

Analysis of Gambling Behavior

Volume 1 | Issue 1

Article 11

1-1-2007

Treatment of Compulsive Gambling

Erik Arntzen

Akershus University College, erik.arntzen@equivalence.net

Jorn Stensvold

Akershus University College

Follow this and additional works at: <https://repository.stcloudstate.edu/agb>



Part of the [Applied Behavior Analysis Commons](#), [Clinical Psychology Commons](#), [Experimental Analysis of Behavior Commons](#), and the [Theory and Philosophy Commons](#)

Recommended Citation

Arntzen, Erik and Stensvold, Jorn (2007) "Treatment of Compulsive Gambling," *Analysis of Gambling Behavior*. Vol. 1 : Iss. 1 , Article 11.

Available at: <https://repository.stcloudstate.edu/agb/vol1/iss1/11>

This Article is brought to you for free and open access by theRepository at St. Cloud State. It has been accepted for inclusion in Analysis of Gambling Behavior by an authorized editor of theRepository at St. Cloud State. For more information, please contact tdsteman@stcloudstate.edu.

TREATMENT OF COMPULSIVE GAMBLING

Erik Arntzen and Jorn Stensvold
Akershus University College

A program for treatment of compulsive gambling is presented. The participant in the study was a 27-year old teacher. Before the treatment started he spent about \$3.700 a month and his debt because of gambling was 60 000 dollars. The procedure included different parts; self-recording, establishment of alternative and incompatible behavior, relapse prevention and restrictions in access to money. To ensure that it was not the prevention from the access to money that stopped the use of money spent on gambling, thus, a couple of days every month participant had access to a certain amount of money. After the start of the treatment he has not lost or spent any money on gambling for nearly two years.

Keywords: compulsive gambling, treatment, self-recording, relapse prevention

A search in the PsycINFO database gave 1341 publications including search words as compulsive gambling or pathological gambling. Furthermore, over the past years there has been an enormous increase in gambling, particularly in the Western world, and mainly in games such as lottery, slot machines, scratch tickets, and sports betting (Ladouceur, 1996). Studies from the US have shown that 6.2% of visits to a general practitioner were brought on by compulsive gambling (Pasternak & Fleming, 1999). In addition, there has been a liberal attitude toward gambling in the sense that several different games have been legalized (Beconã, 1996), and Norway has been one of the most

liberal countries concerning slot machines, which have also proved to be the most dependence-producing game (Fekjar, 2001).

The most used assessment tool for compulsive gambling is South Oaks Gambling Screen (Lesieur & Blume, 1987), which is a 20-question instrument for evaluating pathologic gambling in patients. Pathological gambling was officially recognized in 1980 with the publication of the DSM III and classified as an impulsive control disorder (Sylvain, Ladouceur, & Boisvert, 1997). One specific aspect of impulsiveness measured behaviorally is the inability to tolerate long delays to the reinforcer presentation, or preference for smaller immediate rewards over larger but more delayed rewards (Logue, 1995).

Petry (2005) has used a continuum of gambling, that is, Level 0 – 3. Anyone characterized at Level 0 gambling have not gambled at all. Level 1 gambling is characterized by gambling which not make any significant problems, while both Level 2 and 3 results in significant problems for the individual gambler and his or her family. Labels often used for Level 2 gambling are such as at-risk gambling and problem

Author Note:

Part of this was presented as a poster at the ABA convention in Boston 2004. Thanks to two anonymous reviewers for comments and suggestion to an earlier version of the manuscript.

Address Correspondence to:

Erik Arntzen

Akershus University College

PO Box 423

2001 Lillestrom, Norway

E-Mail: erik.arntzen@equivalence.net.

gambling, and Level 3 gambling is called compulsive gambling. Anyone characterized as Level 3 gamblers do engage in gambling in a way that impedes daily functioning (for details see American Psychiatric Association, 1994).

