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An Inpatient Treatment Program for People with Gambling Problems: Synopsis and Early Outcomes

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Abstract The Statewide Gambling Therapy Service (SGTS) specialises in providing treatment for clients with gambling disorders and other co-related mental health conditions. During the period 2008–2009, approximately 1000 clients with gambling disorders diagnosed using the Victorian Gambling Screen (VGS) sought treatment through SGTS. Of these clients, 53 were admitted to an inpatient treatment program offered by the service. This paper reports initial clinical assessments and treatment outcomes from this inpatient program. A key consideration for inclusion in the inpatient treatment program was the complexity of client clinical diagnoses. Treatment involved cognitive behavioural therapy and graded exposure therapy with client progress in treatment being assessed using a range of standard clinical measures. Results include predicted values across a 12-month period (using the Victorian Gambling Screen, Kessler 10, and Work and Social Adjustment Scale) and indicate that scores across all measures might be expected to improve rapidly in the first 6 months post-treatment

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before slowing and levelling around 6–12 months. These findings suggest that the intensive inpatient gambling treatment program described here is a viable treatment option for participants presenting with a diagnosed gambling disorder and other co-occurring and complex mental health conditions.

Keywords Disordered Gambling Treatment · In-patient programme · Co-morbidity

In the context of wide ranging mental health issues in Australia, problem gambling affects a relatively small number of people, with current estimates at approximately 2 % of the adult population. However, statistics reflecting expenditure demonstrate the enormity of the issue with a national loss of $4.7 billion per annum to problem gambling (Productivity Commission 2010) and, in international terms, Australia is seen as being a nation in which individuals spend significant proportions of their disposable income on gambling.

Although not as popular as lottery gambling, Electronic Gaming Machines (EGMs) have been shown to pose substantial risks for regular players (Delfabbro 2008) and findings reported by the Productivity Commission (Productivity Commission 2010) suggest that around 600,000 Australians (4 % of the adult population) play at least weekly. Approximately 15 % of these regular EGM players (95,000) are 'problem gamblers' and it is estimated that 40 % of spending on EGMs comes from this group (Parliamentary Joint Select Committee on Gambling Reform 2011, p249).

Problem gambling has been reported as being more common than alcohol dependence in people over 21 years of age (Welte et al. 2011), yet currently there is no universally accepted treatment protocol for problem gambling. Within the small body of empirical literature available, the strongest support rests with cognitive-behavioral approaches over more widely used self-help methods or community supports such as Help for Gamblers (online), Gambling Helpline, and Gamblers Anonymous (Borsoi and Toneatto 2003; Gooding and Tarrier 2009). Other areas of uncertainty lie in defining the optimum length of treatments (Hodgins et al. 2009), the ultimate aim of treatments (i.e. abstinence or controlled gambling) (Ladouceur et al. 2009), the best mode of delivery (i.e. outpatient versus inpatient) and even whether treatment is justified given the reported rates of 'natural recovery' (Cote et al. 2003; Goudriaan et al. 2009). Considerations regarding treatment should also examine why so few problem gamblers seek treatment (Pulford et al. 2009; Rockloff and Schofield 2004; Suurvali et al. 2009) and why so many of those who do attend formal treatment programs fail to complete their course of therapy (Dunn et al. 2012).

Adding further complexity is the reality that participants seeking treatment for gambling problems often have additional lifestyle and mental health comorbidities to be considered (Goodyear-Smith et al. 2006) and while it remains unclear precisely how comorbid conditions affect treatment outcomes, it does appear that comorbidities may impact on the outcomes of treatment programs. Research has indicated that those with higher levels of depressive symptoms were more likely to continue to experience problems with gambling during and after treatment (Smith et al. 2010). In addition to this, other factors such as geographic accessibility, difficult life circumstances, lack of social support, and previous failed attempts with treatment have been shown to hinder the success of therapy delivered through an outpatient setting (Ledgerwood and Petry 2006).

