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Cognitive Approach to Understanding and Treating Pathological Gambling

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6.26.1 INTRODUCTION

The twentieth century has been described as the “hinge of history.” This description follows from the wide range of indications of social, economic, and environmental measures showing catastrophic change. One of these indications is the general public’s level of involvement in gambling activities. Rowntree (1941) compared the standard of living of the residents of New York City in 1899 and 1936. In his analysis of leisure in everyday life, he reached the conclusion that gambling had grown enormously over that period of time. It is well-documented that, since 1936, gambling has continued its rapid growth not only in the USA, but throughout the world (Frey & Eadington, 1984; McMillen, 1996). In explaining the upsurge in gambling, the British Royal Commission on Lotteries and Betting (1933, p. 60) stated that, “One of the main causes, perhaps the most potent in the growth of gambling, has been the increased facilities for organized gambling.” Similar views have repeatedly been expressed by contemporary observers of gambling (Connor, 1983; Cornish, 1978; Dickerson, 1984; Orford, 1985). However, the claim that the rapid growth in gambling is attributable to the legalization and the accessibility of gambling outlets may be considered false, or at least incomplete. Betting shops, gambling machines, lotteries, and casinos would be useless if ordinary people did not want to gamble. Even in societies where gambling has been prohibited, gambling games have nevertheless flourished (Dixon, 1996).

Prior to discussing why people want to gamble, it is important to specify what we are referring to when using the word “gambling.” Research on gambling does not incorporate all risk-taking behavior, but only a limited range of such behavior. The essential nature of gambling is that money (or its equivalent) is risked on the uncertain outcome of an event, subject to certain conditions: (i) gambling occurs in a group context whereby after costs, taxes, and profits, the money wagered by the losers is redistributed to the winners; (ii) the redistribution of money is independent of any other commercial enterprise related to the gambling event. This definition excludes insurance such as life or property insurance. This definition of gambling is similar to those put forth elsewhere (Perkins, 1950).

It should be noted that all definitions of gambling appear to differ with respect to what is included or excluded. This problem can be overcome if the activities to be included are listed explicitly. In this context, three broad categories of gambling have been identified: betting, gaming, and lotteries. Betting refers to staking money on the outcome of an uncertain

or future event; gaming refers to playing for money in a game of chance; and lotteries refers to the distribution of prizes by drawing lots. Although these three kinds of gambling have much in common at the structural level, they are completely different sociologically.

Claiming that people want to gamble does not advance our knowledge of gambling to any great extent, but immediately raises the question as to why people want to gamble. Understanding the motivation to gamble would appear to be central to understanding why people may gamble excessively, and can be expected to have an important bearing on how gambling-related suffering may be alleviated, diminished, or avoided.

This chapter argues that the motivation to gamble is seen as the acquisition of wealth and that the real problems in explaining gambling concern why it is that gamblers believe that money can be won. Because the belief of gamblers that money can be won is erroneous, it follows that therapeutic methods which change the false beliefs of the gambler are more likely to be effective. This proposition is examined in detail.

6.26.2 MOTIVATION TO GAMBLE

Gambling explicitly involves the attempt to win money by staking money on an uncertain event. As a starting point in the attempt to understand the motivation to gamble, the acquisition of wealth can be assumed to be the prime motivation. The problem with this assumption is that all legalized forms of gambling are constructed so that the expected return is less than the sum wagered. For example, a roulette wheel with one zero takes in, on average, 1/37 of the money staked. Totalizators typically take in approximately 20% of the money wagered in racing (Ladouceur, Giroux, & Jacques, 1998) and lotteries typically take in approximately 40% of the revenue from ticket sales. These percentages vary from place to place and according to the structure of the distribution of prizes or returns, but in all cases the expected return on money invested constitutes a loss for the gambler. Thus, if the acquisition of wealth is the individual’s goal, rational economic considerations would lead people to avoid gambling. This is the principal paradox of gambling: people, in attempting to gain wealth, engage in an activity which is expected to decrease wealth.

The gambling paradox can be resolved in two different ways: (i) accepting that the acquisition of wealth is the motivation, but the gambler misjudges the chance of winning; or (ii) rejecting the acquisition of wealth as the sole or central motivation involved.

The majority of theories of gambling behavior reject the acquisition of wealth as being the fundamental motivation for gambling behavior. However, cognitive theories of gambling assume that the acquisition of wealth is the primary motivation involved, and that people do not behave as they normally would with respect to that motivation. According to cognitive theories, gamblers hope to win money or believe that they will win money. Why people should hope to win or expect to win in the face of the adverse odds involved is the central concern of such theories.

By contrast, other theories of gambling assume that winning money is not the principal motivation for gambling. One cluster of such theories assumes that it is the amusement and excitement (the change in arousal level) that motivates gambling behavior. In the behaviorist form of these theories, the changes in arousal reinforce the gambling behavior (Dickerson & Adcock; 1987; McConaghy, 1980), whereas in more purposive theories, gambling has the function of changing mood (Brown, 1996) as when the excitement of gambling overcomes boredom. In some cognitive behavioral explanations, arousal retains a dominant role but must be coupled with appropriate cognitions (Sharpe & Tarrier, 1993). A second cluster of theories places more emphasis on personality dimensions and, more specifically, on impulsiveness (Blaszczynski & McConaghy, 1994). It is assumed that risk-oriented individuals are attracted to gambling and that problems arising from excessive gambling can be attributed to impulsiveness. Yet other explanations see the gambling as largely irrelevant: gambling is simply one possible means of escaping or avoiding stresses and associated anxiety elsewhere in the individual's life. All such theories assume that the principal reward for gambling is something other than money. Some support for this view comes from the gambling industry which regards gambling as a leisure activity in which the money expended by the gambler buys the gambling product. The product is understood to be the amusement and excitement of the gambling venture. Thus, gambling is viewed as a desirable activity in itself, similar to eating in a restaurant or playing a round of golf. The money spent by the gambler pays for the enjoyment received.

