Comparison of the Treatment Effectiveness of Three Therapies for Problem Gambling

Final Report

Submitted to the Casino Community Benefit Fund Trustees

by

Michael Walker
Gambling Research Unit
School of Psychology
University of Sydney

December, 2001

Executive Summary

The search for best practice in helping individuals stop gambling excessively and out of control is central to solving one of the major social problems in modern Western Society. Relatively few studies have conducted randomised controlled trials to determine which approach is most effective in enabling problem gamblers to cut back and stop gambling. In Australia, two approaches to helping gamblers are gaining support. In the cognitive approach, the assumption is that the person who gambles excessively does so because they believe that they will win, despite all the evidence to the contrary. Therapy consists of replacing unrealistic beliefs and attitudes by realistic expectations and knowledge of gambling. The alternative approach assumes that winning money is a secondary consideration. The individual gambles for functional reasons: escaping problems elsewhere in life, lifting low moods and depression, or simply because gambling has become a bad habit. Therapy is oriented to dealing with the problems that are causing the escape to gambling and rewarding a return to alternative hobbies. Such therapies are inherently multi-modal since the approach taken must be matched to the specific nature of each gambler. Among the most promising approaches to multimodal counselling is GMAP, which was developed as a diagnostic tool and guide to treatment in Victoria. The study reported was funded by the Casino Community Benefit Fund (NSW) to provide evidence pointing to best practice in treating problem gambling.

The proposed study involved problem gamblers being randomly allocated to one of three treatment groups: cognitive therapy (CT), GMAP counselling, or a self-help manual. CT and GMAP involved face-to-face counselling for six one-hour sessions. The self-help manual was presented to the problem gambler and involved no face-to-face counselling. It was expected that individuals receiving counselling would recover from excessive gambling more quickly and more completely than individuals receiving the self-help manual. In the study conducted, it quickly became apparent that individuals receiving the self-help manual were not happy with their treatment and were seeking help elsewhere. For this reason the self-help group was discontinued. A new group was treated by cognitive-behavioural therapy after completion of the randomised trial. The plan was to recruit 20 problem gamblers to each therapy. In practice, there were 17 individuals in the CT group, 22 in the GMAP group and 20 in the CBT group. The unequal numbers were a product of randomisation.

Two counsellors provided all treatments: Mr Simon Milton and Mr Fadi Anjoul. Both counsellors were registered Clinical Psychologists and had been trained in the cognitive theory of problem gambling. The practical aspects of the therapy were developed by the counsellors. Both counsellors also participated in training by the authors of the GMAP approach. The study began before the introduction of G-Line (NSW). Most of the participants were obtained by advertisements in the WhitePages and YellowPages telephone directories.

All participants were fully assessed before the completion of treatment including a structured clinical interview (SCIP) to determine diagnosis using the DSM-IV diagnostic manual. Participants provided information on gambling involvement, completed the South Oaks Gambling Screen, the Gamblers Anonymous Twenty Questions, and a variety of tests measuring depression and drug abuse. There were no significant differences between the groups prior to treatment on any of these measures.

Sixty six percent of the participants were male, but this bias was evenly spread across treatment groups.

Two major problems beset trials of problem gambling therapies and suggest caution in drawing conclusions from the results. The first problem is that many participants do not complete treatment. In this study, 34 of the 59 participants dropped out of treatment before therapy was complete. The second problem concerns the measurement of the effectiveness of the treatments. It was planned that each participant would be re-assessed six months, twelve months and two years after the completion of treatment. For a variety of reasons, follow-up assessments are difficult to complete: individuals change their addresses, change their telephone numbers, and sometimes leave the country. Of those that can be contacted, some refuse to be interviewed. Altogether, 18 of the 39 participants in the controlled trial completed the final assessment two years after treatment. This rate of success in completing re-assessment is typical of studies of this kind.