In an attempt to offer an alternative therapeutic approach to clients with complex presentations and for whom attendance at outpatient therapy may be problematic, the Statewide Gambling Therapy Service (SGTS) provides an inpatient program for people with gambling problems and co-related mental health conditions. Currently, there is limited evidence from

randomised trials regarding treatment for problem gambling generally and inpatient treatment options remain largely unexplored (Hodgins et al. 2011; Thomas et al. 2011) although some preliminary studies do provide details of hospital based treatment programs (Blaszczynski and Maccallum 2000; Schwartz and Lindner 1992; Stinchfield et al. 2008). This paper describes a pilot study investigating the efficacy of an inpatient model used by SGTS and reports on the clinical assessment and treatment outcomes for 53 participants of this program between 2008 and 2009. Ethics approval for this study was granted by the Flinders University/Southern Adelaide Health Service, Flinders Clinical Research Ethics Committee/Clinical Drug Trials Committee.

Methods

SGTS is a South Australian treatment provider funded through the Gamblers Rehabilitation Fund and run under the auspices of the Southern Adelaide Health Service and Flinders University. The service provides Cognitive Behavioural Therapy (CBT) with an emphasis on graded cue exposure for the treatment of problem gambling and focuses on extinguishing the client's urge to gamble. Approximately 500 problem gamblers are treated each year by SGTS (Humeniuk et al. 2012). In addition to the outpatient therapy program, SGTS offers a unique inpatient treatment service in which the usual 6–12 sessions of CBT and graded exposure therapy offered in the outpatient program are condensed into an intensive 2-week program of daily treatment sessions in a hospital setting. In this way, individuals are able to focus on the program while having refuge and relief from their usual psychosocial distractions and day to day responsibilities. In addition to the daily structure of formal therapy sessions, participants are cared for in a supportive, supervised environment where ward staff are familiar with the program requirements and are qualified to treat a range of mental health disorders.

Specifically, the treatment approach aims to extinguish the 'urge' to gamble through a form of exposure therapy (ET). The application of ET to problem gambling by SGTS therapists has been described in detail previously (Battersby et al. 2008). Treatment involves the use of stepwise graded tasks designed to trigger a 'mild' or 'manageable' psycho-physiological urge that is not overwhelming. While experiencing a manageable urge, participants persist with the feelings of heightened anxiety in relation to the gambling cues until habituation is achieved (i.e. their urge severity is significantly or noticeably reduced). Participants achieve habituation as they work through graded tasks designed to provoke the urge to gamble. The presentation of these tasks begins with exposure to simple sensory cues (such as pictures and sounds of gaming machines) and the activities are initially completed with therapist supervision and guidance. Clients then repeat and record these tasks as homework exercises. As confidence and habituation are achieved, the tasks become more demanding until the client no longer needs to avoid triggers such as walking past a venue or withdrawing cash from an automatic teller machine.

An additional advantage to participants involved in the inpatient program is the range of adjunct services available to them in the hospital ward situation. Other clinical and allied health services are also available to this inpatient by way of team members from dermatology, endocrinology, gastroenterology, neurology, stroke and diabetes teams, social work, dietician, dentistry, speech pathology and financial aid. Diagnostic and investigative procedures carried out for the inpatient gambling client group described here ranged from common routine biochemistry (66 %), levels of B12 and folate (20.8 %) and lipid studies (18.9 %) to more meticulous and specialized investigations such as CT brain scans (3 participants) and

endoscopy (1 client). This opportunity for a thorough health examination was attractive to some participants who reported liking the idea of being: *"checked from head to toe"* (inpatient client).

Participants

Fifty-three treatment-seeking SGTS participants were referred to the inpatient treatment program based at Flinders Medical Centre during 2008 (n=29) and 2009 (n=24).

Measures

Baseline measures, demographic and gambling behaviour information were collected following a screening interview and the participants consenting to participate in the study. Data were collected using standard self-report instruments with the assistance of therapists if necessary. Attempts to collect repeated data measures occurred at baseline, at end of treatment and at follow-up at 1, 3, 6, and 12 months. The measures included:

The Kessler 10 (K10) (Kessler and Andrews 2002) was used to evaluate non-specific psychological distress. This is a well-validated 10-item scale that assesses degrees of nervousness, agitation, psychological fatigue and depression.

