognitive beliefs in addictive behaviours: A systematic review. *Addictive Behaviors, 85,* 51-63.**

Specific metacognitive beliefs

- **Specific** metacognitive beliefs are linked to the activation and maintenance of coping strategies that lead to perseveration of psychological distress
- Positive metacognitive beliefs – coping strategy activation
  - "If I worry I will be prepared"
  - "Gaming will allow me to control negative thoughts"
  - "Smoking will enhance my cognitive functioning"
  - "Drinking will reduce my self-consciousness
- Negative metacognitive beliefs – coping strategy maintenance
  - "I cannot stop thinking about my craving"
  - "My thoughts about using mean I will relapse"
  - "I cannot control my mind and behaviour"

Specific metacognitive beliefs in gambling

- Problem gamblers score higher than social gamblers on negative metacognitive beliefs about lack of control over gambling (Joukhadour, Maccalum & Blaszczynski, 2003; Barrault & Varescon, 2013)
- Metacognitive beliefs about lack of control over gambling are positively correlated with gambling severity (Raylu & Oei, 2004; Barrault & Varescon, 2013)
- Positive and negative metacognitive beliefs about gambling are associated with gambling severity in clinical populations (Caselli et al., 2018; Spada et al., 2015)
- These findings align themselves with what has been observed across all addictive behaviours*
  - The central importance of both **positive and negative metacognitive beliefs** in predicting addictive behaviours

*** For a review of specific metacognitive beliefs in addictive behaviours see: Hamonniere, T. & Varescon, I. (2018). Metacognitive beliefs in addictive behaviours: A systematic review. *Addictive Behaviors, 85,* 51-63.**

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The Metacognitions about Gambling Questionnaire: Development and psychometric properties

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Specific metacognitive beliefs in gambling

Metacognitions about Gambling Questionnaire

- Community (n = 165) and clinical (n = 110; n = 87) samples
- Findings supported a two factor solution consisting of
  - Positive metacognitive beliefs about gambling
    - "Gambling helps me to control my thoughts"
    - "Gambling reduces my worries"
  - Negative metacognitive beliefs about gambling
    - "Thinking about gambling is difficult to control"
    - "I cannot stop thinking about gambling"
- Internal consistency, predictive and divergent validity were acceptable
- Negative metacognitive beliefs about gambling were significantly associated to gambling severity **over and above** negative affect and gambling-specific cognitive distortions (knowledge, missing wins, long run wins, magical beliefs, excitement)
- Gambling severity and negative metacognitive beliefs about gambling were the only significant **prospective predictors** of gambling severity as measured three months after treatment

Table 5
Pooled hierarchical regression model with gambling severity at time 2 as the outcome variable.

Predictor (Time 1)	R^2	Adjusted R^2	B	SE	t	95% Confidence Interval LL	95% Confidence Interval UL
Step 1							
SOGS			.99	1.0	10.15**	.80	1.19
HADS-A			.01	.11	.10	−.24	.22
HADS-D			.16	.13	1.22	−.11	.43
	.74–.87**	.52–.75**			.		
Step 2							
SOGS			1.00	.11	9.49**	.80	1.21
HADS-A			.02	.10	.12	−.23	.20
HADS-D			.16	.14	1.18	−.13	.45
GBQ			.02	.02	.11	−.03	.33
	.74–.87**	.52–.75					
Step 4							
SOGS			.88	.10	8.59**	.68	1.08
HADS-A			.01	.09	.02	−.19	.19
HADS-D			.13	.12	1.08	−.11	.37
GBQ			.01	.02	.62	−.02	.04
NMG			.28	.08	3.49**	.12	.43
PMG			.02	.11	.17	−.23	.27
	.79–.93**	.60–.85**					

Note. SOGS = South Oaks Gambling Screen; HADS-A = Hospital Anxiety and Depression Scale - Anxiety; HADS-D = Hospital Anxiety and Depression Scale - Depression; GBQ = Gambling Beliefs Questionnaire; NMG = Negative Metacognitions about Gambling, PMG= Positive Metacognitions about Gambling; LL = Lower Limit; UL = Upper Limit; n = 87; *p < .05.
** p < .01.

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THE RELATIVE CONTRIBUTION OF METACOGNITIVE BELIEFS AND EXPECTANCIES TO DRINKING BEHAVIOUR

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(*Received* 3 *November* 2006; *first review notified* 16 *January* 2007; *in revised form* 1 *June* 2007; *accepted* 6 *June* 2007; *advance access publication* 1 *August* 2007)

Abstract — Aims: Alcohol expectancies refer to the effects of alcohol use anticipated by an individual. Metacognitive beliefs about alcohol use are a specific form of alcohol expectancy relating to the beliefs individuals hold about the effects of alcohol on cognition and emotion. **Method:** A community sample of 355 individuals completed measures of alcohol expectancies, metacognitive beliefs about alcohol use, and drinking behaviour. **Results:** Correlation analyses indicated that alcohol expectancies and metacognitive beliefs about alcohol use were positively correlated with drinking behaviour. Structural regression modelling revealed that three of the four facets of metacognitive beliefs about alcohol use were independent contributors to drinking behaviour, and that, when controlling for such beliefs, only negative social performance alcohol expectancies explained additional variance in drinking behaviour. **Conclusions:** These results add to the argument that there is a value in differentiating between metacognitive beliefs about alcohol use and alcohol expectancies in predicting drinking behaviour.