The main measures of the effectiveness of treatment are the change in DSM-IV scores, the change in South Oaks Gambling Screen scores, and changes in time and money measures of gambling involvement. The small sample size (N=9) in the CT and GMAP treatment groups ensures that only large differences in measures will be statistically significant. DSM-IV for pathological gambling is a set of 10 diagnostic criteria, which may be true of false for each participant. A DSM-IV score is the number of criteria that are met by a participant and can range from 0 to 10. A DSM-IV score of five or more defines the category of 'pathological gambler'. All participants have problems caused by gambling and are thus regarded as problem gamblers regardless of the DSM-IV score. Effective therapy should be associated with a decrease in DSM-IV scores. Based on the final assessment of each group, CT was associated with a change in DSM-IV scores from a mean of 5.22 pre-treatment to 1.78 post-treatment. This compares with GMAP where the reduction was from 5.56 pre-treatment to 2.56 post-treatment. However, the change in the CT group is not statistically significantly different from the change in the GMAP group. The CBT group received their final assessment from six to ten months after the completion of treatment. In this group the reduction in DSM-IV scores was from 5.80 to 2.30.

The South Oaks Gambling Screen (SOGS) has a similar function and rationale to the DSM-IV criteria for pathological gambling. However, the scores range from 0 to 20 rather than 0 to 10 and the items are more heavily biased to the effects or problems caused by gambling. Scores of 5 or more define a diagnosis of "probable pathological gambler". For the CT group, the mean SOGS score changed from 10.56 to 3.89 whereas, for the GMAP group, the mean SOGS score changed from 9.09 to 7.45. In this case the reduction of SOGS scores was significantly greater for the CT group than for the GMAP group.

A variety of measures of gambling involvement were made prior to treatment and two years after treatment. The observed means showed a trend for greater change in the CT group than for the GMAP group in relation to: number of days since last gambled, hours of gambling per week, debt caused by gambling, the desire to gamble and ability to control gambling. However, in no instance were the observed differences statistically different.

The results of this research do not provide a clear answer to the question of how best to help a problem gambler to cut back and stop gambling. For many reasons, great

caution must be exercised in drawing conclusions based on the data available. Nevertheless, there is evidence for cautious optimism about cognitive therapy as an approach to ending excessive gambling. Both GMAP counselling and cognitive therapy were associated with significant changes in DSM-IV and SOGS scores. Furthermore, cognitive therapy was more effective than GMAP counselling when SOGS scores are the indicator. On the basis of such evidence, it is recommended that further effort be encouraged in developing cognitive therapy and that larger controlled trials be conducted comparing the effectiveness of cognitive therapy with the increasing variety of alternative therapies available.

Deciding to cut back or stop gambling: Does cognitive therapy help?

Theoretical background

In the Psychology of Gambling (1992), I outlined a socio-cognitive theory of gambling behaviour and lamented the fact that there appeared to be no research, beyond case studies, which tested the theory in a theoretical setting. Subsequently, the theoretical concepts of cognitive theory have been elaborated, especially by Robert Ladouceur and his co-workers (Ladouceur & Walker, 1996).

Essentially, there are three major perspectives on the motivation to gamble excessively:

(1) the gambler is trying to win the gambling game (make money, beat the odds), mistakenly believes he or she will do so, and persists in the face of losses in the forlorn hope that luck will change or skill will triumph;

(2) the gambler expects to lose but gambles for other rewards. In particular, gambling is amusing, arousing and exciting which becomes the reinforcement for continued gambling. Loss of control and failure to control are central.

(3) the gambler gambles in order to escape from aversive stimuli outside the gambling venue. The gambler does not expect to win, is not hooked on the excitement gambles as an antidote to anxiety and pain.

A cognitive theory of gambling takes the first perspective. Ladouceur and his co-workers have argued that the failure to recognise gambling events as independent and therefore unpredictable is the core cognitive bias of gamblers. Sequencing rules are mistakenly inferred from the gambling stream of outputs, leading to an illusion of control, of having an edge and of being smarter or luckier than the average mug punter. Supported by biased evaluation of outcomes and entrapment to the goal of winning, the gambler continues to gamble despite mounting losses. The losing gambler remains optimistic.