The Goldney Scale of Suicidal Ideation (Watson et al. 2001) combines participants' responses of endorsement or opposition to four questions concerning suicidal ideation.

The Work and Social Adjustment Scale (WSAS) (Mundt et al. 2002) assesses functional impairment as a result of problem gambling. This five-item self-report scale has been shown to be sensitive to differences in disorder severity and treatment-related changes for participants with depression and obsessive compulsive disorder.

The Victorian Gambling Screen (VGS) was used both to screen for problem gambling (along with the items of hours spent gambling and strength of urge to gamble), as well as to monitor/gauge gambling severity. This tool focusess on harm, problems, and enjoyment derived from gambling behaviour, and allows graded responses to each of the 21 items. The reliability and validity of the VGS as a measure of problem gambling has recently been supported in a treatment seeking population (Tolchard and Battersby 2010).

Data Analysis

A linear mixed modelling approach was used so that time could be included as a continuous variable rather than attempting to impose the intended follow-up schedule onto the data that had been collected, thus causing further data loss through excluding measures not complying with the regular follow-up schedule. The present approach provides an opportunity to quantify change over time for continuous outcome measures such as the VGS (as a gambling screen) and the K10 and WSAS (to indicate problems caused by gambling). Time was entered as a continuous covariate. A quadratic term for time was also tested in case of non-linear effects. This approach accommodates the tendency for repeated-measures data to be correlated within subjects, uses all the available data on each subject (even where collected at non-uniform intervals) and is robust for data missing at random, among other advantages over more traditional ANOVA and repeated measures analyses (Gueorguieva and Krystal 2004; Hedeker

2003; Hedeker and Gibbons 2006; Weiss 2010). Since the present research uses an observational design, findings should be considered as exploratory and viewed in light of their approximating (modelling) trends.

Outcome Variables

The present analyses used The Victorian Gambling Screen (VGS), The Kessler 10 Scale (K10) and The Work and Social Adjustment Scale (WSAS) as outcome variables; the VGS as a gambling screen and the K10 and WSAS as being indicative of problems caused by gambling. The use of the combination of dimensional assessments of impairment such as the WSAS is well complemented by the K10 as a measure of nonspecific distress (Kessler and Andrews 2002).

Treatment Engagement Variables

The effects of treatment engagement levels on treatment outcomes was assessed using inpatient length of stay (days), and the number of outpatient therapy sessions attended during the 12 month follow up period post-inpatient treatment. Mean length of hospital stay was 12.53 days (SD=± 5.30 days). The mean number of outpatient treatment sessions following an inpatient episode was 5.81 (SD=± 5.34). A binary variable for this component was generated using a cut score at median value of 4 to provide a more appropriate covariate form.

Statistical Methods

Models for each outcome variable included time as a continuous covariate. The variables relating to level of treatment engagement were also tested for any significant effect on outcome variables. A quadratic term for time was tested to allow for possible non-linear effects where rates of change in outcome measures slowed over time with a levelling-off effect (i.e., rates of change are non-linear). Predicted values for significant outcome variables were calculated from final models.

Results

Baseline Characteristics

Demographic, gambling, and help-seeking details are described in Table 1. Mean age of participants was 43.5 years (SD=11.6 years). Basic demographics, including age, were largely commensurate with Statewide's broader outpatient client group. However, in keeping with a key purpose for the inpatient program, there were differences between the groups in reported home or environmental situations suggesting that inpatient participants were likely to have lower levels of social support, were more likely to be homeless or in unstable accommodation and were more likely to be single, divorced, or separated participants. Similarly, inpatient participants were more likely to rely on income outside the paid workforce (often in the form of disability support pensions for mental health or alcohol dependence) and were more likely to have a lower gross income. Almost all participants (90.6 %) reported having used EGMs, and for over two thirds (69.8 %), EGMs were the only form of their problem gambling.