It might seem that these alternative explanations for gambling have a certain face validity. If, after all, it is unreasonable to expect to win money by gambling, then surely some other factor must be involved. When gamblers are questioned about why they gamble, the majority of answers concern amusement, excitement, and relief of boredom. By contrast, only a minority of individuals involved in betting and gaming

state that they gamble in order to win money. The important question is whether or not the opinions of gamblers as to why they gamble should be accepted indiscriminately. A certain amount of validation of the data derived from other sources is a minimum requirement. Consider, for example, the claim that gambling is exciting and that the rewarding value of the excitement is the main reason why most people gamble. If this claim is true, then several implications follow:

(i) Behavioural observation should support the self-report data. Gamblers should appear to be excited when gambling. Excitement should be apparent on faces (laughing and smiling), in exclamations of delight, and in the general bodily tension and alertness.

(ii) Physiological measures should support the self-report data. Gamblers should exhibit raised levels of heart rate, blood pressure, and palmar sweating. Neurophysiological measures should also suggest general arousal.

(iii) Indications of excitement should not be highly correlated with winning. If excitement always accompanies winning and no other events within the gambling cycle, then it is not possible to know whether it is the winning or the excitement which maintains the behavior.

(iv) If an explanation of gambling in terms of the reward value of excitement is to be generalized, then the indicators of excitement should be present for all forms of gambling.

Surprisingly, there is very little evidence supporting any of these specific implications. Here, we briefly review the evidence.

Excitement is most easily observed in certain forms of betting and gaming, and among the winners of lottery prizes. Thus, the noise of the crowd at a race track reaches a crescendo as the leading horses reach the winning post. Similarly, certain casino games, such as craps and two-up, have been described as suitable for the extrovert in view of the manifest excitement of the players (Allcock & Dickerson, 1986). However, such observable excitement is not sufficient evidence. Observable excitement is less in off-course betting shops and may be largely absent among home gamblers with phone accounts. Furthermore, certain casino games, such as blackjack and pai gow, are traditionally played with a minimum display of emotion. In poker, the ideal involves an absence of genuine emotion. Thus, there are many examples of gambling situations in which no excitement is expressed.

Different measures of physiological arousal may be used in gambling research. Increases in heart rate have been reported for blackjack (Anderson & Brown, 1984) and changes in skin conductivity for slot machines (Sharpe, Tarrier, Schotte, & Spence, 1995) when players begin a

session. It is likely that arousal increases at the beginning of all gambling sessions. However, excitement prior to gambling cannot be a reward for gambling. More importantly, arousal must be demonstrated to correlate with events within the gambling session. In a detailed study of slot machine gambling through time, Dickerson (1993) did not find any correlation between player arousal and the events within a session. Although variations in arousal have been demonstrated for certain gambling-related events, the failure by Dickerson to show that arousal is correlated with machine events in slot machines is an important obstacle for an excitement-based explanation of gambling. Furthermore, the low numbers of positive reports of arousal in relation to the wide range of gambling, casts doubt on the ability of excitement-based theories to have wide explanatory power. However, as discussed in detail later, arousal has been found to be associated with erroneous perceptions that create an illusion of control and result in the over-estimation of the probabilities of winning. Interestingly, arousal decreased when erroneous perceptions were corrected (Giroux, Ladouceur, & Jacques, 1998).

By contrast with arousal and personality theories, cognitive theories of gambling assume that the acquisition of wealth is the primary motivation involved, and that people do not behave as they normally would with respect to that motivation. According to cognitive theories, gamblers hope to win money or believe that they will win money. Why people should hope to win or expect to win in the face of the adverse odds involved is the central concern of such theories.

6.26.3 DEPARTURES FROM NORMATIVE DECISION MAKING IN GAMES OF SKILL AND GAMES OF CHANCE

Some gambling games allow the players a range of decisions which can affect the outcomes. In such games, players may depart from optimal play by choosing alternatives with lower expected values. Skill then refers to the extent to which a player's strategy of choices approaches the optimal strategy. Gambling games involving skill include blackjack, poker, and sports betting. In all of these games, systematic departures from optimal play have been reported.

In blackjack, with optimal play, the expected value of casino blackjack is approximately -0.7% with variations from that figure depending on the specific rules of play that apply. Nevertheless, most players do not approach this

figure in their play (Griffin, 1987; Wagenaar, 1988; Walker, Sturevska, & Turpie, 1995). Analysis of the errors in play shows that in general the players adopt strategies which are too conservative. Players tend to sit when they should hit, avoid splitting pairs when it is desirable, and take out insurance when it is unnecessary (Wagenaar, 1988; Walker, 1995).

Interestingly, the departures from normative play in poker tend towards risk rather than avoidance of risk. For example, players in five card stud tend to stay in the pot with a small pair when they should fold (Yardley, 1957). In draw poker, players will draw to hands with very small probabilities of success, and professional poker players prefer games in which the action is loose, that is, risky (Hayano, 1977; Yardley, 1959).

There are many systems for betting on horse races and, as the variations between the systems are great (Allcock, 1987; Beyer, 1993; Drapkin & Forsyth, 1987; Scott, 1982) and no more than one can be accurate, it follows that the majority of systems yield less than optimal decisions. More generally, betting patterns have been observed to vary across a race meeting with betting on the last race at the meeting being more risk oriented than betting on earlier races (Bird & McCrae, 1985). Recently, Ladouceur, Giroux and Jacques (1998) showed that regular punters, defining themselves as experts in horse races, could not provide a better rate of return than a random selection of horses.

In games of chance all alternatives have equal expectations, and thus there is no optimal method of play. Well known games of chance include lotteries, roulette, and slot machines. Since no optimal strategy exists for games of chance, players would be expected to expend no effort in trying to choose the best action—the most likely winning ticket in lotteries, the most likely winning number in roulette, or the machine most likely to pay out in slot machines. Nevertheless, players can be observed expending considerable effort in making these decisions (Griffiths, 1994; Wagenaar, 1988; Walker, 1992). To the extent that players believe that some alternatives are more likely than others in games of chance, their approach to betting can be regarded as not normative.

