Chapter 8

A Dynamic Process Perspective on Gambling Problems

Carlo C. DiClemente, Ph.D., Janine Delahanty, M.A. and Debra Schlundt, B.S.

Many perspectives have been used to understand how people become addicted and how they change (Glantz & Pickens, 1992; Orford, 1985; Rotgers, Keller & Morgenstern, 1996). A review of these explanatory models reveals that becoming addicted usually involves multiple determinants representing very different domains of human functioning. Some influences come from inside the individual and include biological and psychological vulnerabilities. Others are related to societal influences. The search for a single explanatory construct at a single point in the life of an individual that would explain how that individual becomes addicted appears futile. Similarly, once a person has developed an addiction, it is difficult to pinpoint a single factor explaining how cessation or recovery occurs.

Numerous studies have sought to identify the characteristics and risk factors of individuals that make them vulnerable to pathological gambling. Some have identified parental gambling (Govoni, Rupich & Frisch, 1996); others have identified behavior similar to Attention Deficit Disorder (ADD) (Lopez Viets, 1998). There is some evidence pointing to the involvement of impulsivity (Vitaro, Ferland, Jacques & Ladouceur, 1998) or video arcade games (Fisher & Griffiths, 1995; Gupta & Derevensky, 1996). Others have found a connection between gambling and substance abuse (Cunningham-Williams, Cottler, Compton & Spitznagel, 1998; Feigelman, Wallisch &

Lesieur, 1998; Gupta & Deverensky, 2000; Lesieur & Blume, 1991; McCormick, 1994; Winters & Anderson, 2000) and psychiatric comorbidity (Crockford & el-Guebaly, 1998). In one review Spunt, Dupont, Lesieur, Liberty and Hunt (1998) highlight sex differences in gambling initiation indicating that males are encouraged by the thrill of winning while females are more likely to seek escape from personal problems (see the reviews by Deverensky & Gupta, 2004; Dickson, Derevensky, & Gupta, 2004; and Stinchfield, this volume for an examination of risk factors associated with youth gambling problems). These data create a complex, complicated collage of factors contributing to the initiation of gambling problems that involve biological, psychological, and sociological determinants. There is substantive evidence to support the involvement of each of these areas of influence on gambling problems. Blum, Cull, Braverman and Comings (1996) have found evidence for the influence of genetics and neurotransmitters. Moore and Ohtsuka (1997) found that *Theory of Reasoned Action* variables and some personality characteristics accounted for some of the variance in gambling behavior. Reinforcement schedules, access and availability have also been shown to influence gambling behavior (Emerson & Laundergan, 1996; Gupta & Derevensky, 1996; Shaffer, 1996). Gambling behavior is multi-determined in origin in a manner that is similar to other addictive behaviors (DiClemente, 2003; Glantz & Pickens, 1992).

It can be helpful to draw on knowledge regarding the initiation of abuse and dependence on alcohol, illegal drugs, and nicotine when seeking to understand the causes of problem and pathological gambling (DiClemente, 1999; DiClemente, Story, & Murray, 2000; Glantz & Pickens, 1992). As one reviews the research and theoretical perspectives proposed to understand gambling and other addictive behaviors (e.g., Huba & Bentler, 1982; Jessor & Jessor, 1977; Moore & Ohtsuka, 1997; Tarter & Mezzich, 1992; Vitaro, Ferland, Jacques & Ladouceur, 1998), it becomes clear that no one developmental model or singular historical path can explain acquisition of and recovery from addictions (Chassin, Presson, Sherman & Edwards, 1991; Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995; Schulenberg, Maggs, Steinman, & Zucker, 2001). To explain any addictive behavior as having a single causative or curative factor is naive. Gambling and other addictive behaviors begin and develop within the context of familial, societal, cultural, genetic, and biochemical influences, and personal circumstances. Individual and societal factors can help us understand initiation. However, in order to accurately portray the initiation and cessation processes these factors must be viewed within the context of the individual and group-level variability of those who move through experimentation and social engagement to more problematic and pathological forms of gambling behavior and then from pathological gambling to remediation or recovery.