It is calculated that 84 to 92% of adults take part in different types of games (Volberg, 1994). Lately, pathological gambling has increased and the accompanying problems have been far-reaching (Freidenberg, Blanchard, Wulfert, & Malta, 2002). Actually, Petry (2005) points out there are only four studies which have studied the prevalence rate of compulsive gambling for the whole population of USA. Thus, in the US those prevalence studies have shown that 0.1 – 1.9 % are Level 3 gamblers and the lifetime percent is 0.8- 4.0%. For Level 2 gamblers it is from 0.4 to 3.6 % and the lifetime percent is varying from 1.3 to 7.5. It is important to note that the instrument uses in these studies differs and that one study is meta-analysis study (Shaffer, Hall, & Vander Bilt, 1999). In the meta-analysis of prevalence concluded that approximately 1.6% of US adults may be pathological gamblers, while 3.9% may be problematic gamblers, bringing the combined percentage of disordered gamblers to more than 5% (Shaffer et al., 1999). In the Canadian population the numbers are 0.8 – 1.7% for lifetime rates (Ladouceur, 1996). In Scandinavia, and countries like Sweden and Norway, the rates for Sweden are 0.6 for the current prevalence percent and 1.2 the for lifetime rate, Level 3 gambling respectively (Volberg, Abbott, Ronnberg, & Munck, 2001). In Norway the current percent of Level 3 gambling is 0.15, while lifetime rates is not stated (Gotestam & Johansson, 2003). It is important to mention there are no legal casinos in Norway, but you can of course play online casino and the online casinos are allowed as long as the server is not located in Norway.

There is a correlation between substance user problems and gambling behavior compared with the general population (Petry, 2005). Studies have shown that psychiatric comorbidity is common among pathological gamblers and is associated with greater severity if other clinical problems (Crockford & el-Guebaly, 1998; Ibáñez et al., 2001). For example substance dependency, anxiety symptoms, personality disorder has been referred to as such, but it is not clear the relation and timing between the comorbid psychiatric conditions. Stewart and Kushner (2005) are discussing three possible relations regarding the comorbidity between gambling and alcohol disorder, for example, gambling disorder causes the alcohol use, excessive drinking causes the gambling behavior, or there is no causal relationship between drinking and gambling, but third variable that are causally related to both gambling and drinking.

Studies which have compared compulsive gambling and addiction conclude that the results are more successful in the treatment of compulsive gambling than addiction, even if the costs of treatment are lesser (Lopez Viets & Miller, 1997). It has been argued that this could be connected to the fact that compulsive gambling is a more limited problem (Fekjar, 2001).

Prevalence has been shown to increase as a function of the opportunities for gambling (Pasternak & Fleming, 1999). Thus, it has been shown that, in the US, there is an increased density of organizations for anonymous gamblers in states where there are legal casinos (Lester, 1994). It has also been found that, in different states in the US, the prevalence of gambling increased after casinos were opened (Pasternak & Fleming, 1999).

It has been argued that an early diagnosis leads to better outcomes, but generally there has been little international research on treatment of compulsive gambling (Pasternak

& Fleming, 1999), and in Norway, the treatment offered has been minimal, even though in this country the number of people involved in gambling per capita is much higher than in neighboring countries (Fekjar, 2001).

There are still many questions unanswered regarding compulsive gambling, amongst them the question of best practice for treating pathological gambling, whilst one have to take in account that it is a new area of research (Petry, 2005). Although early treatments for pathological gambling were psychoanalytical in nature, short-term behavioral interventions have been more common (Toneatto & Sobell, 1990). Thus, most of the efficacy research has focused on cognitive therapy, cognitive behavior therapy and behavior therapy (Lopez Viets & Miller, 1997). Specific techniques which have been used are aversive techniques (Barker & Miller, 1966, 1968; Cotler, 1971; Goorney, 1968; Seager, Pokorny, & Black, 1966), stimulus satiation (Peck & Ashcroft as cited in Dickerson & Weeks, 1979), changing stimulus control and response prevention (Echeburúa, Fernandez-Montalvo, & Baez, 2000), imaginal desensitization therapy (McConaghy, Blaszczynski, & Allcock, 1991) or imaginal relaxation (McConaghy, Armstrong, Blaszczynski, & Allcock, 1988). Group counseling, used to help individuals in overcoming difficulties associated with problem gambling behavior (Coman, Evans, & Burrows, 2002), has been a widely used method in Norway, and we wished to explore the knowledge of the treatment of compulsive gambling by using principles from behavior and also study both the immediate and long-lasting effects. An obvious thing to do will be to get the participants engaged in other activities so this will compete with time spent on the gambling activity. Within behavior analysis some of the differential reinforcement procedures are examples of such a strategy. Differential reinforcement

