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**Experiences and perceptions of problem gamblers on cognitive and exposure therapies when taking part in a randomised controlled trial: a qualitative study**

## **ABSTRACT**

In South Australia (SA) problem gambling is mainly a result of the widespread availability of electronic gaming machines. A key treatment provider in SA offers free cognitive and behavioural therapy (CBT) to help-seeking problem gamblers. The CBT program focuses on the treatment of clients' urge to gamble using exposure therapy (ET) and cognitive therapy (CT) to restructure erroneous gambling beliefs. The aim of this study was to explore treatment specific and non-specific effects for CT alone and ET alone using qualitative interviews. Interviewees were a sub-sample of participants from a randomised trial that investigated the relative efficacy of CT versus ET. Findings 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. Participants' comments in both therapy groups suggested that symptom reduction was experienced on a gambling related urge-cognition continuum. In addition to symptom improvement from therapy-specific mechanisms, ET participants described a general acquisition of "rational thought" from their program of therapy and CT participants had "taken-over" their gambling urges. The findings also highlighted areas for further improvement including therapy drop-out.

## **BACKGROUND**

The theoretical underpinnings of gambling-specific cognitive behavioural therapy (CBT) include cognitive and psychobiological mechanisms and are central to explaining decision-making during gambling (Clark, 2010). The cognitive approach is based on the principle that problem gamblers hold erroneous perceptions of randomness; erroneous beliefs (e.g. 'luck helps me win') and inaccurate perceptions (e.g. 'gambling makes things better for me') (Ladouceur et al., 2001; Raylu and Oei, 2004a) which are rewarded, learned, and become habitual. Evidence for this approach has come predominantly from 'think aloud' techniques where gamblers have verbalised their perceptions and beliefs during gambling activities (Gadbury and Ladouceur, 1989). Cognitive therapy (CT) for problem gambling focuses on teaching the concept of randomness, increasing awareness of inaccurate perceptions and restructuring erroneous gambling beliefs (Ladouceur et al., 2001). Cognitive restructuring plays an important role in CT and has been shown to be clinically efficacious in treating a range of mental health conditions (Beck and Dozois, 2011).

Treatments that target gambling related psychobiological states (e.g. urge to gamble) are predominantly behavioural (exposure-based) (Tolchard et al., 2006; Battersby et al., 2008). Urge states play an important role in gambling pathology (Raylu and Oei, 2004b) and can arise from internal triggers (e.g. depression) and external triggers (e.g. gambling cues) that activate arousal and gambling-related cognitions (Sharpe, 2002). Imaging studies have established links between intensities of self-reported gambling urges and changes in brain activity including retrieval and processing of emotion and impulse regulation (Potenza et al., 2003; Balodis et al., 2012).

Exposure therapy (ET) is grounded in both operant and classical conditioning paradigms and cue-exposure with extinction processes (e.g. elimination of gambling urge) has been proposed as more beneficial than other types of behavioural therapy (e.g. aversive therapy) in treating gambling addiction (Brown, 1987). Exposure therapy has been shown to be clinically effective in treating psychological conditions such as post-traumatic stress disorder (PTSD) and social phobia (Ougrin, 2011).

In attempt to evaluate the differential efficacy of gambling-specific ET and CT we conducted a randomised controlled trial (RCT) across a 9-month study period. It was a single-site two-group, parallel design, with adult electronic gaming machine (EGM) problem gamblers presenting to a gambling-help service in South Australia. Participants in both groups were intended to receive a standard of twelve 60 minute individual treatment sessions, ranging from 4 to 16, depending on co-occurring conditions, conducted at weekly intervals. Both treatment manuals were intended as a session-by-session guide for therapists treating individuals with a gambling disorder where EGMs were the main form of gambling problem. The therapists were to deliver treatment according to the content of each manual and sequencing of techniques in a face-to-face format. A detailed description of the study protocol has been published elsewhere (Smith, Battersby, et al., 2013). Similar improvements in both interventions were found on primary and secondary measures including psychological disturbance, social functioning and gambling related urge and cognitions (Smith et al., 2015).

However, quantitative data may be limited in terms of a more in-depth understanding of therapy-specific effects (putative mechanisms of change) and non-specific effects (e.g. therapeutic environment) for core techniques of CBT treatments. Qualitative investigations alongside clinical trials can help enrich explanations of trial findings and translate theory to

practice (Grant et al., 2013). Qualitative approaches are particularly useful for complex interventions such as community development programs, health promotion interventions and psychological treatments (Campbell et al., 2000). These interventions involve dynamic movements between treatment specific and non-specific variables that standard trial outcome measures may not ordinarily capture (Oakley et al., 2006) including the when (temporal instants) and where (spatial locations) of experiences. Also, as shortfalls in recruitment numbers and treatment uptake are common in RCTs, qualitative investigations can provide additional information to evaluate clinical utility of trial findings (Hawe et al., 2004).