6.26.4 DEVELOPMENT OF GAMBLING PROBLEMS

Although a wide range of gambling-related problems have been documented (Walker, 1992), the classification of such problems has not been adequately developed. Classification of gambling problems can proceed from different perspectives and be based on different

criteria. Most commonly, gambling-related problems are classified by the area in the gambler's life that is affected. Thus, Dickerson et al. (1995) divided gambling problems into those associated with the individual, the family, financial status, employment, and criminal activity. Lorenz and Shuttleworth (1983) divided the problems into personal, relationship, and financial. Similarly, Custer and Milt (1985) divided the problems into gambling, alienation, marital problems, boredom, legal problems, indebtedness, needs, and goallessness. Categorization of problems in this way has value at the level of assessment, but does not clarify the nature or source of the problems. Although overlaps must exist, it remains possible for a new researcher to divide the gambling-related problems differently into another, possibly equally useful, set based on areas affected.

An alternative approach, which places more emphasis on the genesis of the problems, assumes that the main cause of the problems is persistence with gambling despite the losses. Cognitive theories seek to explain why the gambler may persist with gambling until the losses become excessive. The next step in understanding problem gambling, which ultimately becomes labeled "pathological," involves analyzing the consequences of extreme persistence in the face of large losses. The central consequence, and possibly the core factor in causing gambling problems, is the financial loss. Although it may seem obvious that financial loss is a fundamental aspect of gambling problems, this perspective is sometimes not given the emphasis that would seem appropriate. For example, only four of the 10 criteria defining pathological gambling in the *Diagnostic and statistical manual of mental disorders* (4th. ed.; *DSM-IV*; American Psychiatric Association [APA], 1994) explicitly refer to the loss of money and the problems caused thereby. If the financial cost of gambling is emphasized, then many of the criteria for identifying pathological gambling can be understood as consequences of this common cause. Walker (1992), in his description of a socio-cognitive theory of gambling, shows how the false beliefs of gamblers can lead to chasing losses, changes in mood, withdrawal and secretiveness, deceitfulness, irritation and anger, and foolish financial transactions. These changes at the individual level, coupled with the large loss in income, would be expected to impact on the family life, employment, and social life of the gambler.

Persistence with gambling causes not only financial loss, but also absorbs large amounts of the gambler's time. The time away can be expected to impact heavily on the family and on

employment. Thus, to the group of spouses that includes "golfing widows" and "fishing widows," should be added "gambling widows." The impact on the family of excessive involvement in leisure activities or employment is common across activities and may be a cause of family argument and distress. However, it is likely that time away is for most gamblers and their families a minor factor compared to the financial losses suffered by the persistent gambler.

Apart from the loss of time and money, there is one further area of loss that is more difficult to quantify. Gambling can be characterized as a background of failure broken only by occasional success. According to cognitive accounts of persistence with gambling, the gambler holds a set of erroneous beliefs about the nature of gambling and the role of the gambler in relation to the gambling. Persistence with gambling increases the likelihood of overall loss. Thus the gambler is continually engaged in searching for explanations that maintain the core beliefs. The mass of evidence suggesting that the gambler's beliefs are erroneous is a continuing stress that can be expected to cause loss of self-esteem and, ultimately, depression. It would not be surprising to find that some gamblers show evidence of this stress in aspects of their physiology and biology (Blaszczynski, Winter, & McConaghy, 1986; Carlton & Manowitz, 1987; Sharpe et al., 1995).

One problem that general theories of gambling must confront involves specifying why only a minority of regular gamblers suffer problems to the extent that they ultimately seek counseling and treatment. Individual differences in persistence with gambling have been explained in terms of personality differences (Zuckerman, 1979), biological differences (Jacobs, 1986), and learning differences (Dickerson, 1984). However, perhaps the most valuable insights concerning individual differences in gambling have been provided by Orford (1985) and Oldman (1978). Orford asked the important question as to why not all gamblers continue gambling until their money is exhausted. If gambling is intrinsically rewarding, progression to gambling problems and pathology would be expected. Yet the majority of gamblers control their gambling sufficiently to avoid the potential problems. Thus, inability to exercise control over the desire to gamble is an important aspect of the genesis of gambling problems. Orford suggests that gambling problems may involve the conjunction of excessive appetites, incomplete socialization of control over appetites, and the availability of opportunities to gamble. Evidence for such a view of gamblers comes from observational studies of

regular gamblers that show that most are able to modify their approaches to gambling when demanded by changed financial circumstances (Rosecrance, 1986). Oldman (1978) took the argument one step further by pointing out that gambling problems were a natural consequence of persistence with gambling. The label "pathological gambling" may thus be a means by which society negotiates the counseling and treatment of gamblers who are sufficiently unlucky that they lose too much (Oldman, 1978; Walker, 1995).

6.26.5 DEFINITION AND ASSESSMENT OF PATHOLOGICAL GAMBLING

Pathological gambling was officially recognized in 1980 with the publication of *DSM-III* (APA, 1980), and was classified as an impulse control disorder. The *DSM-IV* (APA, 1994) defined 10 criteria reflecting different aspects of pathological gambling. To assign the diagnostic of pathological gambling, the individual must meet at least five of these criteria. As mentioned above, if most individuals gamble without it being a problem, some will eventually become overwhelmed by the desire to gamble, will gamble more than they planned, and will eventually spend more money than they can afford to lose. Pathological gambling is characterized by a loss of control over gambling, lies about the extent of involvement with gambling, family and job disruption, stealing money, and continuous chasing of losses. From a clinical perspective, two elements are the most representative of a pathological gambler: continuous or obsessional chasing of losses; and family, job, and social disruption caused by gambling.