Cognitive therapy

Cognitive therapy in the form of cognitive restructuring ought to be an effective method of enabling the excessive gambler to cut back or stop gambling. If the gambler can come to believe the reality of gambling, then the motivation to beat the system and win should be quenched.

The reality is that the gambling industry exists because gambling is unfair. The gambling industry has the odds in its favour: there are no even money gambles. There is a mathematical theorem that proves that the more a person gambles, the more sure they are to lose. All regular gamblers will lose in the long run no matter what their earlier successes. Slot machines account for over 80% of problem gamblers in New South Wales, thus we pay particular attention to slot machine play.

There have been two main approaches to using cognitive therapy to counter excessive gambling:

(1) cognitive therapy based on education and confrontation of irrational beliefs about gambling;
(2) cognitive therapy modelled on the cognitive approach to the treatment of depression, which focuses on automatic thinking and inaccurate core beliefs.

The cognitive therapy investigated is a mix of these two strands and consists of:
(a) education concerning the true probabilities of gambling, and the financial basis of the gambling industry;
(b) education concerning the cognitive view of behaviour - that situations do not cause behaviour except through the mediation of cognitions;
(c) confrontation of automatic and conscious irrational thinking and replacement by realistic thinking;
(d) testing core constructs concerning the role of gambling in the life of the gambler.

As part of the therapy, the gambler is encouraged to replace the failed gambling project by other more rewarding alternatives.

Cognitive therapy differs from CBT by having no behaviour modification procedures - that is, CT does not make use of reinforcement contingencies whereas CBT does.

Experimental design

It was intended that three different therapy options would be used with problem gambling clients:
(a) cognitive therapy (CT)
(b) client centred counselling based on GMAP (GM)
(c) a self-help manual with which clients would treat themselves (SH).

A minimum sample size of 60 and a planned sample size of 120 problem gamblers were to be treated by one of the three treatment methods listed. Gamblers were randomly allocated to treatment groups. The level of gambling and problems generated are assessed pre-treatment, and with follow up assessments, six months, twelve months and two years after the completion of treatment.

The dependent variables consisted of:
(1) score on DSM-IV criteria determined by a structured clinical interview;
(2) score on the SOGS-R with a 6-month time frame;
(3) quantitative measures of gambling activity (sessions/week; time, debt level)
(4) a range of measures of associated problems

GMAP

GMAP is an assessment of the factors involved in the problem gambling (Sagris, Pierce & Loughnan, 1995). The instrument provides a profile across seventeen factors, which are then used as a focus for therapy. For example, boredom might show up as a factor associated with gambling. Then, counselling would focus on alternative methods of coping with boredom other than gambling. Or, the client may be gambling for social reasons. Then counselling would focus on alternative ways of relating to others. Importantly, GMAP provides a guide on the approach to therapy

that is most likely to be effective in enabling the client to deal with the identified factors causing the gambling.

GMAP is representative of a whole range of commonly used counselling techniques aimed at facilitating the client dealing with problems in his/her life. The big advantage is that the approach is specified in manual form and thus can be replicated in other places at other times.

Self-help manual

The self-help manual developed by Dickerson & Hinchy (1987) was used as the treatment method for this group.

Cognitive-behavioural treatment

After completing eight self-help clients, the control group was abandoned. Clients were dissatisfied with an approach, which effectively said that they should take responsibility for cutting back or stopping gambling. Clients were randomly allocated to the two remaining treatments until the end of the treatment phase of the study.

Subsequently, a third group of clients was treated using a modified form of the CT approach. Greater emphasis was placed on problem solving skills and their application to the gambling problem, and relapse prevention strategies were included, such as identifying times, places and events that triggered the urge to gamble and working out strategies of minimising the risk from these triggers. The inclusion of behavioural components in this program defines this treatment as cognitive-behavioural.

The distribution of clients to treatments

The counsellors employed on the project were Mr Simon Milton and Mr Fadi Anjoul. The majority of clients were counselled by Milton. 39 clients were randomly allocated to treatment the CT or GMAP treatment groups. A further 20 clients subsequently took part in the CBT treatment.