To date, no qualitative investigation conducted in concurrence with clinical trial has been reported in the gambling intervention literature. Therefore, the aim of this qualitative study was to support and extend findings from a randomised trial to evaluate the differential efficacy of CT versus ET.

## **METHODS**

### **Interviewer**

The first author conducted all interviews. His first contact with trial participants was by telephone to conduct individual screening interviews to assess study eligibility. He then met eligible participants at their first study-site attendance to provide further explanation of the trial and obtain consent. Following this, no further contact with participants was initiated until treatment-end when a sub-sample was telephoned and invited to participate in a semi-structured interview. Participants were told that the reason for conducting interviews was to strengthen trial findings by listening to what they had to say. His broad research question for

this qualitative component was “What were the participants’ experiences and perceptions of therapy received in the trial?”

## **Participants**

In the main trial, eighty-seven participants were randomised and started an intervention (CT=44; ET=43) and 51 (59%) completed intervention (CT=30; ET=21). Following the treatment intervention period a sub-sample of participants were invited to take part in semi-structured interviews (Crabtree and DiCicco-Bloom, 2006) to explore treatment specific and non-specific effects for cognitive and exposure therapies. At the outset, the first author contacted study therapists to identify potentially suitable participants based on a purposive sampling design. This approach was used to achieve equal numbers between cognitive and exposure groups and a balance on gender, treating therapists, distribution of treatment session numbers and time in treatment and follow-up. Additionally, initial interviewees were selected to ensure maximum variation in treatment adherence that ranged from treatment drop-out to treatment completion. A total of 9 individuals were contacted by telephone and invited to take part in a face-to-face interview at a time and location that was convenient to them. All agreed to be interviewed at this time, however one person was unable to commit to a date due to work obligations. On a follow-up phone call the person then declined to participate due to time constraints. Characteristics of interviewees are presented in Table 1. Of the 8 participants, 6 had completed treatment (completers, COM) and 2 had not completed treatment (non-completers, NON).

(Table 1)

## **Interviews**

One-on-one interviews were planned to last for approximately one hour and conducted in person with participants between April 2012 and November 2012. Participants were offered a \$50 gift voucher in acknowledgement of their contribution to the study. All interviews were held at the study-site based on participant's requests. Interviews were conducted at a time nominated by the participant where in most cases this was to accommodate working hours. Interviews were recorded using a digital voice recorder and transcribed verbatim by an independent transcriber.

Each interview commenced with a 'grand tour' question "Tell me about your experiences with your gambling treatment?" Open ended questions were designed to guide interviews including "What made it easy or difficult with your gambling treatment?" and "How can treatments improve for problem gamblers?" The interview was semi-structured where a topic list was used as a guide by the interviewer to ask questions and probe within topics that focused on treatment specific and non-specific effects. The participant was not introduced to the topic list. The interviewer took a curious stance whilst the participant reflected on his or her therapy. This semi-structured approach to the interview enabled the researcher to focus on the areas of interest that were considered important to CBT but at the same time was flexible to allow collaborative discussion and any deviations from this guide that were important to the participant.

## **Theoretical framework**

Therapeutic benefits of CBT for problem gambling can arise from both therapy-specific and non-specific effects (Walker et al., 2006). In this study, these domains were pre-specified as categories for an initial directed content analysis using a deductive approach i.e. data analysis

was researcher driven. Data was organised and summarised at the semantic level and themes were developed to capture participant experiences within categories and also commonalities. These were interpreted at a theoretical level in relation to findings of the main trial and previous literature. This approach to exploring participants' experiences was motivated by two underpinning properties of the trial design. Firstly, the trial was centred on testable hypotheses to investigate individual outcomes and processes of change or intended effects of each therapy (e.g. urge reduction and extinction from exposure therapy and acquisition of a more realistic set of beliefs from cognitive therapy). Secondly, non-specific effects in the trial could not be directly tested due to a lack of control condition. However, the assumption was made that therapies were approximately similar in relation to structure (e.g. 12 weekly sessions) and implementation (e.g. therapist administered interventions). Therefore, qualitative interviews provided an opportunity to explore any deviation from this assumption about non-specific effects.

### **Data Analysis**

Interview recordings were independently transcribed verbatim to a Microsoft word document and included reference to behaviours such as laughing and retained punctuated dialect.

Transcripts were made available between two to five days post-interview and then uploaded to NVivo software for data management. The analytic steps followed those recommended by Braun and Clark (Braun and Clarke, 2006). These steps are described in the following. (1) Transcripts were initially checked for accuracy and salient observations were documented that were abetted by a relatively unsullied memory of the interview. (2) Transcripts were then analysed independently where data that was seen as relevant at the semantic level was coded around one or both of the main categories in relation to therapy specific and non-specific effects (Walker et al., 2006). The context of extracts was also preserved at the semantic level

by coding the surrounding data if applicable. (3) The broad range of codes within main categories were then sorted into sub-categories as a way of exploring the interrelationships between interviewees by comparing quotations to develop a more encompassing account of individual experiences. (4) Themes were developed from main categories and sub-categories based on the qualities of supporting data. (5) Interpretation of themes was then done in context of the main trial findings and existing gambling intervention literature involving cognitive-behavioural therapies. The coding was cross-checked by the third author to reduce any subjectivity in the analysis.