In our clinic (R. L.), we have recently adopted a multistep evaluation procedure. When an individual calls for help for a gambling problem, we return the call within 24 hours. During this first call, we ask the gambler to describe his main complaints and then administer the South Oaks Gambling Screen (SOGS). The SOGS is a 20 item instrument used in many prevalence studies around the world to identify the number of pathological or problem gamblers in the general population. It has been translated into many languages including French, Chinese, German, and Spanish. If preliminary data collected during the phone call suggests that the individual is a pathological gambler, a formal semistructured interview is immediately scheduled in order to identify the nature and history of the problem. Before starting this interview, the individual will be asked to complete questionnaires evaluating the following areas: depression, anxiety beliefs about gambling

(Ladouceur, Arsenault, Dubé, Jacques, & Freston, 1997), superstitious behavior (Ladouceur, Giroux, & Jacques, 1988), and problem solving abilities. The interview is divided into two sections and covers the following aspects: history of the gambling activities; motivation for the consultation; first contact with gambling; first problems with gambling; familial, professional, and marital problems; money lost and criteria of pathological gambling. The last step in our evaluation is the second administration of the *DSM-IV* in order for the therapist to confirm the diagnostic of pathological gambling. If the individual is diagnosed as a pathological gambler, treatment is offered and usually starts the next session after the evaluation procedure.

This procedure has many advantages. First, the gambler is contacted within the 24 hours after his call. Second, the telephone interview focuses on the gambling problem (description of the main complaints and the administration of the SOGS), thus setting the purpose of the consultation and the subject matter of further treatment, if necessary. Third, this assessment procedure provides relevant information about the different aspects of the gambler's life problems (family, job, social, legal, financial, etc.). Fourth, this procedure will provide useful data for the validation of various instruments, and on the characteristics of the patients who refuse or drop out of treatment. As will be discussed later, adherence to treatment is a major concern for professionals working with pathological gamblers. We need to identify the characteristics and the reasons of individuals who refuse treatment, drop out, or simply do not show up for the first session.

6.26.6 PREVALENCE OF PATHOLOGICAL GAMBLING

The prevalence of pathological gambling is the percentage of the members of a society at a given point in time whose gambling is pathological according to some agreed criterion. Nearly all studies of the prevalence of pathological gambling have used one or other of the two measures described: the *DSM-IV* criteria and the SOGS. Most of the research has been conducted in the USA by Rachael Volberg on a state by state basis (Volberg, 1996), although substantial numbers of studies have been conducted outside the USA, such as in Canada (Ladouceur, 1996), Spain (Becona, 1996), Australia (Dickerson, Baron, Hong, & Cottrell, 1996), and New Zealand (Abbott & Volberg, 1996).

Comparison of the data from the studies reviewed by the authors listed above is made

difficult by the fact that the details of the designs varied considerably across research groups. Volberg and Ladouceur used telephone surveys, whereas the surveys in Spain, Australia, and New Zealand used door knock surveys. Becona used *DSM-III-R* criteria whereas other researchers based their conclusion on the SOGS. Although most research has adopted a cut-off of five on the SOGS for the identification of pathological gamblers, Dickerson has argued that the cut-off should be higher. Finally, the SOGS itself may not be a sufficiently accurate indicator of pathological gambling for use in the prevalence research (Walker & Dickerson, 1996). Thus, current estimates of the prevalence of pathological gambling must be treated with a degree of caution. Nevertheless, the available evidence suggests that the occurrence of pathological gambling varies from country to country. Walker and Dickerson note that the prevalence figures for pathological gambling are correlated with the average expenditure on gambling across countries. Thus, in countries in which a higher percentage of personally expendable income is spent on gambling, there is a higher reported prevalence of pathological gambling (Table 1).

Evidence of this kind strengthens the argument that gambling-related problems are primarily associated with the loss of excessive amounts of money. Theories of pathological gambling must explain why the gambler persists in gambling despite such losses. Cognitive theories assume that it is erroneous beliefs and inferences about gambling and the likelihood of favorable outcomes which maintains the behavior in the face of serious monetary losses. It follows that a cognitive approach to therapy is the one that will attempt to correct the erroneous thinking involved.

6.26.7 PSYCHOLOGICAL TREATMENT OF PATHOLOGICAL GAMBLERS

The central assumption of cognitive approaches to treatment is that the pathological gambler continues to gamble because they

maintain an unrealistic hope that they will recover their losses if they persevere with the gambling. It is assumed that their erroneous beliefs about gambling, about the nature of predictability, and about their own special skills and knowledge in relation to predicting gambling events, conspire to maintain the gambling far beyond any reasonable limits. It follows that any correction of erroneous perceptions weakens the belief that losses can be recouped. However, alternative approaches to the treatment of pathological gambling are not based on these assumptions. There are in fact two main alternatives to the erroneous thinking approach: (i) the behaviorist orientation, based on the use of extinction processes; and (ii) the problem solving approach where the gambler is counseled in methods appropriate to solving problems causing the gambling. Both orientations assume that the central motivation is not avarice, but some other factor altogether. These two approaches differ in the level at which they assume the relevant processes are operating: molecular and below awareness for the behavioristic approach; conscious planned processes in the problem solving approach.

The behavioral approach assumes that gambling-based arousal is the central factor in the reinforcement process. It is assumed that the increase in arousal associated with gambling is positively reinforcing. With repeated gambling a whole range of associated stimuli become conditioned reinforcers. Approach to, and participation in, gambling in regular gamblers are triggered by a wide range of environmental features: the sight of the newspaper, driving the car, leaving work, the sight of money in the wallet, and so on. The wide range of factors associated with gambling is often referred to, at the macro level, as preoccupation with gambling. Treatment makes use of established learning theory principles involving extinction of the association between arousal and central conditioned elicitors. The most effective specific treatment program using the behavioral approach appears to be imaginal desensitization (McConaghy,

Table 1 SOGS scores and gambling expenditure across countries.