In addition to seeking treatment with SGTS, most participants (60.4 %) had previously tried one or more strategies to stop or control their gambling. A number of strategies were reported and are detailed in Table 1. The most frequent strategies used were self-barring from venues (20.8 %) and counselling services through organisations such as Relationships Australia (17 %). However, for a significant proportion of participants (39.6 %), the inpatient program was their first formal attempt to address their gambling problems.

The inpatient stay provided an opportunity to revise and optimise medication regimens, including psychotropic and non-psychotropic medications as well as vitamin/mineral supplementation. Most participants were administered some form of psychotropic (66 %) or

Table 1 Demographic, gambling, and previous treatment information

	n (%)
Sex	
Female	22 (41.5)
Country of origin	
Australia	40 (75.5)
United Kingdom	5 (9.4)
New Zealand	2 (3.8)
European country	4 (7.5)
Fiji	2 (3.8)
Income	
Under $10,400	7 (13.2)
$10,400–$15,599	24 (45.3)
Over $15,600	22 (41.5)
Duration of problem gambling	
Less than 1 year	6 (11.3)
1–2 years	4 (7.5)
2–5 years	9 (17.0)
5–10 years	14 (26.4)
10 or more years	20 (37.8)
Type of gambling[a]	
EGMs	48 (90.6)
TAB / racing codes	10 (18.9)
Scratch tickets/lottery	8 (15.1)
Keno	7 (13.2)
Casino games	6 (11.3)
Sports betting	2 (3.8)
Other	2 (3.8)
Previous treatments[a]	
Self-barring	11 (20.8)
Non-government organizations	24 (45.3)
Hypnotherapy	3 (5.7)
No previous treatment	21 (39.6)

[a] Numbers reflect more than one form of gambling or treatment per participant except where indicated

analgesic (52.8 %) medication during their stay. Notably, over a quarter (26.4 %) received some vitamin or mineral supplementation, often reflecting dire nutritional status relating to deleterious lifestyle effects of problem gambling behaviour. Although each admission was based on a highly-structured 2-week program, actual duration of hospitalisation varied significantly between participants in this group, with a mean stay period of 12.6 days (SD=5.3, range: 0-25). In keeping with varied stay lengths, there was also significant variation in the number of SGTS inpatient therapy sessions (with an average of 9.9 sessions, SD=4).

Residence in a rural or remote area, complex clinical presentation and environmental risk-factors (as detailed in Table 2 below) were common reasons for participants being referred to the inpatient program. Over a quarter of participants reported being burdened with environmental stressors and distractions. These ranged from household demands and conflicts through to homelessness. In addition, most participants were also struggling with one or more complicating comorbid psychological condition such as mood, substance-related and personality disorders. For example, six participants who were alcohol and/or benzodiazepine dependent were admitted to the program so that their withdrawal could be facilitated, monitored and, when necessary, treated medically over the course of their stay. A number of participants were also referred due to traits and behavioural tendencies associated with personality disorders that had interfered with their ability to engage successfully in outpatient treatment.

Whilst a significant proportion of the participants (22.6 %) were suffering with suicidal ideation at the time they were admitted, a review of their psychiatric histories revealed that 73.6 % had past suicidal thoughts, and 37.7 % had attempted suicide. Among these, one

Table 2 Factors associated with referral to inpatient program

	n (%)
Affective disorder	
Anxiety	7 (13.2)
Depression	4 (7.5)
Depression and anxiety	2 (3.8)
Bipolar	4 (7.5)
Schizophrenia / schizoaffective disorder	3 (5.7)
Any severe mental illness	20 (37.7)
Substance-related disorder	
Alcohol	3 (5.7)
Benzodiazepines	2 (3.8)
Alcohol and benzodiazepines	1 (1.9)
Any substance use requiring attention	6 (11.3)
Other health/environmental issues	
Parkinson's Disease	1 (1.9)
Lack of success with outpatient therapy	6 (11.3)
Regional location	8 (15.1)
Stressors in home environment	9 (17.0)
Unstable accommodation	5 (9.4)