For each interviewee a reliable change index (RCI) was calculated to determine how much therapeutic change occurred from baseline to post-therapy. This allowed an opportunity to qualitatively assess the degree of concordance in therapeutic change between quantitative measures and participant's perception and experiences. The measures tested were gambling related cognitions scale (GRCS) (Raylu and Oei, 2004a) and gambling urge scale (GUS) (Raylu and Oei, 2004b) that were chosen for the trial to assess hypothesised mechanisms of change for CT and ET respectively. Reliable change was calculated using the formula  $SE_{diff} = SD_b * \sqrt{2} * \sqrt{1 - r}$  where  $SE_{diff}$  was the standard error of difference,  $SD_b$  was baseline standard deviation and  $r$  was Cronbach's alpha coefficient for each measure at baseline (Jacobson and Truax, 1991). A reliable change was indicated when the difference between post-therapy and baseline ( $x_2 - x_1$ ) were outside the range of  $1.96 * SE_{diff}$  with 95% confidence. Alternatively, if the standardised difference between scores ( $(x_2 - x_1) / SE_{diff}$ ) was greater than 1.96 then a reliable change was indicated with 95% confidence.

## **FINDINGS**

The findings are presented in five main themes. In the first two themes both groups showed considerable similarity: (i) *participant's overall evaluation of the intervention* (outcome) and (ii) *how participant's experienced the intervention and its effects* (process). The next two themes highlight the main differences between the CT and ET formats: (iii) *experiences of the therapy specific effects for CT participants* and (iv) *experiences of the therapy specific effects for ET participant's*. The final theme was grounded on comparable outcomes between the two groups in the main trial on therapy specific variables: (v) *relational interpretation of CT and ET specific effects*. The participants' experiences with the treatment and context are illustrated with quotations, each quotation having a participant identifier indicating the therapy and compliance status (COM, NON).

### **Participant's overall evaluation of the therapy**

All the interviewees who completed a CT or ET course reported that the overall experience was positive, the only variation being the degree of enthusiasm expressed.

Like right now, six months ago I would be tied to a machine, desperate, definitely on a Friday night like now, and it was all consuming with mental obsession and now I'm actually available for life, you know, and friends and family. (CT01,COM)

Now my financial situation is still bad, it's not great but at least I'm not going further and further down. I've had to take some drastic measures to sort of draw a line in the sand and move forward but that was only possible I think because with this treatment I was able to say no, I will stop. (ET01,COM)

The above extracts support findings from the main trial in terms of improved social functioning and reduction in money spent on gambling activities. The CT participant operationalizes a temporal association between problem gambling and social impairment where she reports being free of EGMs and “available” for social engagement. Testament to this was her choice to be interviewed on a Friday evening where previously she would most likely be gambling at this time. For the ET participant, her primary evaluation of treatment was framed in a financial context. Her comments suggested ongoing financial stress but that she had gained enough control of her gambling to at least prevent further decline.

One non-completer of treatment described how she benefited from the initial sessions involving cash restriction planning but the exposure tasks were discordant with her personal goal of wanting to achieve a level of controlled gambling rather than abstinence.

Because I was very worried if I gave up the pokies completely what else might take over and that’s one of the things that was stopping me coming for the treatment as well, or help, you know, yeah, because I feel like I do have an addictive personality. (ET02,NON)

From a simplistic interpretation of the abovementioned extract it seems this person had good insight of her level of ability to cope in situations such as boredom with “housework... you just get itchy feet”. She also described patterns of her pre-gambling behaviours that were commensurate with the concept of ‘switching addictions’:

I came from smoking for 10 years, gave that up (then) I became addicted to going to the gym.  
(ET02,NON)

Another interviewee described juxtaposition between her gambling behaviours following completion of therapy and benefits of therapy.

So you lapse every now and again... I don't spend as much either, and I don't go in and feel better when I don't go in. Some days I drive past and I don't go in. When I don't go in I say, 'Oh, you go home and you can get some things done instead of pressing the button'.

(CT04,COM)

Another prominent narrative in participant accounts was a developed sense of control over gambling following therapy. One participant described her experiences of treatment that empowered her to act independently and able to better deal with stressful situations. Her previous experiences with a group support program for problem gambling left her with the feeling that they took control (CT01,COM). Another person stated that after attending each of two therapy sessions he "definitely left them feeling a lot more empowered". He terminated therapy though because of working "a stupid amount of hours" that conflicted with operation times of the therapy centre (CT02,NON). For another participant it was:

...such a revelation of yes, I'm sitting here with this money in the bucket but I do not have the feelings I used to have when I used to be there and absolutely feel that rush and that, I want to play, I want to, you know. So that was good. It was a good feeling to sit there and feel that you are in control. (ET01,COM)

### **How both ET and CT participants experienced the intervention and therapy related changes**

From the transcripts it was evident that nearly all participants' experience of therapist related variables played an important role in the recovery process and this may have been *sine-qua-non* of effective intervention in some cases.