Country	SOGS scores (% scoring 5+)	Expenditure on gambling (% of personal consumption) ^c
Australia	7.1	1.6
New Zealand	2.7	0.9
Spain	1.5 ^a	0.7
Canada	1.2 ^b	0.5

^aMeans of estimates provided by Becona. ^b Ladouceur's data only. ^cHaig (1985).

Armstrong, Blaszczynski, & Allcock, 1983; Blaszczynski, McConaghy, & Frankova, 1991). Imaginal desensitization involves creating a list of specific gambling triggers for the individual. The gambler is taught standard muscle relaxation techniques. Finally, the gambler is asked to imagine the trigger situations one by one, each time accompanied by the relaxation procedure. In this way, the association of arousal with each of the triggers is extinguished. McConaghy, Blaszczynski and co-workers treated 60 pathological gamblers with the imaginal desensitization procedure, and a further 60 pathological gamblers by a range of other techniques (aversion therapy, relaxation therapy, and cue exposure). Of the 60 pathological gamblers treated by imaginal desensitization, only 33 could be followed up two or more years later. However, of these 33, 26 (79%) were gambling in a controlled way or not at all. In the control group, only 16 (53%) of the 30 followed up had achieved control or abstinence.

The problem solving approach refers to a general orientation towards treatment rather than a coherent orientation towards the causes of pathological gambling. The actual causes of the gambling are assumed to be a variety of factors determined primarily according to the implicit theories of the counselor. According to addiction counselors, the gambler is driven by intense urges to gamble repetitively and in a maladaptive way. Thus the problem solving approach is oriented to increasing the gamblers ability to cope with the urges and to provide action alternatives that can be used to redirect the energies involved into alternative less hazardous directions. Many counselors believe that the gambling is an escape from crises and dilemmas which cause the individual great anxiety. Thus the problem solving approach is oriented to dealing with these other issues for which the gambling is an escape. There is a considerable body of research suggesting that counseling approaches yield improvement within a before-and-after design (Walker, 1992), little research has been done in which alternative therapies are compared or control groups used. The evidence available suggests that significant improvement may occur in a group of untreated pathological gamblers in a six month period (Echeburua, Baez, & Fernandez-Montalvo, 1996). Thus the necessity for controlled trials with longer-term follow ups (two years or more, ideally) is apparent.

The cognitive approach to the treatment of gambling is based on experimental work demonstrating a wide range of cognitive errors made by gamblers in relation to gambling (Ladouceur & Walker, 1996). The research of

Ladouceur and his colleagues in Canada suggests that the core cognitive error lies in the gambler's notions concerning randomness. The illusion of control and belief in the predictability of events that depend on the misconception of randomness are assumed to lead ultimately to the bizarre beliefs documented by Coventry (1997), Walker (1992), and others. Gamblers try to control and predict outcomes of games that are objectively uncontrollable. The illusion of control motivates them to elaborate strategies to win more money. However, all gambling is based on the inherent unpredictability of gambling events either through inadequate information, as in sports betting, or through the incorporation of randomness as in slot machines, casino games, and lotteries. It follows that if the erroneous perceptions and understanding of randomness in the gambler can be corrected, then the motivation to gamble should decrease dramatically. Our treatment programs have focused on erroneous cognitions concerning randomness as the most important targets for change. The whole range of erroneous cognitions, sometimes labeled "irrational thinking" and which constitute the illusion of control, are also important targets for change. Since persistent gambling induces a range of other problems these are also treated. The loss of money is associated with many of these problems. Training in problem solving techniques appears to be appropriate and necessary in some cases. Also, many gamblers often lie and isolate themselves in order to gamble, and so social skills training may be necessary to help the client to reestablish adequate social relationships.

In order to evaluate the effectiveness of cognitive theory for pathological gambling, a controlled study has been undertaken at Laval University. Four components were included in the therapy: (i) cognitive correction; (ii) problem solving training; (iii) social skills training; and (iv) relapse prevention. These components are now described and are followed by a case study which illustrates how these elements have been integrated in the treatment of a pathological gambler. Treatment is administered on an individual basis with one 60–90 minute session per week, over a period of 12 weeks.

6.26.7.1 Changing Erroneous Beliefs Concerning Randomness

Correction of the misunderstanding of randomness is the first goal of the treatment. Different approaches to this task are possible according to the characteristics of the individual. However, only the general guidelines will be

described here. First of all, most gamblers are not aware of their erroneous perceptions of randomness. They spontaneously deny that they maintain such false conceptions. Increasing awareness of the actual way in which gambling events occur is a first step in enabling gamblers to recognize their misconceptions concerning the predictability of the game (Ladouceur & Dubé, 1997; Ladouceur, Paquet, Lachance, & Dubé, 1996). The patient will be asked to describe the evolution of their gambling habits, how they were betting at first, the changes in their betting as they became more familiar with the games, and to what extent they feel they have some potential control over certain games. By asking about the way to get an edge in the particular form of gambling involved, the gambler is invited to expose some of their errors in thinking. Inevitably, the gambler will describe strategies of play which assume that there is more predictability present than is in fact the case (Ladouceur, Paquet, & Dubé, 1996).

The therapist will ask the client to describe what they are saying to themselves when they gamble. In doing so, the therapist may ask the patient to answer the following questions: Why did you place one particular bet instead of another? How did you determine this bet? Are you trying to control the game by avoiding certain bets? Would you agree to switch poker machines in the middle of a session when the machine you are playing has not paid out for a long time? Would you agree to bet on any number at the roulette table? How did you pick the numbers that you did on the lottery ticket you bought this week? The main goal of these questions is to clarify the fact that the gambler is using some sort of information to predict an event which is independent of all other events and essentially unpredictable beyond its chance probability.