Numbers reflect multiple reasons for admission for some participants

participant was admitted after a near fatal suicide attempt (an overdose), taken in the context of despair over their gambling problem. Another was prioritised for inpatient admission as a result of their suicidal ideation and impulsivity. Similarly, an outpatient study in South Australia (Battersby et al. 2006) reported rates of suicidal ideation and suicide attempts as high as 81.4 % and 30.2 % respectively in groups seeking outpatient therapy for pathological gambling. Tobacco use was prominent amongst the participants and for the 22 participants whose only comorbidity was substance misuse, tobacco and alcohol were involved in all but one case (which involved amphetamines).

Aside from suicidal ideation, psychiatric histories taken at admission revealed complex histories incorporating substance use and abuse, psychotic, affective, anxiety, adjustment, personality, dissociative, somatoform and eating disorders. Most participants had, prior to admission, been diagnosed with a combination of types of disorders. Overall, 83 % of participants had at least one additional psychological or behavioural disorder (other than problem gambling) affecting their lives at the time of admission, and 39.6 % of participants were identified as having at least one physiological disorder (often lifestyle related such as hypercholesterolemia and type 2 diabetes) relevant to their admission. Three participants were admitted with a problem gambling diagnosis only, with the rest (94.3 %) having at least one other additional condition (with psychological condition/s being more prevalent than physiological condition/s, i.e. 83 % and nearly 40 % respectively). Just over 13 % of participants fitted into a "multi-morbid" classification, having two or more (and as many as 11) additional conditions. Overall, 88.7 % of participants had previously received psychiatric or behavioural diagnoses prior to admission to the program. Consistent with this, 35.8 % had previously been admitted to a psychiatric ward, with 2 receiving ECT, highlighting the diagnostic complexity of this patient group and perhaps the issue of problem gambling more generally.

Outcome Measures

For the following analyses, outcome measures were the VGS (used as a gambling screen) and the K10 and WSAS (reflecting problems caused by gambling). Statistically significant models were created with the VGS, K10, and WSAS (using time as a continuous covariate) plotted over a 12 month period.

On average, there were 2.6 (range 1–7) key outcome assessment measures taken for each problem gambler receiving inpatient treatment during the study period, with this number varying to a small extent between the K10 and WSAS and to a slightly larger extent between these variables and the VGS. Results from linear mixed models are described in the following paragraphs, with interpretation of each significant outcome measure. The covariates 'time' and 'time squared' (quadratic term) were significant in all models described at $p<0.01$.

Victorian Gambling Screen (VGS)

A statistically significant model (Wald $\chi^2=32.24$, df=2, $p<0.001$) showed for each 1 month change in time a participant's VGS score, on average, would decrease (improve) by 5.07 units. In terms of confidence intervals this decrease could be as low as 3.31 or as high as 6.83 units. The influence of variables relating to treatment engagement on VGS scores for each individual was insignificant and therefore removed from the final model without compromising overall goodness-of-fit.

Kessler 10 Scale (K10)

A statistically significant model (Wald χ^2=22.67, df=2, p<0.001) showed for each 1 month change in time a participant's K10 score, on average, would decrease (improve) by 2.25 units. In terms of confidence intervals this decrease could be as low as 1.31 or as high as 3.19 units. The influence of variables relating to treatment engagement on K10 scores for each individual was insignificant and therefore removed from the final model without compromising overall goodness-of-fit.

Work and Social Adjustment Scale (WSAS)

A statistically significant model (Wald χ^2=15.74, df=2, p<0.001) showed for each 1 month change in time a participant's WSAS score, on average, would decrease (improve) by 1.88 units. In terms of confidence intervals this decrease could be as low as 0.94 or as high as 2.82 units. The influence of variables relating to treatment engagement on WSAS scores for each individual was insignificant and therefore removed from the final model without compromising overall goodness-of-fit. A plot of margins calculated from predictions of fitted models to estimate VGS, K10 and WSAS values at various values of time over a 12 month period are presented in Fig. 1 (VGS), Fig. 2 (K10) and Fig. 3. (WSAS).