The Transtheoretical Model (TTM) of Intentional Behavior change has been used to provide a conceptual framework that integrates divergent perspectives by focusing on how rather than why individuals change behavior. It is the personal pathway and not simply the type of person or environment that appears to be the best way to integrate and understand the multiple influences involved in the acquisition and cessation of addictions. The TTM model identifies key dimensions involved in this process (DiClemente, 2003; DiClemente & Prochaska, 1998; Prochaska & DiClemente, 1984). Beginning and stopping an addictive behavior involves unique decisional considerations. Individuals' choices influence and are influenced by both character and social forces. For each individual, acquiring or leaving an addiction, there is an interaction between risk and protective factors and personal decision-making that helps determine the outcome. Transitions into and out of addictions do not occur without the active participation of the individual. The TTM views addiction through the perspective of a process of change and the personal journey through this intentional change process influenced at various points by the host of risk and protective factors.

This chapter offers a view of the process of initiation and cessation of gambling problems using the basic elements of the Transtheoretical Model of Intentional Behavior Change. The acquisition and cessation of addictive behaviors will be best understood as movement through a series of stages of change. Conflicting information about the determinants of initiation may be the result of a simplistic dichotomous (on/off) view of pathological gambling. This stage model provides a multi-step perspective for examining how environmental influences, thoughts, and expectancies interact with experimentation, which, in turn, leads to increased involvement from occasional recreational gambling to planned regular patterns of engagement that can become problematic and eventually result in maintained addiction (DiClemente, 2003). However, at the outset, it is important to note that experimentation does not always lead to or promote pathological gambling involvement. In fact, many individuals who engage in gambling behaviors do so more or less regularly without significant problems, with adherence to present limits and acceptable financial losses (e.g., gambling losses that occur are within tolerable limits). The vast majority of youth who engage in gambling do so without becoming pathological gamblers or experience significant problems.

Research into recovery from gambling problems, although in its infancy, also suggests that many individuals recover from gambling problems and that natural recovery may be the rule rather than the exception (Slutske, Jackson & Sher, 2003). However, the notion of natural recovery has not been explored with adolescent problem gamblers. Although prevalence of

problem gambling during the past-year and lifetime were rather stable across time in Slutske et al.'s study, problem gambling seems to be episodic with individuals moving into and out of problem gambling over time. Nevertheless, there is ample support that treatment can be helpful. In a recent review of controlled studies, cognitive-behavioral treatment interventions received empirical support (Toneatto & Ladouceur, 2003). Although there are some differences that are intriguing, the process of recovery from gambling problems appears similar to other types of addictions. Similarities and differences make gambling a very interesting addictive behavior to examine in light of this dynamic process perspective (DiClemente, Story & Murray, 2000) (for a similar and more extensive discussion of adolescent initiation of gambling see DiClemente, Story, & Murray, 2000).

Transtheoretical Model of Intentional Behavior Change

The Transtheoretical Model is an integrative perspective that has attempted to characterize both the process of initiation of addictive behaviors and that of recovery (modification or cessation) from these behaviors (DiClemente, 2003; DiClemente, 1994; Prochaska, DiClemente & Norcross, 1992). Paths leading into addictive behaviors as well as those stopping their behaviors are best understood within a complex change process. This process of change provides an informative, overview that can help make sense of initiation and cessation of gambling as well as other addictive behaviors across variations in individual and group level characteristics (DiClemente, 2003).