The therapist makes a distinction between gambling that involves events that are inherently unpredictable because of inadequate information (such as horse racing) and events which are random (such as lotteries or slot machines). The therapist then shows that inherently unpredictable events are essentially the same as random events. Then, explanation of the concept of randomness follows, focusing on the most crucial element: each turn is an independent event (Gaboury & Ladouceur, 1989; Walker, 1992). Since each event is independent, there can be no influence from one event to the next and no predictability across events. Furthermore, as the events cannot be influenced legally, there can be no strategies to control the outcomes of the game. The therapist will focus on the strategies used by the gambler in their preferred game, and draw

attention to the specific strategies that imply a sequential relationship between outcomes or that the probabilities of specific outcomes can be altered. The therapist should focus attention on any verbalizations made by the gambler that suggest the existence of links between the outcomes of the games. We often tape record these sessions in order to capture and analyze all of the patient's verbalizations suggesting links between the outcomes of the games. This recorded material is used to increase the patient's awareness, and later on to correct faulty perceptions.

Another useful way to illustrate the erroneous links inferred between events is by tossing a coin with the patient. First the patient is asked to predict whether the next event will be "heads" or "tails" and to explain and justify his choice (Ladouceur & Dubé, 1997). Most patients will say that their choice is based on a 50/50 probability of each possible outcome, which is indeed correct. This exercise is carried out a few times in order to demonstrate that predicting heads or tails is such a simple game, and that all of the outcomes of the toss are independent. Gamblers will generally agree with the therapist. Then, in order to demonstrate the presence of erroneous cognitions during a gambling session, a simple test is performed.

The therapist writes down six consecutive outcomes of heads and covers them with a piece of paper. Once again, the patient is asked to predict the outcome of the next toss. After their choice has been made, the six previous outcomes are revealed and the patient is asked if they would like to change their prediction before the coin is tossed again. Whether they change their prediction or not, patients will examine this series of outcomes. The therapist then points out the fact, that although the gambler knew that every outcome of a coin toss is independent, they spontaneously examined past outcomes even though these are completely irrelevant. This simple behavioral exercise has proven to be very helpful for demonstrating to the patient how this tendency to link irrelevant events is very powerful. (Ladouceur & Walker, 1996, give an extensive discussion of this phenomenon.)

The notion of randomness is then explained in detail, illustrated by examples of the games played by the patient. The fundamental error is in believing that information may be used to establish links between outcomes and then used to place winning bets. Gamblers will erroneously perceive some elements of skill that, if used appropriately, enhance their probability of winning. This illusion of control explains why people bet more money as they become more familiar with a game, firmly believing that they

have developed some skills that can be used profitably. During this first stage of treatment, it is brought to the patient's attention that in many studies, conducted with different games in different countries, more than 75% of the players' verbalizations are erroneous (Ladouceur & Walker, 1996). Literature detailing the frequent misconceptions of gamblers is also provided to the client.

The pathological gambler is then asked to identify their own erroneous perceptions. This is achieved through a variety of methods such as: asking the patients to describe what they are saying to themselves when gambling (see example below); simulating a game and having the gambler describe how they proceed in choosing their bets; and asking the patient to imagine a gambling session and describe out loud what they are thinking, using the "thinking out loud method" (Gaboury & Ladouceur, 1989). These sessions are also usually recorded. Some examples of erroneous cognition are: "If I lose four times in a row, I will win the next time," or, after one or two wins, "I am really getting better at this game, I know how to bet." We will often start by replaying the tape obtained within an earlier treatment session, to demonstrate to the clients their false beliefs about the notion of randomness. The clients will also be asked to listen to the tape at home and identify every erroneous perception, or irrational statement. It is important to note that the basic cognitive error involves the linking of independent events.

Finally, the last phase involves the correction of inadequate verbalizations and faulty beliefs. Patients will monitor their own verbalizations when they are thinking about gambling, when they have the urge to gamble, or when they are gambling if they have not yet stopped. The patients will (i) identify erroneous perceptions, (ii) evaluate and challenge the adequacy of these perceptions, (iii) replace these inadequate cognitions by adequate verbalizations, and (iv) assess the strength of their belief in the new cognitions. The recording of their own verbalizations made during a simulated gambling session may be used during this corrective phase by asking the patient to reformulate erroneous perceptions by an adequate verbalization. The success of this phase is normally required before addressing further issues. Our clinical experience and empirical data (see below) support the fact that other therapeutic components are likely to be unsuccessful unless the gamblers have developed an adequate conception of the notion of randomness and can apply this notion to their own behavior. If the illusion of predictability in gambling events is allowed to remain, relapse is likely to occur.

6.26.7.2 Problem Solving Training

Problem solving training is a second therapeutic intervention, used if the gambler shows poor problem solving skills when coping with excessive gambling activities. Problem solving training becomes an integral aspect of the treatment of the pathological gambler if the therapist and the patient identify that additional skills are needed to solve the actual problems related to excessive gambling. The therapist will introduce a problem solving technique (Goldfried & Davison, 1976) that involves the following five steps: (i) defining the problem, (ii) collecting information about the problem, (iii) generating different solutions, (iv) listing advantages and disadvantages for each solution, and (v) implementing and evaluating the solution. The patient learns how to cope with the difficulties related to gambling. For example, in order to have better control over spending, they may decide to pay their bills immediately after they are issued, create a budget, and carry only the amount of money they need.

6.26.7.3 Social Skills Training

If necessary, gamblers are also given social skills training in order to improve their social competence. The potential link between poor social skills and gambling activities is discussed with the patients. It is important to recognize that pathological gamblers may need more than usual social skills to deal with their relationship conflicts. For example, some gamblers needed assertiveness training in order to increase their ability to refuse invitations to gamble with friends. Role playing can be used to improve communication skills. This training focuses on the negative consequences of gambling and how the lack of good social skills is a contributing factor.

6.26.7.4 Relapse Prevention

Relapse prevention is based on and adapted from the relapse prevention model developed by Marlatt (1985) for alcoholics. The possibility of relapsing is always discussed with the participants. They learn to become aware of high risk situations (present or past) and the reasons why people return to gambling. Patients will describe their relapses, identify high-risk situations, and develop specific ways to deal with the situations. For example, carrying cash (as on pay days), stress, loneliness, and lack of social activities are common high-risk situations. Each situation is discussed in terms of the erroneous perceptions associated with gambling. Specific attention is

drawn to the debt and to the likelihood that the debt will be increased if gambling is resumed.