...you know, how I got to where I was, talked through those processes. So that's an understanding as well, not that that's a pre-requisite to starting this but it was good to - because it reaffirms, by me talking it through I'm also refreshing my mind of all the processes and bad habits I acquired and what were the stimulus for making me gamble and situations, mindsets. (CT03, COM)

Well it was just, it's good to talk to someone who, you know, totally different who's not a friend...but has had nothing to do with my outside, (the therapist) here to help me get over this...to me it was a care factor, it was someone who actually cared and just caring about the way she did her job. (ET03, COM)

Another participant described her uptake of diarising in context of therapist alliance. This was forged through a "...combination of trusting (the therapist) and she cared" and therefore "...I was willing to give that (diary) a shot". (CT01,COM) For one participant however, therapist empathy was not enough for her to continue with treatment.

Yeah, she seemed very nice and very understanding and knew what she was doing, she'd done it before. It seemed a little bit regimental, a little bit like, 'This is what we do, look at this devil picture and this angel picture' ...I came to that realisation it wasn't for me all the way... (ET02, NON)

Most participants however, talked about the benefits of a structured therapy that specifically targeted gambling.

Now, well then, the treatment itself, I thought that was - to me it just sort of worked well because it was very logical and I knew - and it was like a progressive - it was in stages, so like every week or two weeks, whatever we did, progressed on and slotted in, so I think it was well structured and it made sense to me. (CT03,COM)

And just yeah, it just, getting to home and doing something 'cause look I've been to counsellors before earlier on but I didn't keep going...they weren't really dealing with the issue, whereas this, it was more dealing with the issue, it wasn't just come here, talk, rah-rah-rah, have you gambled this week, no, alright, okay bye. It was more in-depth. (ET04,COM)

...when I was explained about the treatment, at first I thought how can this possibly work because I thought you had to go through so many psychiatric sessions...more the kind of talking about your history, what you did, why, when, was your mother bad, was your father bad, that's what I classically feel that kind of field. Whereas this was, this is your problem, let's attack your problem kind of thing. More direct I suppose to the problem itself. (ET01,COM)

### **Experiences of the therapy specific effects for CT participants**

A central focus of CT for problem gambling was on teaching the concept of randomness, increasing awareness of inaccurate perceptions and restructuring erroneous gambling beliefs. Categories of gambling related cognitions include illusion of control, predictive control and interpretative bias. It was evident from the transcripts that CT completers had experienced therapeutic change in gambling related cognitions. One participant described symptom change in terms of reframing gambling outcomes that otherwise would of maintained gambling behaviours despite losses (interpretive bias).

What this therapy did was show me in truth and in fact what gambling did to me, what it means, the fact that I will always lose really, ultimately I lose when I play, with the illusion of sometimes winning, even when I win I'd lose. (CT01,COM)

Increased cognitive awareness using the ABCD (situation, thoughts, behaviour, consequences) model and exercises to focus on the gambling thoughts or 'inner dialogue' was evident from another participant.

Yeah, the strategies, you know, like she was saying 'You have to be able to recognise what's a gambling thought and what's not a gambling thought'. Before, I used to drive past the casino and I used to go, 'Oh I'll stop and play' and now I say to myself, 'Oh do you really want to go and play? Are you really thirsty?' So you actually question your ideas of why you want to go in there. So I do that a lot more. (CT04,COM)

For two participants, a developed insight regarding independence of random events was attributed to an activity involving a jar of marbles (all one colour/size apart from one distinct marble) and drawing one at a time with replacement. Participants were asked to determine the probability of an event based on different scenarios e.g. what are your chances of drawing the red one? This was repeated on a number of occasions to ensure the client saw the pattern.

Oh I think - the bag of marbles with the black on it or whatever, or the red - getting the home truth about the difference between talent and skill and what chance is really about, and having your nose rubbed in that, that's a good starting point. (CT03,COM)

And it does - yeah that's how it works, and the thing is it doesn't mean that - you know, before you're playing the machine saying, 'Well it's got to come up, it's got to come up' in your mind

- that's what you say to yourself. You know, 'I've put in \$50 into this machine, it must give me some free games in a minute', but now I know it doesn't happen. (CT04, COM)

Beyond therapy sessions participants were asked to keep a self-monitoring diary on a daily basis. This was to provide them with a prop to help describe to the therapist any situations which triggered desire to gamble and how each of these situations was managed. If gambling had occurred, it provided an opportunity for the therapist and participant to discuss specific gambling thoughts and how these influenced their behaviour. One participant found the self-monitoring diary to be "really therapeutic" despite initial disinclination based on the perception that it would be "indulgent and crap" (CT01,COM). She was motivated to push through her negative perception of diarising and subsequently acquired therapeutic benefits from using this tool. Conversely, another participant appeared less enthused to use the diary.