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Modelling the contribution of negative affect, outcome expectancies and metacognitions to cigarette use and nicotine dependence

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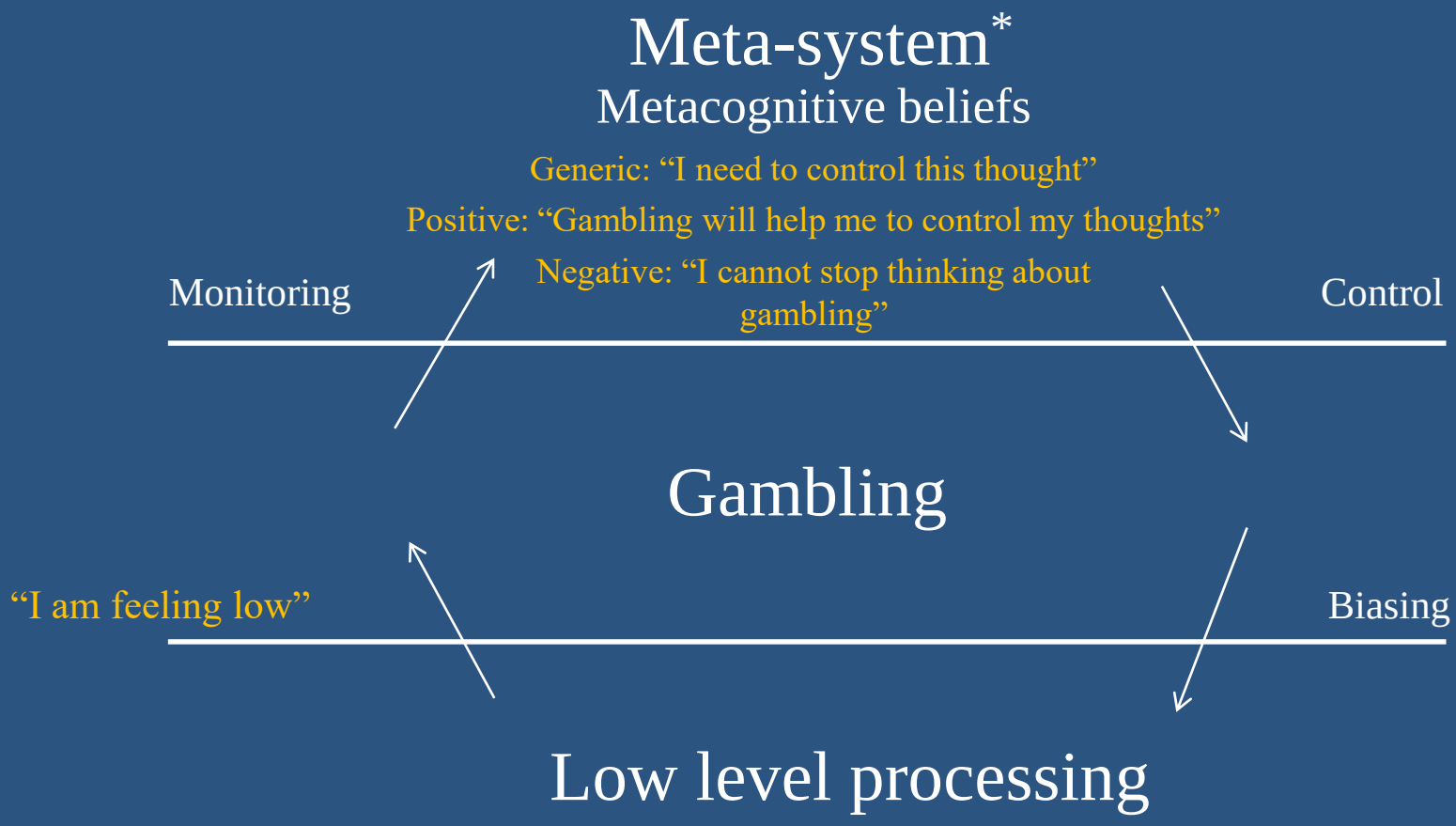
A simplified metacognitive model

Spada, M. M., Caselli, G., Nikčević, A. V. & Wells, A. (2015). Metacognition in addictive behaviors. *Addictive Behaviors, 44*, 9-15.