procedures as DRI (differential reinforcement of incompatible behavior) and DRA (differential reinforcement of alternative behavior) have been showed to be effective for various behavior problems. For example have DRA procedures been used to reduce aggression by increasing alternative types of behavior (Roane, Fisher, Sgro, Falcomata, & Pabico, 2004), decrease problem behavior (escape from demands) and increase compliance behavior (Reed, Ringdahl, Wacker, Barretto, & Andelman, 2005) or increase alternatively self-self restrictive behavior and reduce self-injurious behavior (Lerman, Iwata, Smith, & Vollmer, 1994). Likewise, DRI have been used in reducing excessive alcohol consumption (Glindemann, Ehrhart, Drake, & Geller, 2007), reducing maladaptive behavior (Spira, Koven, & Edelstein, 2004), self-injurious behavior (Tarpley & Schroeder, 1979), or increasing appropriate verbal behavior (Arntzen, Ro Tonnessen, & Brouwer, 2006; Dixon et al., 2004). As far as we know, such procedures have not been used in treating gambling behavior. The purpose of the current study was to have the participant to be engaged in other activities and to establish some new types of behavior that could compete with the gambling behavior by using procedures as differential reinforcement of incompatible and alternative behavior. We also want to include a measure of pulse.

METHOD

Participant

The participant was a 26-year-old man at the start of the treatment who volunteered to be a part of the current study. He was qualified as a teacher, and worked as a therapist in a group-home for people with developmental disabilities. He had a spotless reputation and no criminal record. His parents divorced when he was five. His pathological gambling problems were first discovered by others in 1997 when he was in the Norwegian

army and when he left the army he was diagnosed as a “pathological gambler” by a psychologist. Later the same year, he had consultations with another psychologist at a psychiatric county hospital. During the five-year period from 97-02, he also had several meetings with medical doctors and social workers, but at no point did the treatment have any significant impact on his gambling behavior.

When we started the treatment he responded in accord with description of Level 3 gambling and the DSM IV criteria for pathological gambling. Regarding comorbidity the participant showed no form of other psychiatric problems or substance abuse. He was mostly involved in sports betting and slot machines. When the procedures were implemented for the first time, his debt because of gambling was about 60,000 dollars. In comparison with this, his total income for the same period of time was about 120,000 dollars.

Apparatus and setting

In the study, a Polar s 610 watch was used to measure pulse in settings that from experience had often led to gambling. The data were saved in the watch.

Baseline

Recordings were based on bank statements.

Procedure

When we started the procedure, he had been hospitalized because of problems related to his compulsive gambling. During the current study, the participant worked with the psychologist, the first author, in sessions every second week for the first year and then monthly meetings for last part of study. In addition the participant and the psychologist had frequently contact by telephone and e-mail, for example the participant e-mailed data once a week. A therapist, the second

author, also took part in these meetings. In addition to this, the participant also had weekly meetings with the second author to maintain continuity in the study. The procedure itself consisted of different parts:

Self-monitoring.

The participant was instructed from the start of the procedure to do self-recording of different aspects of his gambling behavior since these types of activities were difficult for others to record. He was given the rationale for doing self-recording and how to record the number of gambling instances, the amount of money spent on gambling, and the duration of each gambling sequence.

Restriction of access to money beyond a certain amount.

The reason for this was first of all that his income should be used to service the debt and of course to reduce the probability for gambling. In the beginning (June 2002), we agreed that he should not have access to much money at any time, so we arranged with his bank that the second author should administrate the money. In this way he could fulfill the requirements of the debt restructuring arrangement. The administration by the second author was terminated in January 2004, and from that moment on, the participant himself fulfilled the requirements of the debt restructuring arrangement.

Incompatible and alternative behavior.

Work out in a fitness studio and a study-group in behavior analysis were used to establish different types of incompatible and alternative behavior, in addition, activities like these would compete with the time earlier used on gambling. In the study-group different basic terms in behavior analysis were discussed. Summaries of the recordings from the work out sessions and the activity in the study-group were sent by e-mail (as mentioned above) and presented during the

consultations as mentioned earlier and social reinforcers were presented on service the debt, doing work out at the fitness studio and for taking part in the study-group and especially for doing work out natural reinforcers maintained that behavior.