Well I wasn't filling out the diary like I should have been. I'm exceptionally poor with time management at the best of times, yeah, and then actually finding the time, which wouldn't be hard because it's really only 10 minutes a day but actually prioritising it and getting myself organised, was definitely a major issue. (CT02, NON)

### **Experiences of the therapy specific effects for ET participants**

Exposure therapy was based on the theory that problem gambling is the result of the development of a psychophysiological "urge" to gamble in response to environmental or personal triggers or cues. The theoretical mechanism of behavioural therapy is de-conditioning of the urge using graded exposure to gambling cues, and response prevention (resisting gambling) which results in habituation of the urge within a session and ultimately extinguishing of the urge if the exposure task is repeated. In terms of symptom change, the

identification and reduction of urge 'feelings' was central for all interviewees that completed ET.

...yeah, it's a strange, yeah. Once you've got that urge being a gambler, it controls you more than anything else. You thought I was always going with it, whereas now the urge isn't there, I've just, I've lost interest, it's just nothing, it doesn't, hasn't got that magnet to it to pull me in anymore. (ET03,COM)

So once I started doing those exercises and identifying those feelings, it was – it's almost like if you've ever felt like making an example say with something else, you say I really, really love chocolate cake – let's say chocolate cake right – and you have a feeling oh I want... and you can almost taste that chocolate cake and you want it so bad you imagine it, you picture it and this and that and your body is telling you, you really want it. Then your body is going through some kind of other feelings other than just in your head if you know what I mean. You almost feel hungry, you almost... well that's the kind of thing that you know, that I identified going through the exercise in the treatment because it was bit by bit looking at the picture, listening to the sounds bringing you there and then almost that feeling that you are there and what you feel. I actually think that was more a help than anything else, the identification of those symptoms if you like. (ET01,COM)

One ET participant who attended the first two therapy sessions only, found the cash restriction plan to be most helpful.

But now we've put a plan into place where it's going to work and it has been working which, going to that therapy did help with that side of things, whereas I'm giving him my ATM card the night before I get paid and then when I get paid he takes me down and we pay the bills I have to pay on my side. (ET02,NON)

During the second ET session, participants were introduced to imaginal exposure exercises where they were taught to evoke gambling related thoughts and sensations using a picture of their favourite EGM and gaming machine music. For the abovementioned person, the imaginal exposure task was the turning point for her in deciding not to return to treatment.

Oh I've seen it a couple of times, it's in the drawer and I think, 'Oh yeah, that picture again', but yeah, it doesn't make me get the urge to go to the pokies and it doesn't get me bored of looking at it, it's just, 'Oh yeah, that's my favourite machine', because that's what she gave me a picture of, the favourite one that I play, she did it that way so that you get bored with looking at it so you won't play that one, yeah. But the only reason I play that particular one is because I know the games come up more often, it seems they do anyway, yeah. (ET02, NON)

One treatment completer identified the *in vivo* or 'live' task as more logical than the imaginal exposure task. The live task involved the client going to different venues that were familiar gambling locations and doing exposure exercises such as sitting in front of a gaming machine and placing a few coins in the machine without gambling.

Pretty hard to run it from the lounge room or the car but you'd find that the circumstances and the urges don't come from the office, they actually - and I'm here for the problem but they don't get replicated here. (ET04, COM)

His scores of zero on the gambling urge scale (GUS) at baseline and post-treatment (Table 2) tended to contradict his overall experiences of urge.

...those forms are just forms and they can be filled out any way you like...to try and get a true picture of how you feel and how your urges are, I do find it difficult to produce that in an office. (ET04, COM)

(Table 2)

The challenge to understanding treatment logic in early phases of exposure therapy was highlighted by two participants suggesting it to be a potential threat to successful treatment adherence.

I was just reading all the stuff and really taking it in, really thinking okay, what is the logical side of this, why is it doing this and the more I looked into it and yeah, it was easy to explain each week as I did it... if the person isn't a thinking person who can think about what was going on, it's going to be very hard. (ET03,COM)

That's one thing I can see and I don't know how you could fix that but I could see some people dropping off at a one, two session or whatever, not allowing themselves to fully understand and to get to that stage of identifying the feelings and all that kind of thing where it starts to actually make a difference. (ET01,COM)

### **“Questioning your desire”: relational interpretation of CT and ET experiences**

In the main trial it was expected that ET participants would experience a significantly greater reduction (improvement) in GUS (gambling urge scale) scores compared to CT participants and contrariwise for GRCS (gambling related cognitions scale). This was considered a plausible hypothesis in light of the two paradigms to explaining gambling disorders.

