COGNITIVE VERSUS EXPOSURE THERAPY FOR PROBLEM GAMBLING: A RANDOMISED CONTROLLED TRIAL

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LIST OF ACRONYMS

AISS	Arnett Inventory of Sensation Seeking
ATE	Average treatment effect
ATET	Average treatment effect on treated
BLUP	Best linear unbiased predictors
CBT	Cognitive-behavioural therapy
CONSORT	Consolidated Standards of Reporting Trials
CPGI	Canadian Problem Gambling Index
CT	Cognitive therapy
DSM	Diagnostic and Statistical Manual of Mental Disorders
EGM	Electronic gaming machine
E-M	Expectation-maximization algorithm
ET	Exposure therapy
GRCS	Gambling Related Cognitions Scale
GUS	Gambling Urge Scale
IPW	Inverse probability weighting
ITT	Intent-to-treat
MAR	Missing at random
MCAR	Missing completely at random
ML	Maximum likelihood estimation
MNAR	Missing not at random
NHMRC	National Health & Medical Research Council
PMM	Pattern mixture model
POM	Potential outcome mean
RCT	Randomised controlled trial
REML	Restricted maximum likelihood estimation
SGTS	Statewide Gambling Therapy Service
SOGS	South Oaks Gambling Screen
SUD	Substance Use Disorder
VGS	Victorian Gambling Screen

DECLARATION STATEMENT

I certify that this thesis does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any university and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

Signature_____ Date_____/_____/_____

David Peter Smith

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To the memory of Timothy Donald Smith, friend and brother.

OVERVIEW OF PAPERS

The following papers are based on the work described in this thesis:

Smith, D. P., Dunn, K. I., Harvey, P. W., Battersby, M. W., & Pols, R. G. (2013). Assessing Randomised Clinical Trials of Cognitive and Exposure Therapies for Gambling Disorders: A Systematic Review. *Behaviour Change, 30*(3), 139-158.

Smith, D. P., Battersby, M. W., Harvey, P. W., Pols, R. G., & Ladouceur, R. (2013). Two-group randomised, parallel trial of cognitive and exposure therapies for problem gambling: a research protocol. *BMJ Open, 3*(6).

Smith, D. P., Battersby, M. W., Harvey, P. W., Pols, R. G., & Ladouceur, R. Cognitive versus exposure therapy for problem gambling: randomised controlled trial. *Behaviour Research and Therapy, June 2014. Accept pending revision, March 2015.*

SUMMARY

In South Australia, problem gambling is mainly a result of the widespread availability of electronic gaming machines (EGM) in venues across the state. To help lessen this problem, the Statewide Gambling Therapy Service (SGTS) offers free cognitive-behavioural therapy (CBT) and mental health care for help-seeking problem gamblers. A barrier to improving treatment delivery that clinicians faced was a lack of clear guidelines on the best gambling-specific CBT approaches.

This situation prompted this research to investigate the relative efficacy of pure cognitive therapy (CT) and behavioural (exposure-based) therapy (ET). Exposure therapy targets gambling related psychobiological states (e.g. the “urge” to gamble) and CT focuses on restructuring erroneous gambling related cognitions. A systematic literature review was first conducted to synthesise the current state of research on CT and ET approaches to problem gambling. The review suggested that trials with a lower risk bias were needed and therefore justified a further trial.

The main study was a trial to compare CT and ET across a 12-week intervention period and 6-month follow-up period. It was a single-site two-group randomised, parallel design, with adult EGM problem gamblers presenting to SGTS. Primary outcome was rated by participants using the Victorian Gambling Screen (VGS) with validated cut score 21+ (score range: 0 – 60) indicative of problem gambling. All the treatment sessions were audio recorded and 20% were randomly selected and checked for therapy fidelity.

Of the 87 participants who were randomised and started intervention (CT=44; ET=43), 51 completed intervention (CT=30; ET=21). Both groups experienced comparable

reductions (improvement) in VGS scores at 12-weeks (CT versus ET mean difference -0.18, 95% CI: -4.48 to 4.11) and 6-month follow-up (mean difference 1.47, 95% CI: -4.46 to 7.39). Similar improvements in both interventions were also found for secondary measures. One of the main limitations of this study was loss of power due to an under representative sample size. However, compatible with the observed data, upper and lower confidence limits for estimated mean VGS differences suggested more similarities than differences between therapy groups from a clinical perspective.

To explore treatment specific and non-specific effects for therapy, qualitative interviews were conducted with a sub-sample of participants. This examination revealed that all interviewees gained benefit from their respective therapies and their comments did not appear to favour one therapy over another. Both treatment specific and treatment non-specific effects were well supported as playing a therapeutic role to recovery. It was not clear as to what effect, if any, could explain most of the variability in therapeutic change.

Taken together, the results showed that CT and ET were feasible and effective treatments for problem gamblers who presented to a community-based gambling therapy service in South Australia. A significant concern was the high therapy drop-out rate that was consistent with other previous trials involving psychological treatments for problem gambling. A large-scale trial is needed to compare CT and ET alone to a combined exposure-cognitive approach that can flexibly account for inter-individual variation in ‘urge-cognition’ experiences. A combined approach may enhance treatment retention and reduce drop-out rates.