The four dimensions identified in the Transtheoretical Model represent distinct aspects of the process of intentional behavior change. Patterns of behavior are not usually created, modified, or stopped in a single moment in time. There are steps or segments to the process labeled *Stages of Change.* These stages depict the motivational and dynamic fluctuations of the process of change over time. Each stage represents specific tasks that must be accomplished and goals that need to be achieved if the individual is to move forward from one stage to the next (DiClemente, 2003). Individuals move from the *Precontemplation* stage (not considering initiating or absence of a desire to change a behavior), where the task is arousing some interest or concern that would support consideration of change to *Contemplation* (seriously considering it) where a risk-reward analysis leads to a decision to change. From there, individuals move on to *Preparation* (preparing to change) where commitment and planning are critical tasks, to *Action* (performing the actual behavior) with the goal of establishing a new pattern of behavior. Finally, individuals will seek to move to *Maintenance* (sustaining the behavior change over time) where

the task is to integrate the new behavior into the individual's lifestyle. The second dimension, *Processes of Change,* represents the engine (activities and experiences) that helps individuals move through the various stages. There are identifiable sets of cognitive/experiential and behavioral processes gleaned from various theories of therapy that act as the engine for movement through the specific stages (Prochaska & DiClemente, 1982). A holistic perspective is needed in order to understand fully the process of human intentional behavior change. The third dimension, *Context of Change,* represents areas of functioning where issues, problems, resources or liabilities can facilitate or hinder successful change of a given pattern of behavior. The five areas of functioning identified in the TTM are current life situation, beliefs and attitudes, interpersonal relationships, family/social systems and enduring personal characteristics (DiClemente, 2003; DiClemente & Prochaska, 1998; Prochaska & DiClemente, 1984). Issues and problems in any one of these areas of functioning can act as facilitating or restraining factors that may moderate or mediate movement through the stages of change for any given behavior.

The final dimension is perceived to be *Markers of Change.* Two related constructs have been examined consistently in research using the Transtheoretical Model: *Decisional Balance* and *Self-Efficacy.* Decisional balance identifies the relationship between the positive and negative motives for change (Janis & Mann, 1977) and has emerged as an important marker of movement through the early stages of change (Prochaska et al., 1994; Velicer, DiClemente, Prochaska & Brandenberg, 1985). On the other hand, Self-Efficacy, Bandura's concept describing an individual's confidence to perform a specific behavior, emerged as an important predictor of action and long-term success (Bandura, 1977,1997; DiClemente, Carbonari, Montgomery & Hughes, 1994; DiClemente, Fairhurst & Piotrowski, 1995; DiClemente, Prochaska & Gibertini, 1985; Velicer, DiClemente, Rossi & Prochaska, 1990). These four dimensions form the basic constructs of the model that are used to understand the process of change, interacting in a predictable manner and representing constructs that are empirically verifiable.

This overview of the process of intentional behavior change has been used to characterize the initiation of behaviors that protect and promote health behaviors (e.g., exercise, mammography, etc.), as well as those that create health-related problems (e.g., smoking, illegal drugs, etc.). This same change perspective has been used to characterize modification and cessation of problem behaviors (e.g., alcohol abuse and dependence, obesity, anxiety, etc.) (DiClemente, 1999; DiClemente & Prochaska, 1998). Clearly, there are specific differences and unique considerations for each of the behaviors studied as well as differences between initiation and cessation that must be considered. However, there does appear to be an underlying

process of change that is similar for both initiation and cessation that applies across behaviors (DiClemente, 2003; DiClemente & Prochaska, 1998; Prochaska et al., 1994). Informed appreciation of the similarity in the process can enrich our theory and enhance our prevention and intervention efforts (Werch & DiClemente, 1994).