Treatment group	Number of sessions	Sample size	M	F
CT	6	17	11	6
GMAP	6	22	16	6
CBT	7	20	13	7

Hypotheses

1. On measures of the severity of gambling problems, FU measures will significantly decrease from pre-treatment levels.

2. CT and CBT treatments will produce greater change than GMAP.

3. CT treatment will produce greater change than CBT.

Results

The assumption behind the research was that cognitive therapy would be effective, problem gambling would cease and this would be evident across the follow-up assessments. There are two aspects of the data collection that might interfere with this expectation:

(1) clients who drop out of therapy before completion;
(2) clients who cannot be contacted or are unavailable for FU evaluation.

From previous research, it is known that large numbers of clients who begin therapy drop out of treatment at some stage. Typical drop out rates are in the region of 50% (Blaszczynski & McConaghy, 1993; Gonzalez-Ibanez et al., 1997). In this study, 43% of clients completed treatment.

Table 1
Sample size: numbers who began and completed treatment

Type of treatment	Began	Completed	Dropped out
Cognitive therapy	17	8	9
GMAP counselling	22	9	13
Cognitive-behavioural	21	9	12
Self-help manual	9	-	-

An attempt was made to assess treatment effectiveness at three points in time: six months, twelve months and two years after treatment. Each client was telephoned on two occasions. If no contact was made with the client on either occasion, a letter was sent to the last known address. The category 'Refusals' includes both clients who could not be contacted and clients who, when contacted, refused further assessment. Table 2 shows the number of clients in each treatment category who were classified as 'refusals'.

Table 2
Sample size: numbers who clients who were assessed before treatment and six months (FU6) and twelve months (FU12) after treatment

Type of treatment	Pre-treatment	FU6 refusals	FU12 refusals
Cognitive therapy	17	10	13
GMAP counselling	22	17	19
Cognitive-behavioural	21	17	15
Self-help manual	9	-	-

Large numbers of clients could not be contacted for the six-month and twelve-month assessments. For this reason, a more intensive effort was made to conduct the final assessment after twenty-four months. The standard procedure of two telephone attempts and one letter was carried out. Subsequently, telephone attempts were made until contact was made or it was established that the client was no longer on that telephone number. New addresses and telephone numbers were sought. Where no new telephone number or address could be obtained, an attempt was made to locate the client through the electoral roll. Through the use of these extended procedures a

larger sample of final assessments was obtained (table 3). The extended procedure was applied only to clients who received cognitive therapy or GMAP counselling.

Table 3

Sample size determined by intention to treat, received treatment, completed treatment, and evaluation twenty-four months after treatment

Sample size determined by:	Cognitive therapy	GMAP counselling
Intention to treat	17	22
Began treatment	15	20
Completed treatment	8	9
Follow-up assessment at 24 months	9	9
Refused follow-up assessment	3[a]	8[b]
Could not be contacted	3	3

Note (a): two CT clients contacted by telephone claimed to be not gambling, but refused assessment.
(b): two GMAP clients completed part but not the whole 24-month evaluation

All clients were assessed before treatment. Table 4 shows the pre-treatment means for gambling involvement and scores on the DSM-IV scale and the South Oaks Gambling Screen (SOGS). There are no significant differences between the two samples on any scores.

Table 4

Gambling involvement, DSM-IV and SOGS scores pre-treatment for each treatment category.

Variable	N_{CT}	CT	N_{GMAP}	GMAP
DSM-IV score	17	5.35	21	5.67
SOGS score	16	10.8	19	10.4
GA twenty questions	16	14.2	18	14.8
Number of days since last gamble	16	4.1	21	6.5
Amount gambled in last fortnight	17	$1126	21	$995
Sessions in last fortnight	17	5.9	19	5.7
Hours spent gambling per week	12	13.4	18	13.2
Debt caused by gambling	16	$45,000	21	$11,900
Desire to gamble (0-10)	17	8.15	20	7.8
Control over gambling (0-10)	17	2.35	20	3.6
Beck Depression Inventory	16	17.2	20	17.8

Treatment Effectiveness

The small sample size for the follow-up evaluations six months and twelve months after treatment rules out the comparison of treatment effectiveness for cognitive therapy and GMAP counselling. Nevertheless, it is of interest and importance, whether the follow-up DSM-IV scores decreased significantly from pre-treatment to post-treatment. Table 5 shows the results of this comparison.