6.26.8 EFFICACY OF A COGNITIVE/ BEHAVIORAL TREATMENT FOR PATHOLOGICAL GAMBLERS

Single case experimental studies have been conducted over several years to evaluate the cognitive/behavioral approach to treatment for adults and adolescents suffering from pathological gambling. The results were quite encouraging (Bujold, Ladouceur, Sylvain, & Boisvert, 1994; Ladouceur, Boisvert, & Dumont, 1994). The following control group comparison study was conducted to further assess the treatment's efficacy (Sylvain, Ladouceur, & Boisvert, 1997). Twenty-nine pathological gamblers participated in the study. The majority of gamblers were video poker players, whereas others gambled on horse races or casino games. Subjects were randomly assigned to a treatment or a waiting list control group.

The following dependent variables were used:

- (i) *DSM-III-R*;
- (ii) *SOGS*;
- (iii) perception of control over the gambling problem rated on a scale of 0–10;
- (iv) desire to gamble indicated on a 0–10 scale;
- (v) self-efficacy perception evaluating their belief that they could refrain from gambling in high risk situations;
- (vi) frequency of gambling in terms of the number of gambling sessions, the number of hours spent gambling, and the total amount of money spent on gambling during the previous week.

Results showed that treated subjects improved significantly compared to the control group. Treated individuals met fewer diagnostic criteria, reported less desire to gamble, and had a lower *SOGS* score. They also reported a significantly higher perception of control and self-efficacy. In order to provide clinically relevant results, the percentage of change and end state functioning (comparing post-test scores to a criterion score) were calculated. Among the treatment group, 12 of the 14 participants improved by 50% or more on three dependent variables, and on the end state functioning criteria, in comparison to one of the 15 participants in the control group (85% success rate). Finally, six and 12 month follow-up measures indicated that the therapeutic gains were still present, confirming the long-term effects of this therapeutic program. The following case study illustrates the procedure described above.

6.26.8.1 Case History

Peter is 43 years old, married, and the father of two adolescents. He is currently working as a civil servant. He has been playing video poker for four years. At the time of his consultation, he was playing three times a week on average, which resulted in monetary losses of \$350–500 per week (Canadian).

Peter started gambling when two of his colleagues invited him for a drink after work. As soon as they entered the bar, the two colleagues, both video poker players, showed Peter how to play the game. After an initial bet of \$10, Peter won \$125. During the following weeks, he developed an interest for video poker and played often. He occasionally made significant wins, and started believing that video poker was a good way to make money. After six months, his gambling became so intense that he had to use his personal credit and borrow money to cover his losses.

He progressively became obsessed with gambling. He accumulated increasing debts and was constantly preoccupied by the need to recover his money. He neglected his wife and children more and more each day. He lost his motivation to work, he often arrived late after having spent the lunch hour gambling or, he left early in the afternoon in order to play. His spouse did not know about her husband's gambling habits. She began to worry about his repeated lateness in the evening and his incapacity to pay the bills before the due date. She questioned and doubted Peter's justifications for his prolonged absences. Tension and conflicts became commonplace within their relationship. Peter's urge to play increased with his need to recover the lost money so that he could pay his bills, and in order to escape the climate of tension reproaches in his relationship with his wife.

After four years of excessive gambling, the losses were enormous. His absences from home became no longer justifiable and lying was frequent. One day, his boss, worried about Peter's diminished productivity, asked him the reasons for this change. Confronted with the possibility of losing his job, Peter had no choice but to admit that he had a gambling problem. He also decided to tell everything to his wife. Finally, he decided to seek treatment. A diagnostic of pathological gambling was made by the therapist and confirmed by a second experienced therapist who listened to a tape of the first session. The goal of the first intervention was to evaluate his motivation to change. Peter listed the advantages of stopping gambling and the negative consequences the game has had on his life. Monetary losses, professional and

marital problems, and stress were examples of the negative consequences. Also, the return to a normal financial situation, general well-being, and better relationships with the people around him were the main advantages formulated by Peter to stop gambling.

6.26.8.1.1 Identification and correction of faulty cognitions toward gambling

Considering that one of Peter's motivations to gamble was to make money rapidly, it was important to provide him with factual information concerning gambling, and to identify his erroneous cognitions. The therapist asked him to imagine his last gambling session and try to identify his thoughts and the triggering events. Peter reported the following sequence. He left the office and drove toward his usual gambling place instead of going home as he had initially planned. He reported having this reaction instantly, without thinking, as if someone had told him what to do. The therapist had Peter focus his attention on the sequence of events that took place immediately before leaving his office. He was asked to remember what was going on and what he was thinking at that specific moment. Peter remembered putting his documents in order and, by accident, seeing the bills for his credit card that were overdue. The therapist inquired about the thoughts associated with finding unpaid bills. Peter answered that he suddenly felt panic and became very tense. When thinking back on the feeling of panic, he identified the links between this feeling and his unpaid bills. Peter panicked because he did not have the money to pay his bills. This made him so uncomfortable that he wanted to get money to pay them as fast as he could. The therapist finally asked him what he said to himself following this discomfort, and how was he going to solve his problem of obtaining money? At that moment, Peter became aware that he strongly believed that the best way to get a lot of money in a short period of time was by gambling. He realized that this was his motivation to gamble on this last occasion.