Relapse prevention.

The possibility of relapse was discussed to make the participant aware of high-risk situations and the possible reasons for returning to gambling. Principles such as intermittent reinforcement, vicarious reinforcement, and stimulus control were explained and it was discussed how these could be applied to the current situation. It must be taken in account that the participant had some competence in behavior analysis since he was working with people with developmental disabilities and also that these matters were discussed in the sessions in the study-group.

Pulse measures.

Two months after the self-monitoring had started he began to measure pulse in front of slot machines. The participant visited places where he earlier had used slot machines and just stands there, without using the slot machines, for 10 minutes and recorded the pulse. In 10 % of the instances the second author was present and assisted in the recording. The pulse measure part of the procedure lasted for 6 months.

Test probes

To ensure that it was not lack of access to money alone that stopped the gambling, we introduced test probes from March 2003 in which the participant was given access to a certain amount of money, on average 3900 dollars, a couple of days every month (ordinary pay days).

Treatment integrity

The participant self-monitored gambling behavior, the work out and the study-group sessions during the current study and the recordings of these activities showed us if and when actually self-monitored.

Design

The results in the current study are presented in an AB design and for such a design there are of course threats against internal validity (see for example Shadish, Cook, & Campbell, 2002). On the other hand, case studies as the current study could be improved by including specific elements (Kazdin, 1981) and will be discussed later.

RESULTS AND DISCUSSION

Figure 1 shows money lost on gambling from January 2002 until May 2004. During baseline, the participant lost on average \$3703 to gambling per month, and, anecdotally, the amount of money spent on gambling was probably at least four times higher than the amount the participant had lost on gambling. After the treatment started, the amount of money drastically decreased, and from August 2002 until May 2004, he had not lost or even used any money on gambling, not even on the days each month, time windows, when he had access to a certain amount of money (test probes).

The measures of pulse showed a reduction from 115 to 89 after a week and stayed at a mean of 89 for the rest of the recording period, six months. It could be assumed that the value had been higher if we had started the measure of pulse from the beginning or even during baseline. These data could not be emphasized very much since we have not such recordings during baseline and not from the start of the treatment, but is presented because it could be an important type of data to include in future research.

In addition to this, quality of life in general has increased for him. He eats more regular meals, his physical condition has improved

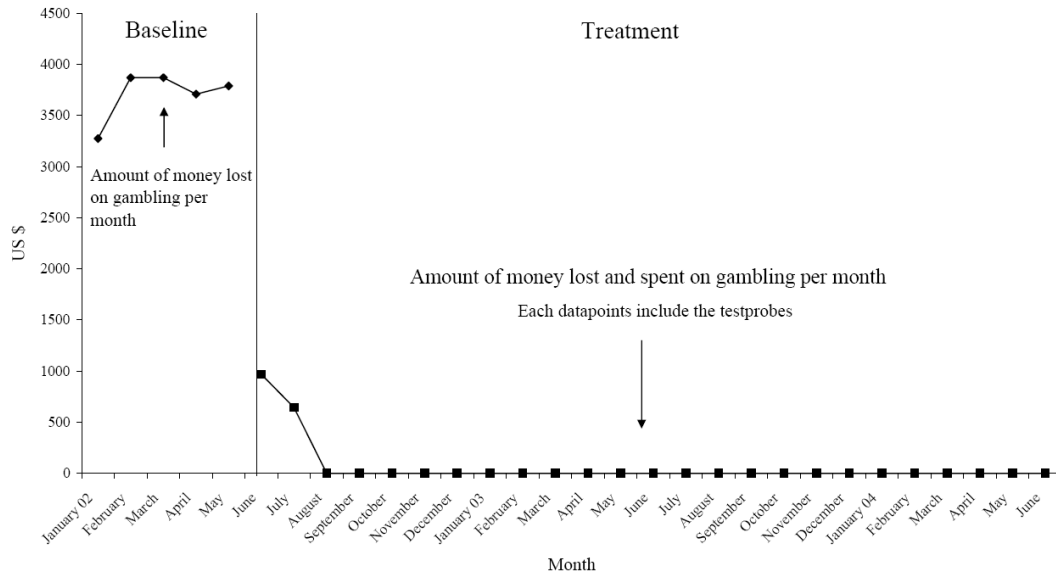


Figure 1. The Figure shows amount lost on gambling per month during baseline and the amount of money spent or lost on gambling during the treatment.

because of the work out and his bills are always paid on time. He also takes part in social activities with friends, and pays his family more regular visits. Because of money saved since he is not gambling, he has also been on several journeys abroad during the past six months.