However, it was evident from most participant transcripts that there was dynamic interplay between psychobiological states and perceptions of control that was suggestive of an urge-cognition continuum.

Thoughts and everything is oh, you know, well I've got an urge I might go and win. It's more the winning factor, you know, you're going to go oh look, yeah I've got \$100, I might make that into \$1000. You've got the urge that you're going to make something out of it.

(ET03,COM)

Findings from the trial showed similar improvements in urge and cognitions between study groups as measured by GUS and GRCS respectively. Nevertheless, at the interviewee level there was considerable variation in the reliability of these findings as indicated in Table 2. One participant who indicated a reliable improvement on both measures described a situation during therapy where she considered gambling again due to a sense of failure. However, by utilising cognitive strategies she was able to overcome erroneous thoughts and not gamble despite an omnipresence of urge.

I was driving towards a venue and I had it all set up, and because of the foundations that were laid with this outcome, 'What would happen to me when I gamble? What it means for me to gamble?' that overpowered that intense urge which I found remarkable, so I'd rather go home and white knuckle than go to a machine and that was another big turning point. (CT01,COM)

Another participant who also described benefits of recruiting cognitive strategies in face of emotional states reported a reliable change in GRCS scores but not GUS (Table 2). Her reference to urge-type experiences appeared to be less intense than abovementioned participant that perhaps was reflected by her low GUS score at baseline assessment.

Well recognising they're gambling thoughts and understanding that the machines are not going to win and actually questioning your desire to go in there, you know, in your head - that was good. (CT04,COM)

Another participant described how his developed rational thinking foreshadowed desire to gamble in decision-making processes.

‘Well, you know, because they were fighting for position in the brain, so the desire to gamble because of the association with the lights and the chance to win money, or just purely the entertainment as opposed - so that was fighting for a place, now it’s taken - the statement in my head that, you know, don’t gamble or whatever the voice is, that’s now taken over. Right, so now that’s come into the primary position in my brain. So the fact that the lights and the spinning wheels and the chance to win money are not appealing to me. So that took time to progress.’(CT03,COM)

Most ET participants indicated a beneficial shift in their cognitions that occurred in parallel to exposure tasks. One participant felt that the “simplistic attack” of ET on problem gambling was an essential ingredient to success. She reported a reliable change on GRCS (Table 2) and described changes in her thought processes that were concomitant with intended effects of exposure therapy.

When the rational thought started taking over together with this (exposure therapy) it helped me sort of break if you know what I mean. I mean I was also surprised how quickly it worked for me. I don't know how everybody else is but it was quite quick. (ET01,COM)

Finally, another ET participant felt they had gained greater insight of their gambling behaviours from completing homework measures.

...when you take the sheets to the pub or you take them home and you actually do that, I think that’s probably one of the most beneficial things too because if you do that fair dinkum it

actually gives you a chance to stop and think as well and also to know what you're doing, why you're doing it, so it also can help you stop getting in your car and going to the pub.  
(ET04,COM)

## **DISCUSSION**

### **Main findings**

By seeking to understand what problem gamblers had to say, this examination of cognitive and exposure therapies revealed that experiences both supported and extended key findings of the randomised trial. First, all interviewees gained benefits from therapy. They reported outcomes ranging from reductions in problem gambling to improved psychosocial wellbeing. Second, participant comments did not appear to favour one therapy over another. The transcripts suggested considerable commonalities between the two groups in terms of improved outcomes at short-term follow-up. Third, findings provided a more in-depth perspective of outcomes experienced that were meaningful at the individual level. Fourth, both treatment specific and 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 variance in therapeutic change. Finally, most ET participants indicated that imaginal exposure tasks in early phase of treatment could hinder therapy adherence due to a lack of connectivity with rationale. Together, these participant comments indicated both cognitive and exposure therapies were beneficial and also highlighted areas for further improvement.

### **Strengths and limitations**

In relation to the gambling intervention literature, this is the first qualitative investigation to explore how individual problem gamblers experienced cognitive and exposure therapy when

taking part in a randomised controlled trial. The strengths and limitations are mostly those of the main trial. The trial design was specific to hypotheses about comparative efficacy of CT and ET. In contrast, the flexible inclusion criteria meant that participants were representative of a broader population of treatment seeking problem gamblers. Furthermore, there was reasonable diversity of therapist clinical qualifications that was typical of a community based psychotherapy service. This qualitative study has enabled an exploration of participant's experiences and perceptions at greater depth for an otherwise focused question.

Findings from this study will provide the opportunity for comparison with future RCTs that include a qualitative component. Indeed, this would be useful to investigate how therapies are experienced across different jurisdictions due to variability in contextual factors such as level of resources and clinician competence. Also, the relational discussion of quantitative and qualitative findings will contribute to the further development of CBT programs and provide more choice for problem gamblers. Nevertheless, these findings are limited to the eight participants that took part in interviews. An advantage of a relatively small sample size for qualitative interviews was that it enabled the attainment of deeper and more contextualized understandings of participant's experiences and perceptions specific to CT and ET interventions (Neale et al., 2013). Furthermore, the goal was to help enrich explanations of trial findings in relation to complex interventions rather than as a stand-alone piece of work. Previous qualitative research has found that the concept of "saturation" (albeit a poorly operationalized construct) in purposive sampling may occur as early as six interviews (Guest et al., 2006).