Table 5

DSM-IV scores pre and post treatment for clients who were assessed six months (FU6) after treatment.

	Mean DSM-IV score		Significance of change	
THERAPY	Pre-treatment	FU6	F-ratio	significance
Cognitive therapy	5.28	2.43	$F_{1,6}$ =11.1	p<0.02
GMAP counselling	5.00	1.80	$F_{1,4}$ =10.9	p<0.05
Combined therapy	5.17	2.08	$F_{1,10}$ =21.5	p<0.01

Clients receiving cognitive-behavioural therapy (CBT) were assessed six to ten months following the completion of treatment. For this reason, only one set of results is presented in table 6.

Table 6

DSM-IV scores pre and post treatment for clients who received CBT. The clients were assessed six to ten months following completion of treatment.

	Mean DSM-IV score		Significance of change	
THERAPY	Pre-treatment	Follow up	t-test	significance
CBT	5.8	2.3	T_9 =3.95	p<0.01

Effectiveness of treatment two years later

The final assessment two years after treatment was conducted intensively for a further twelve months. Altogether, eighteen clients (nine receiving cognitive therapy and nine receiving GMAP counselling) were located and assessed. Two further clients were contacted by telephone but were not assessed although they claimed to have ceased gambling. Two more clients completed a South Oaks Gambling Screen but not the full assessment. The results of the final assessment stage are shown in table 7.

Table 7 shows that, two years after treatment had been completed, the DSM-IV scores of those gamblers receiving cognitive therapy had reduced from 5.22 to 1.78 and the SOGS scores had reduced from 10.56 to 3.89. By comparison, the scores of gamblers receiving GMAP counselling had reduced from 5.56 to 2.56 (DSM-IV) and from 9.09 to 7.45 (SOGS). Analysis of variance demonstrates that cognitive therapy reduced SOGS scores significantly more than did GMAP counselling ($F_{1,18}$ = 5.96, $p < 0.05$). The difference in treatment effectiveness, measured by DSM-IV scores, is not significant ($F_{1,18}$ = 0.15, ns).

Table 7

Client assessments (DSM-IV scores and SOGS scores) before treatment and two years after the completion of treatment.

Client number	DSM-IV Pre-treatment	DSM-IV Two year FU	SOGS Pre-treatment	SOGS Two year FU
Cognitive therapy				
CT1	5	0	11	2
CT2	6	0	7	0
CT3	5	0	6	0
CT4	4	0	13	1
CT5	6	0	15	0
CT6	5	1	10	3
CT7	5	3	8	5
CT8	5	5	11	10
CT9	6	7	14	14
Mean for CT	5.22	1.78	10.56	3.89
GMAP counselling				
GMAP1	7	0	11	7
GMAP2	5	0	12	0
GMAP3	3	1	7	5
GMAP4	6	1	9	3
GMAP5	5	3	8	8
GMAP6	4	4	14	14
GMAP7	5	4	7	9
GMAP8	8	4	12	12
GMAP9	7	6	8	11
GMAP10	-	-	6	7
GMAP11	-	-	6	6
Mean GMAP	5.56	2.56	9.09	7.45

Given that cognitive therapy was more effective than GMAP counselling, when measured by SOGS scores, it is of interest to determine whether there was also an associated reduction in gambling involvement and in problems such as debt. Table 8 shows the means for various measures of gambling involvement and debt at the time of pre-treatment and two years later.

Although none of the measures showed that cognitive therapy was significantly more effective than GMAP counselling, the direction of the observed differences was consistent with the hypothesis that cognitive therapy is more effective than GMAP counselling. This was the case for number of days since last gambled, hours of gambling per week, debt caused by gambling, the desire to gamble and ability to control gambling.