The procedures used in the current study are in accord with the assumption that it is important to construct an alternative behavioral repertoire (Sharpe, 1998). It is also important to explain in detail about reinforcement and reinforcement schedules, thus, as many researchers have argued that an inaccurate view of the notion of randomness is the fundamental mistake made by gamblers (Ladouceur, 1996; Ladouceur, Sylvain, Boutin, & Doucet, 2002; Sylvain et al., 1997), so that's the reason why we spent so much time dis-

cussing this with the participant. Moreover, the numbers of studies reporting long-term maintenance have not been encouraging (Echeburúa, Fernandez-Montalvo, & Baez, 2001). In the present study, we have shown encouraging long-term effects of the behavioral treatment.

The time windows when the participant had access to a greater amount of money the bank account showed the money were either used to pay off debt or not used at all. This means the money available was not used for gambling, and that it was most probably not the restriction in access to money per se that stopped him from gambling, but rather the engagement in types of alternative or incompatible behavior that had competed with the gambling behavior. The last months, from January 2004 to June 2004, there was no

restriction to the access to his money, and as shown in Figure 1 there was no instances of gambling during this period.

Rather few treatment programs have been developed to help pathological gamblers, furthermore many programs suffer from methodological flaws and few have used interventions based on empirically validated theories (Sylvain et al., 1997). A search of the PsycInfo database using the search words pathological gambling + behavior therapy or behavior modification gave 32 hits, thus, both behavior therapy and cognitive behavior therapy were listed, and even more interesting, pathological gambling + behavior analysis gave no hits. We wished to explore the efficacy of using principles from behavioral analysis in treating compulsive gambling. Furthermore, on basis of the notion that therapists seldom use purely behavioral treatments and instead more traditional “talk therapy” (Petry, 2005), we thought it was very interesting to expand the knowledge of applied behavior analysis in treating compulsive gambling.

There are of course pitfalls in using bank statements as data in a study with compulsive gambling. It could still be possible for the participant to gamble with money borrowed from others. In this case the participant had already borrowed so much money from friends and family that nobody would give him any more money, and in addition he would not get money from credit companies, so we still think that the bank statements give a correct picture.

Self-monitoring has been used in a number of cases that only the participant could observe and record, and later self-monitoring has become an intervention in its own right because of the reactive effects (Cooper, Heron, & Heward, 2007). Therefore, we found it necessary to use this strategy in the current study. Regarding treatment integrity we have recordings of the participant’s self-

monitoring of gambling behavior, from the work out in the fitness studio, and in the study-group the second author was one of the participants, so we have some control for the validity of data.

The social validity in the current study must be assumed to be reasonably high, but it could be argued that the experimental control is rather low, as the treatment consisted of different procedures and because in such studies it is complicated to measure reliability, at least during baseline. An AB design can of course not replace experimentation, but in some cases it is difficult if not impossible to use a reversal design, multiple baseline design or any other experiment design. We considered it to be unethical to use a reversal design in the current study and it seem difficult to use a multiple baseline design. On the other hand, according to Kazdin (1981) there are some features which could strengthen the possibilities to draw valid inferences from case studies. First, the fact we have presented objective data and not anecdotal data (which could be the case in case studies). Second, that we have assessed data continuously and not used pre and posttests. Third, that gambling behavior has been a part of the participant’s repertoire a long time before we started the treatment and it is not probable that the gambling behavior would have changed if we hadn’t started the intervention. Because of the three conditions just mentioned, there is support for the notion that the intervention may have led to the changes observed in the current study.

In conclusion, the procedure used in the current study has proved to be effective in reducing compulsive gambling in a 27-year-old male. The results have also shown maintained treatment effects nearly two years after the start of the treatment.