A potential shortcoming of using interviews was that they may have captured what people said but not necessarily what they did (Silverman, 1998). For example, interviewees may

have responded in a manner that was viewed as favourable to the interviewer (i.e. social desirability). However, in light of the strengths and limitations of qualitative interviews relative to those of other methods we judged the interview method as most the appropriate for our study (Low, 2007). This was mainly due to the fact that our primary research questions were more focused on how different treatment techniques worked (or did not work) rather than just treatment outcomes. Finally, our findings are limited to a “snapshot” of participant’s experience at post-treatment. Future research should consider the use of a qualitative longitudinal study involving serial in-depth interviews to explore participant experiences in longer term follow-up (Murray et al., 2009).

### **Reflection on trial results**

Participant comments highlighted areas for improvement in outcome measurement that may yield high quality information about cognitive-behavioural therapies in future trials. Firstly, although all participants experienced some positive outcomes, there was variation in levels of enthusiasm expressed that ranged from being “available for life” to getting “things done instead of pressing the button”. Most previous trials involving these therapies have focused on psychological constructs as outcome (Smith, Dunn, et al., 2013) whereas measures of quality of life or psychosocial functioning have been limited. In the current randomised trial, a significant reduction (improvement) in work and social adjustment scale (WSAS) (Mundt et al., 2002) scores from baseline to follow-up was shown. However, the WSAS was designed to be a simple instrument for measuring impairment and has not been validated in gambling disorders.

Secondly, assessing money spent on the problematic form of gambling has been recommended as a key measure for gambling treatment efficacy studies (Walker et al., 2006).

Consistent with trial results, most participants interviewed reported a reduction in EGM expenditure following therapy. Excessive gambling expenditure can often lead to financial difficulties, considered in the domain of gambling related problems by recommended minimum features for reporting treatment efficacy. Although not assessed in the main trial, it was indicated by some interviewees that the stress of financial problems could play a key factor in determining longer term outcomes. A recent study that explored predictors of outcomes following CBT-based treatment for problem gamblers found that larger than average debts were associated with significantly poorer outcomes at one year follow-up (Guo et al., 2012). Otherwise, there remains a paucity of research into measurement of financial stress and impact on treatment outcomes. It may be that at least some users of CT or ET could benefit from debt management strategies as an integral part of their treatment program.

For treatment drop-out, the overall rate of 41% in the main trial was consistent with previous studies involving CBT for pathological gamblers (Melville et al., 2007). Of these, 61% were in the ET group with approximately two thirds attending three therapy sessions or less. All ET interviewees indicated that imaginal tasks in the early phase of treatment may have been a threat to treatment adherence due to a perceived inappropriateness of eliciting a gambling urge in the “office”. Beyond findings from this qualitative investigation there is a paucity of evidence relating to factors associated with drop-out for treatments specific to problem gambling (Melville et al., 2007). The few previous randomised trials that have focused on these therapies were conducted in an inpatient psychiatric facility where reported treatment attrition was null (McConaghy et al., 1983, 1988; McConaghy et al., 1991). In post-traumatic stress disorder (PTSD), Hembree et al. suggested that drop-out occurring before initiation of tasks (regardless of whether in vivo or imaginal) may have resulted from the fact that therapists were less focussed on patients “comfort” and concerns in the present context

(Hembree et al., 2003). The authors proposed that efficacy of ET could be enhanced if skills training preceded tasks. Alternatively, the use of CT techniques may improve future uptake of exposure tasks. For example, by using Socratic questioning the therapist invites the individual to participate in decision-making processes in the here and now. This could lead to better acceptance of more prescriptive ET approaches introduced at a later stage of treatment.

For some, a motivator to treatment adherence was that CT and ET were highly structured goal-oriented approaches specific to gambling that “attack(ed) your problem”. For others, this specificity may have been too limited in terms of also having co-occurring conditions such as anxiety and depression. Baseline characteristics of RCT participants showed a high prevalence of psychological disturbance which may have been a significant contributor to the number of drop-outs. It has also been reported in the gambling literature that co-morbid conditions are common in both general population and clinical samples of problem gamblers (Lorains et al., 2011). Perhaps those who were suffering from numerous conditions were too distracted or less willing to focus on therapy and therefore discontinued treatment.