Table 8

Means of various measures of gambling involvement before treatment and two years after receiving cognitive therapy or GMAP counselling

	Pre-treatment		Two years later		Significance
	CT	GMAP	CT	GMAP	* = p < 0.05
N days since last gambled	6	6	150	63	ns
Amount lost last fortnight ($)	559	912	348	187	ns
N sessions in last fortnight	3.9	4.9	1.4	2.0	ns
Hours gambling per week	11.1	12.0	2.5	4.8	ns
Debt caused by gambling	28,062	2,444	5,556	4,333	ns
Desire to gamble (0-10)	7.7	7.2	4.3	5.0	ns
Control over gambling (0-10)	2.4	4.1	6.3	6.4	ns

Discussion

This research aimed to investigate the effectiveness of a brief form of cognitive therapy and a brief form of GMAP counselling by comparison with a control group, which received a self-help manual. For ethical reasons, the self-help manual approach was discontinued. At the completion of the trial, a group of twenty gamblers were also treated with brief cognitive-behavioural therapy. Thus, the results of this research are limited by the fact that no control group was available for analysis. Furthermore, although gamblers seeking help were randomly allocated to the CT and GMAP treatments, gamblers receiving CBT were not included in the random allocation procedure.

The results are further limited by difficulties encountered in conducting the post treatment assessments. The final post treatment assessment for clients in the CT and GMAP groups was conducted two to three years after the completion of treatment. An intensive search for clients who received treatment yielded a final sample of eighteen gamblers (nine in cognitive therapy and nine in GMAP counselling), out of the thirty-nine gamblers who received treatment. The small sample size is another reason for caution. Although the mean differences in effects appear impressive and favour cognitive therapy, the effects are not significant. The exception to this generalisation is the set of scores on the South Oaks Gambling Screen, where clients receiving cognitive therapy obtained significantly reduced SOGS scores two years after treatment when compared to clients who received GMAP counselling.

The evidence available allows cautious optimism about the potential effectiveness of cognitive therapy as a means of enabling clients to cut back or stop gambling. It is recommended that cognitive therapy receive further investigation. It is recommended that a more intensive version of cognitive therapy be developed in which the erroneous beliefs of the gambler can be challenged over a longer period of time. To increase the power of the therapy to produce effects, it would appear to be important to develop a compendium of demonstrations showing that winning on random forms of gambling is not possible in the long run.

Future comparisons of the effectiveness of therapies should focus on comparisons involving other therapies where there is no overlap in the theory or practice of the

therapies. GMAP counselling and cognitive therapy are not entirely different since GMAP counselling can include a component of counselling concerning irrational thinking.

References

Dickerson, M.G. and Hinchy, J. Minimal treatment intervention for problem gamblers. In Walker, M.B. (ed.), Faces of Gambling. Sydney : National Association for Gambling Studies, 1987.

González-Ibáñez, A., Aymamí, M.N., Jiménez-Murcia, S., Parada, R., Domènech, J.M., Granero, R. and Vallejo, J. (1997). Assessment and cognitive behavioural treatment of slot machine pathological gamblers. Paper presented at the 10th International Conference on Gambling and Risk-Taking, Montréal. May 31- June 4.

Ladouceur R. and Walker, M. (1996). A cognitive perspective on gambling. In P.M. Salkovskis (Ed.), Trends in Cognitive and Behavioral Strategies (pp. 89-119). New York: Wiley.

McConaghy, N., Blaszczynski, A. and Frankova, A. (1991). Comparisons of imaginal desensitisation with other behavioral treatments of pathological gambling: A two to nine year treatment follow-up. British Journal of Psychiatry, 159, 390-393.

Sagris, A., Pierce, M., and Loughnan, T. (1995). Commitment to change: The Maroondah experience thus far. In O'Connor, J. (ed.), High Stakes in the Nineties (pp.107-112), Fremantle: National Association for Gambling Studies.

Walker, M.B. (1992). Psychology of Gambling. Oxford: Pergamon.