REFERENCES

- American Psychiatric Association. (1994). *Diagnostic and Statistical Manual of Mental Disorders: DSM IV*. Washington, DC: Author.
- Arntzen, E., Ro Tonnessen, I., & Brouwer, G. (2006). Reducing aberrant verbal behavior by building a repertoire of rational verbal behavior. *Behavioral Interventions, 21*, 177-193.
- Barker, J. C., & Miller, M. (1966). Aversion therapy for compulsive gambling. *The Lancet, 1*, 491-492.
- Barker, J. C., & Miller, M. (1968). Aversion therapy for compulsive gambling. *Journal of Nervous and Mental Disease, 146*, 285-302.
- Beconã, E. (1996). Prevalence surveys of problem and pathological gambling in Europe: The cases of Germany, Holland and Spain. *Journal of Gambling Studies, 12*, 179-192.
- Coman, G. J., Evans, B. J., & Burrows, G. D. (2002). Group counseling for problem gambling. *British Journal of Guidance & Counseling, 30*, 145-158.
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied Behavior Analysis* (2nd ed.). Columbus, Ohio: Pearson Merrill Prentice Hall.
- Cotler, S. B. (1971). The use of different behavioral techniques in treating a case of compulsive gambling. *Behavior Therapy, 2*, 579-584.
- Crockford, D. N., & el-Guebaly, N. (1998). Psychiatric comorbidity in pathological gambling: A critical review. *Canadian Journal of Psychiatry, 43*, 43-50.
- Dickerson, M. G., & Weeks, D. (1979). Controlled gambling as a therapeutic technique for compulsive gamblers. *Journal of Behavior Therapy and Experimental Psychiatry, 10*, 139-141.
- Dixon, M. R., Guercio, J., Falcomata, T., Horner, M. J., Root, S., Newell, C., et al. (2004). Exploring the Utility of Functional Analysis Methodology to Assess and Treat Problematic Verbal Behavior in Persons with Acquired Brain Injury. *Behavioral Interventions, 19*, 91-102.
- Echeburúa, E., Fernandez-Montalvo, J., & Baez, C. (2000). Relapse prevention in the treatment of slot-machine pathological gambling: long-term outcome. *Behavior Therapy, 31*, 351-364.
- Echeburúa, E., Fernandez-Montalvo, J., & Baez, C. (2001). Predictors of therapeutic failure in slot-machine pathological gamblers following behavioural treatment. *Behavioural and Cognitive Psychotherapy, 29*, 379-383.
- Fekjar, H. O. (2001). Spilleavhengighet. *Tidsskrift for Norsk Legeforening, 17*, 121.
- Freidenberg, B. M., Blanchard, E. B., Wulfert, E., & Malta, L. S. (2002). Changes in physiological arousal to gambling cues among participants in motivationally enhanced cognitive behavior therapy for pathological gambling: A preliminary study. *Applied Psychophysiology and Biofeedback, 27*, 251-260.
- Glindemann, K. E., Ehrhart, I. J., Drake, E.A., & Geller, E. S. (2007). Reducing excessive alcohol consumption at university fraternity parties: A cost effective incentive/reward intervention. *Addictive Behaviors, 32*, 39-48.
- Gorney, A. B. (1968). Treatment of a compulsive horse race gambler by aversive therapy. *British Journal of Psychiatry, 114*, 329-333.
- Gotestam, K. G., & Johansson, A. (2003). Characteristics of gambling and problem gambling in the Norwegian context: A DSM-IV based telephone interview study. *Addictive Behaviors, 28*, 189-197.
- Ibáñez, A., Blanco, C., Donahue, B. S., Lesieur, H. R., Pérez de Castro, I., Fernández-Piqueras, J., et al. (2001). Psychiatric comorbidity in pathological gamblers seeking treatment. *American Journal of Psychiatry, 158*, 1733-1735.
- Kazdin, A. E. (1981). Drawing valid inferences from case studies. *Journal of Consulting and Clinical Psychology, 49*, 183-192.
- Ladouceur, R. (1996). The prevalence of pathological gambling in Canada. *Journal of Gambling Studies, 12*, 129-142.
- Ladouceur, R., Sylvain, C., Boutin, C., & Doucet, C. (2002). *Understanding and treating the pathological gambler*. New York, NY: John Wiley & Sons, Inc.
- Lerman, D. C., Iwata, B. A., Smith, R. G., & Vollmer, T. R. (1994). Restraint fading and the development of alternative behavior in the treatment of self-restraint and self-injury. *Journal of Intellectual Disability Research, 38*, 135-148.
- Lesieur, H. R., & Blume, S. B. (1987). The South Oaks Gambling Screen (The SOGS): a new instrument for the identification of pathological gamblers. *American Journal of Psychiatry, 144*, 1184-1188.
- Lester, D. (1994). Access to gambling opportunities and compulsive gambling. *International Journal of Addiction, 29*, 1611-1616.
- Logue, A. W. (1995). *Self-control: Waiting for Tomorrow for What You Want Today*. Englewood Cliffs, NJ Prentice Hall.
- Lopez Viets, V. C., & Miller, W. R. (1997). Treatment approaches for pathological gamblers. *Clinical Psychological Review, 17*, 689-702.
- McConaghy, N., Armstrong, M. S., Blaszczynski, A., & Allcock, C. (1988). Behavior completion versus stimulus control in compulsive gambling. Implications for behavioral assessment. *Behavior Modification, 12*, 371-384.