In all plots, predicted values indicate improvement occurs at a faster rate from approximately baseline to 6 months and then slows down with a levelling effect from 6 to 12 months. The confidence intervals indicate predicted values are more likely to have less error with lower time values (due to the fact that there are very few longer-term data points to consider and inform the model). VGS baseline scores are estimated, on average, to be in the problem gambling range with cut score at 21 or above and mean at 32.29 (SD=±5.16) when controlling for time and time^2 (Fig. 1).

Figure 2 shows that problem gamblers are expected to experience clinical symptoms of depression and/or anxiety in the mild to severe range on treatment commencement with a mean estimated score at 27.23 (SD=±6.22).

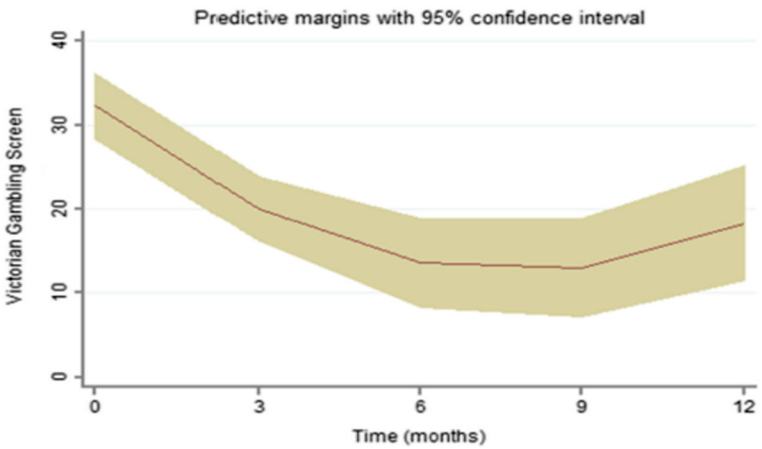

Fig. 1 VGS predictive margins model

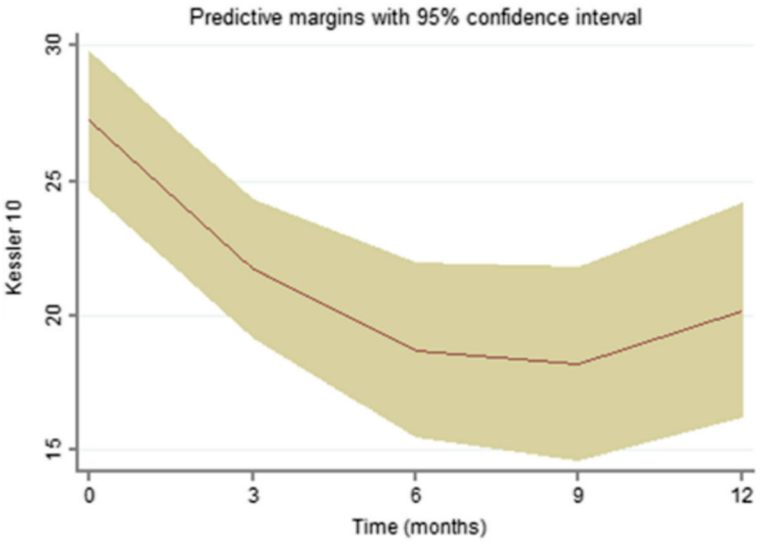

Fig. 2 K10 predictive margins model

For WSAS scores, predicted estimates at treatment commencement are, on average, in the 'significant functional impairment but less severe clinical symptomatology' range with mean at 14.09 (SD=±5.93) (Fig. 3).