The therapist discussed the probabilities of winning, and the negative monetary expectancies of the games which would inevitably result in losses in the long run. The therapist explained that no strategies could be used by the player to win, and that the urge to recover the lost money was, in fact, just an illusion that leads to a vicious circle which can only end in loss. By questioning and confronting Peter's erroneous cognitions over several sessions, he started to realize that thinking he will win money is not realistic. Peter learnt to replace erroneous cognitions with appropriate ones, and to

question his gambling habits (e.g., "Why do I feel like playing?" "I want to make money . . . is this realistic?" "What could happen to me if I play? I risk further loss." "And if I lose, what will happen? I want to recover my money." "Can I really win?" "Even if I win tonight, it will never be enough to compensate for all the money I have lost." "The longer I try to win, the more likely I am to lose.").

6.26.8.1.2 Problem solving and social skills training

This component was used to modify behaviors related to excessive gambling. Peter mentioned going to the bank machine to check how much money he had left in his banking account. This compulsive checking triggered cognitions related to his lack of money, and the need to win more and gamble. Peter became aware of the sequence of these behaviors and realized the links between this checking behavior and his gambling activities. He resolved to stop checking his banking account. Peter also had to modify other relevant behaviors that stimulated gambling such as keeping less cash money with him, not carrying his banking and credit cards, and avoiding bars with video poker machines. Finally, the involvement with new activities, such as sports and family activities, helped Peter to reorganize his timetable and to replace the time spent gambling with less financially damaging activities.

6.26.8.1.3 Relapse prevention

By learning to identify situations with a high risk of triggering a relapse, and by analyzing situations which led him to gamble, Peter developed cognitive and behavioral strategies needed to refrain from gambling.

6.26.9 EVALUATION OF A COGNITIVE TREATMENT FOR PATHOLOGICAL GAMBLING

Following the positive results obtained through this controlled study, it was decided to evaluate the specific role of correcting the fundamental cognitive error about the notion of randomness. From a theoretical and clinical perspective, it was believed that this component was the crucial variable in the maintenance of excessive gambling. The efficacy of a cognitive treatment for pathological gamblers was assessed based on the correction of erroneous cognitions concerning the notion of randomness and, more specifically, through the modification of the gambler's tendency to link independent events when gambling.

Five pathological gamblers from the population described above participated in this study (Ladouceur, Sylvain, Letarte, Giroux, & Jacques, in press). A single case experimental design across subjects was used to assess the efficacy of the treatment. Cognitive correction included four components:

(i) Understanding the concept of randomness—the therapist explains the concept of randomness, independence among events, the impossibility to control the game.

(ii) Understanding the gamblers' erroneous cognitions, mainly the difficulty to apply the principle of independence among events. The therapist explains how the illusion of control contributes to the maintenance of gambling habits.

(iii) Awareness of inaccurate perceptions.

(iv) Cognitive correction of erroneous perceptions.

The dependent variables were the same measures used in the study described previously. Results indicated that all subjects, except one, increased their perception of control and reduced their urge to gamble, thus supporting the prediction that a cognitive treatment, based on the correction of erroneous perception about the notion of randomness, decreases pathological gambling. The treatment outcome of this intervention provided positive results equivalent to those obtained by a multicomponent intervention. Therefore, cognitive correction of erroneous perceptions toward the notion of randomness is likely to be the key element in the treatment of pathological gambling. We are now replicating this study with a greater number of subjects, using a controlled group comparison design. In conclusion, these therapeutic interventions, with an 85% success rate, open new avenues for the treatment of pathological gambling.

6.26.10 COMMON DIFFICULTIES IN THE TREATMENT OF PATHOLOGICAL GAMBLERS

Clinicians who have treated pathological gamblers have been confronted with a number of difficulties. We will briefly mention the most common and difficult ones encountered over the years in our clinic where approximately 200 pathological gamblers have been interviewed. The first and most important issue is treatment compliance. Very often, individuals will ask for an appointment but, without canceling, will not show up. They frequently drop out after one or two sessions, or will simply decide to terminate treatment after a few weeks of abstinence, thinking that their problem has been solved.

There are no obvious solutions to these matters. Our clinical experience has led to the development of a series of procedures used to improve treatment compliance.

First of all, when an individual contacts us, we return the call within 24 hours, conduct a brief telephone interview, and administer the SOGS. If the individual appears to be a pathological gambler, an appointment is scheduled within a week at which point we conduct a structured interview and administer a series of questionnaires. If therapy is undertaken, the therapist will inform the patient that compliance is a major difficulty for pathological gambling and explore ways to overcome this problem. Furthermore, the patient will sign a contract indicating that they agree to participate for at least 10 sessions, and that if they are unable to attend, they will call ahead of time to cancel the session, that they will pay one session in advance, and that after two nonmotivated absences, treatment will be terminated.

A second difficult issue is determining whether the goal of the treatment should be controlling the gambling or abstinence. Many pathological gamblers ask that the goal of treatment be controlled gambling. Some will be very convincing and will put forth appropriate and rational arguments. We have often caught ourselves spending many sessions discussing this difficult subject without finding a solution. Gamblers suggest that controlled gambling is the main goal, simply because they cannot see themselves abstaining from this activity, or simply because they are not ready to stop gambling. Our approach on this matter is to consider abstinence as the main goal, and then once it is achieved, the matter can be reconsidered. In a few cases, instead of losing the patient, we have accepted controlled gambling as the main goal of treatment. However, this solution should never be accepted except as a last option.

The third difficulty is identifying erroneous perceptions towards the notion of randomness as discussed above. Often, pathological gamblers will simply deny that they have these misconceptions. The best way to pursue this matter is to design some behavioral experiment to facilitate the identification of erroneous perceptions. Gamblers deny these perceptions because they are not aware of them.

6.26.11 CONCLUDING REMARKS

This account of pathological gambling takes a cognitive perspective. It is assumed that pathological gambling occurs when the gambler persists in gambling, despite the losses involved,

believing that ultimately the losses will be recovered and money will be won. These false beliefs of the gambler are maintained by the inadequate knowledge of the probabilities of success and the erroneous interpretation of the notion of randomness. If this account of the motivation to gamble is correct, then it follows that pathological gambling can be treated effectively by correcting erroneous beliefs of the patients. This chapter presents data supporting this theoretical position.

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