* Also contains metacognitive plans and models

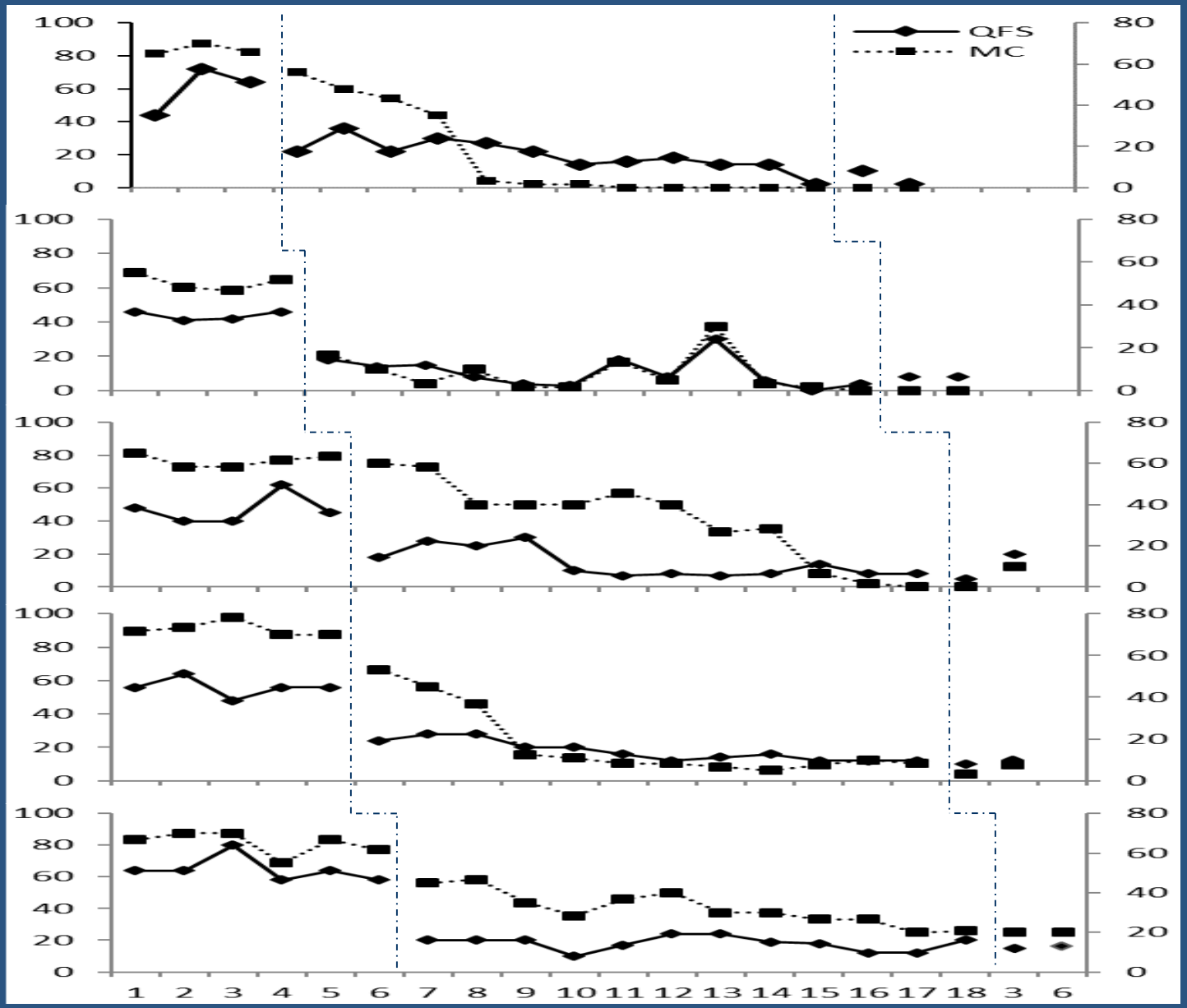
What metacognitive interventions?

- Psycho-education on gambling as a metacognitive coping strategy
- Re-appraising metacognitive beliefs
  - Uncontrollability of thoughts/memories about gambling
  - Utility of gambling as a means of cognitive-affective regulation
  - Thought action fusion in gambling
  - Deprivation/craving vs. desire thinking
  - Rumination and worry as potentiators of negative affect and consequently gambling
- Postponement of gambling
  - Attention training, situational attention refocusing, and detached mindfulness

The present and beyond

- Further research is needed on
  - Longitudinal comparative predictive power of key metacognitive variables
  - Interaction of mechanisms of change
  - Adolescents and relapse prevention
- A clinical model and protocol for addictive behaviours is being finalised (Wells, Caselli & Spada, in prep.)
  - Outcomes of single case series using this protocol in Alcohol Use Disorder are excellent (Caselli et al., 2018)

Preliminary evidence in AUD: Single case series



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Thank you

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