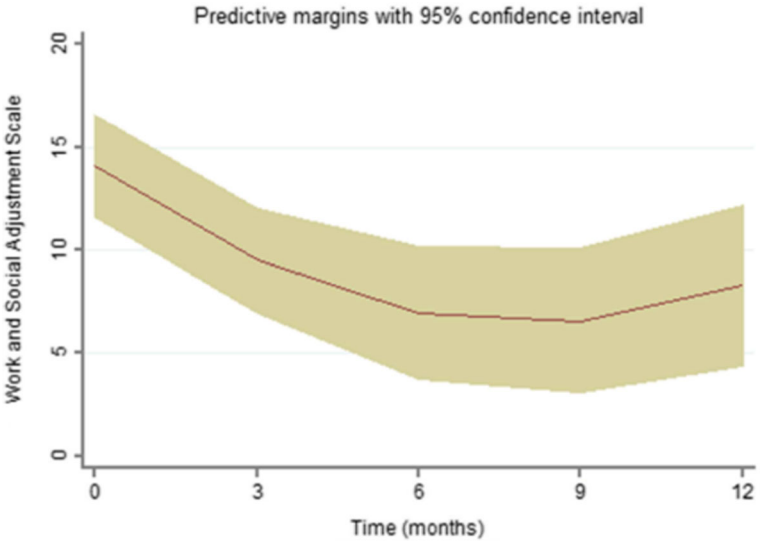

Fig. 3 WSAS predictive margins model

Discussion

In recognition of the need for improved knowledge and greater flexibility in the area of gambling treatment and research, the Statewide Gambling Therapy Service inpatient program in South Australia was devised to accommodate participants with complex circumstances and for whom standard outpatient therapy was assessed to be inappropriate due to the complexity of their needs. Participants were likely to have multiple psychiatric and physical illnesses that could complicate their gambling behaviour as well as their response to treatment. Suicidal ideation was prominent within diagnoses, along with mood and substance disorders. Given that the most common reason for inpatient suitability was severe comorbid mental illness, a clear benefit of this service was the opportunity to take a holistic approach to treatment and to assess and treat problems concurrently with the gambling problem. As one participant commented…

> "You know, it wasn't just 'this [gambling] is your problem', it was more dealing with the whole situation and they really were interested in you as a person, not just 'we're here to fix you for this [gambling] problem'.

In terms of engaging people in this intensive type of therapy, it is worth noting that few participants were employed in a full-time capacity or were living in stable relationships. This may reflect the impact of gambling upon their capacity to manage work and relationships as it has also been shown that lower levels of social support are associated with increased gambling severity and poor post-treatment outcomes (Ledgerwood and Petry 2006). It is also possible, however, that negotiating a 2-week hospital stay may be more difficult for those with work and family responsibilities.

Research has shown that immersion in a supportive environment is beneficial for psychiatric clients (Zeeck et al. 2009) and it is possible that this was an additional factor contributing to the treatment successes noted in this pilot study (although no formal measures were taken to assess this factor) as clients were afforded the benefit of structured, daily treatment sessions and constant supervision. In addition, all participants were removed from reportedly distracting psychosocial situations and responsibilities at home and work, providing them with the added benefit of a "mini-retreat" setting, allowing total focus and commitment to the program.

Although the results from this study are clearly limited by the small sample size, our aim was to provide a descriptive report presenting the encouraging preliminary results of this pilot study. Modelling of repeated measures data suggests a statistically significant improvement in key gambling related outcome measures (VGS, K10, WSAS) over a 12 month period post discharge. Given the limitations, however, which largely relate to unequal follow-up engagement (as reflected in widening confidence intervals over time), it must be emphasized that these findings should be considered as exploratory.

This paper describes a treatment option offered to a heterogeneous cohort of people seeking treatment for their gambling problems and who presented with considerably more complex mental health needs than participants in the general outpatient treatment population. By allowing participants to remove themselves from day-to-day stressors and gambling triggers to a hospital setting with the provision of intensive therapy and constant nursing support may facilitate a turning point for those struggling to engage with traditional outpatient treatment approaches. Results indicate that the intensive inpatient gambling treatment program described here offers a realistic treatment option for participants presenting with complex needs and multiple, co-morbid health related conditions.

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