- McConaghy, N., Blaszczynski, A., & Allcock, C. (1991). Comparisons of imaginal desensitization with other behavioral treatments of pathological gambling: A two- to nine-year follow-up. *British Journal of Psychiatry*, *159*, 390-393.
- Pasternak, A. V., & Fleming, M. F. (1999). Prevalence of gambling disorders in a primary care setting. *Archives of Family Medicine*, *8*, 515-520.
- Petry, N. M. (2005). *Pathological gambling: Etiology, comorbidity, and treatment*. Washington, DC: American Psychological Association.
- Reed, G. K., Ringdahl, J. E., Wacker, D. P., Barretto, A., & Andelman, M. S. (2005). The effects of fixed-time and contingent schedules of negative reinforcement on compliance and aberrant behavior. *Research in Developmental Disabilities*, *26*, 281-295.
- Roane, H. S., Fisher, W. W., Sgro, G. M., Falcomata, T. S., & Pabico, R. R. (2004). An alternative method of thinning reinforcer delivery during differential reinforcement. *Journal of Applied Behavior Analysis*, *37*, 213-218.
- Seager, C. P., Pokorny, M. R., & Black, D. (1966). Aversion therapy for compulsive gamblers. *The Lancet*, *1*, 546.
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Boston: Houghton Mifflin Company.
- Shaffer, H. J., Hall, M. N., & Vander Bilt, J. (1999). Estimating the Prevalence of Disordered Gambling Behavior in the United States and Canada: A research synthesis. *American Journal of Public Health*, *89*, 1369-1376.
- Sharpe, L. (1998). Cognitive-behavioural treatment of problem gambling. In V. E. Caballo (Ed.), *International Handbook of Cognitive and Behavioural Treatments for Psychological Disorders* (pp. 393-416). London: Pergamon Press.
- Spira, A. P., Koven, L. P., & Edelstein, B. A. (2004). Using a Differential Reinforcement of Incompatible Behavior (DRI) Schedule to Reduce Maladaptive Behaviors in a Nursing Home Resident. *Clinical Case Studies*, *3*, 165-170.
- Stewart, S. H., & Kushner, M. G. (2005). Introduction to the special issue on "Relations Between Gambling and Alcohol Use." *Journal of Gambling Studies*, *21*, 223-231.
- Sylvain, C., Ladouceur, R., & Boisvert, J. M. (1997). Cognitive and behavioral treatment of pathological gambling: a controlled study. *Journal of Consulting and Clinical Psychology*, *65*, 727-732.
- Tarpley, H. D., & Schroeder, S. R. (1979). Comparison of DRO and DRI on rate of suppression of self-injurious behavior. *American Journal of Mental Deficiency*, *84*, 188-194.
- Toneatto, T., & Sobell, L. C. (1990). Pathological gambling treated with cognitive behavior therapy: a case report. *Addictive Behaviors*, *15*, 497-501.
- Volberg, R. A. (1994). The prevalence and demographics of pathological gamblers: Implications for public health. *American Journal of Public Health*, *84*, 237-241.
- Volberg, R. A., Abbott, M. W., Ronnberg, S., & Munck, I. M. E. (2001). Prevalence and risks of pathological gambling in Sweden. *Acta Psychiatrica Scandinavica*, *104*, 250-256.

Action Editor: Mark R. Dixon