Another possible cause of drop-out was conflict between an individual’s desired outcome (e.g. controlled gambling) and the inherent goal of therapy to achieve EGM abstinence. A sub-group of individuals may have been prone to “switching addictions” (Hodgins and el-Guebaly, 2010) and therefore controlled gambling could be a less harmful alternative. For example, a person who is susceptible to addictive behaviours and achieves abstinence from gambling may then engage in more harmful behaviours (e.g. substance use) to promptly reinstate a more preferred neurocognitive status. The possibility of such an ‘adverse event’ from therapy suggests the need for more flexible treatment planning involving the problem gambler. Previous research has shown the benefits of combined cognitive correction and *in*

*vivo* exposure for problem gambling where the primary goal has been controlled gambling (Ladouceur, 2005).

The relative benefits of CBT specific (e.g. reduction in gambling urge) and non-specific (e.g. therapist alliance) effects for gambling disorders is mostly unknown (Walker et al., 2006).

There was a strong indication from interviewees that the benefits of non-specific therapy effects played an important role to reducing problem gambling. Indeed, this seems to be the case for most psychological disorders and continues to be debated in the literature. It has been postulated by some that therapeutic alliance accounts for most of the variance in therapy outcomes (Deegear and Lawson, 2003). This in turn explains the notion that the magnitude of therapeutic benefits across bona-fide psychotherapies are relatively homogenous known metaphorically as the “Dodo bird verdict” (Rosenzweig, 1936). A meta-analysis involving more than 200 clinical trials found that all psychotherapies were approximately equivalent thus supporting the Dodo bird conjecture (Wampold et al., 1997). In family therapy, Blow and colleagues suggest that patients are more likely to seek a specific therapist based on personal qualities rather than their treatment faithfulness (Blow et al., 2007).

However, at least half of the participants in our randomised trial experienced significant reductions in problem gambling that were consistent with a robust dose of implemented therapies shown by fidelity checks and therapy attendance. Moreover, the random assignment of participants to a treatment then allocation to an available therapist within treatment group meant any preference bias was minimised. Personal attributes aside, therapists were mainly a homogenous group in terms of backgrounds and experience. Perhaps this meant that empathy was delivered in approximately equal measures and provided the “...necessary precondition for being successfully supportive and therapeutic” (Kohut, 1982) (p397). For both

interviewees that dropped-out of therapy, primary barriers appeared to be related to accessibility and treatment contents rather than therapist related variables.

In conclusion, the main trial hypothesis was founded on clinical equipoise where differential efficacy of cognitive restructuring (CT) versus urge reduction and extinction (ET) was mostly unknown. However, it was evident from participants' comments of both therapies that symptom reduction was experienced on an urge-cognition continuum notwithstanding excellent therapy fidelity. In addition to symptom improvement from therapy-specific mechanisms, ET participants described an acquisition of "rational thought" and CT participants had "taken over" gambling urges. Also, both groups in the trial experienced, on average, similar reductions (improvement) on the gambling related cognitions scale (GRCS) and gambling urge scale (GUS). These preliminary findings support the synthesis theory proposed by Clark (2010) that is predicated on anomalous gambling related cognitions recruiting the brain reward system during decision-making in gambling disorders (Clark, 2010).

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Table 1. Demographic and therapy characteristics of participants

<b>Participant</b>	<b>Gender</b>	<b>Age</b>	<b>Marital status</b>	<b>Employment</b>	<b>Therapy group</b>	<b>No. of sessions</b>
CT01,COM	Female	47	Single	Self employed	CT	14
CT02,NON	Male	29	Single	Employed	CT	2
CT03,COM	Male	51	Single	Self-employed	CT	11
CT04,COM	Female	65	Married	Retired	CT	13
ET01,COM	Female	56	Separated	Employed	ET	11
ET02,NON	Female	50	Married	Employed	ET	3
ET03,COM	Male	51	Single	Disability support	ET	14
ET04,COM	Male	36	Single	Employed	ET	9

Table 2. Observed outcome scores for each participant and reliable change index (RCI)

Participants	Therapy sessions	GRCS			GUS		
		Baseline	Post-therapy	Reliable change <sup>a</sup>	Baseline	Post-therapy	Reliable change <sup>b</sup>
CT01,COM	14	118	23	Improved	35	0	Improved
CT02,NON	2	61	50	No change	25	20	No change
CT03,COM	11	110	23	Improved	5	0	No change
CT04,COM	13	53	25	Improved	6	0	No change
ET01,COM	11	108	23	Improved	18	0	Improved
ET02,NON	3	97	55	Improved	7	1	No change
ET03,COM	11	106	23	Improved	10	0	Improved
ET04,COM	4	31	23	No change	0	0	No change

Abbreviations: VGS, Victorian Gambling Screen; GRCS, Gambling Related Cognitions Scale; GUS, Gambling Urge Scale; RCI, Reliable Change Index.

<sup>a</sup>RCI (95% Confidence); < -21.24 = clinically significant decrease (improvement) in scores; > 21.24 = clinically significant increase (worsening) in scores.

<sup>b</sup>RCI (95% Confidence); < -7.55 = clinically significant decrease (improvement) in scores; > 7.55 = clinically significant increase (worsening) in scores.