The Process of Initiation of Gambling

Even those individuals who become pathological gamblers began initially as pre-contemplators at some point in time. Precontemplators are not considering change of a current behavior pattern or adoption of a new one. The individual in precontemplation does not perceive the need to move toward gambling. This new behavior is either viewed as irrelevant, unwanted, not needed, or unacceptable. These individuals may have moved into contemplation and considered engaging in the behavior before returning to precontemplation or may simply be in precontemplation by virtue of lack of interest or opportunity. Whatever the reason, individuals in precontemplation are not considering the specific changes that would move them from the current pattern of behavior to one that includes gambling (Werch & DiClemente, 1994). Surveys of youth indicate that the majority of youth move out of this precontemplation stage for the first time in early adolescence (some by age 10) with over 60% reporting gambling by high school (Arcuri, Lester & Smith, 1985; Gaboury & Ladouceur, 1993; Gupta & Derevensky, 1997). Most pathological gamblers, in particular, began gambling early in life (Gupta & Derevensky, 1998a; National Research Council, 1999; Shaffer & Hall, 1996; Winters, Stinchfield & Fulkerson, 1993). One early study found that 37% of pathological gamblers began gambling by ten years of age, 47% between 11 and 18, and only 14% initiated gambling after the age of 18 (Dell, Ruzicka & Palasi, 1981).

Although many pathological gamblers report starting young, the converse is also true as many recreational gamblers also started gambling at a young age but fail to become pathological gamblers. Many youth move out of precontemplation but never move along the path that leads to becoming pathological gamblers. Understanding how and why certain individuals follow the paths through the process of change to different outcomes is the goal of the Transtheoretical Model.

Contemplation is the stage wherein attitudes and expectancies are developed as the individual considers the pros and cons of gambling. Consideration of change allows for an exploration of the positive and negative aspects of the current status quo and of the positive and negative expectations associated with the potential new behavior pattern. Although human behavior

does not always appear rational or logical, individuals require a rationale to leave the status quo and begin a new behavior. While information and modeling offer important data for decision-making, experimentation is the way an individual gathers first-hand information about the pros and cons of engaging in a new behavior. Therefore, in the contemplation stage individuals who will move forward in the initiation process begin to develop at least some positive attitudes toward gambling and engage in initial experimentation with gambling.

Being prepared to engage in regular gambling activities requires some plan of premeditated action and the dedication to follow through with that plan. To make any change, the individual needs to focus attention and energy on breaking or leaving an old pattern of behavior and creating a new one. Planning involves organizing the environment and developing strategies that enable the individual to make the changes in the current behavior pattern that would be needed to create a new pattern of behavior. These tasks of reorganizing the environment and of implementing effective change strategies require energy. One of the most frequent reasons given by individuals for not changing is the lack the time, resources and energy required. Finding the time and energy is really a matter of commitment. Once an individual has had a gambling experience and likes it, the decisional balance becomes tipped toward engaging in the behavior again. This may occur as a result of winning or losing (Gupta & Derevensky, 1996). The individual subsequently begins to find ways to gain greater access to gambling activities. Although gambling often appears to be an activity that is spontaneous, impulsive, and not planned, many elements that are required for engaging in gambling behavior require forethought (access, financial resources, opportunity). Individuals in the preparation stage are prepared to engage and are open to opportunities to participate in this potentially high-risk behavior. This planning and commitment moves individuals from contemplation to preparation and ultimately to action.

The actual implementation of one's plan represents the *Action* stage of change. Modification or elimination of an old pattern of behavior and beginning to engage in the new behavior comprises the action step. In general, it may take weeks rather than days to establish a new pattern of behavior, and months rather than weeks to make it habitual. Three to six months is usually the suggested duration for the *Action* stage for behaviors that have a high frequency of occurrence, such as smoking which is practiced on a daily basis (DiClemente & Prochaska, 1998). This period may be longer for behaviors like gambling or cocaine use that often occur in a less than daily pattern, or shorter if the reinforcers are particularly potent for an individual. Once the new behavior pattern is solidly established, the task becomes sustaining or continuing the behavior, which occurs during

the Maintenance stage. Two paths constitute action toward the maintenance stage. The first path involves actively engaging in gambling and establish a pattern of gambling behavior that is non-problematic and under self-regulation. For these individuals gambling is a leisure past-time and form of entertainment engaged in with limit-setting and without loss of control, although engaged in repeatedly (e.g. small betting on lottery scratch cards). The second path would comprise more problematic gambling. Here, individuals experience negative consequences and gambling-related problems, ignore them, and have impaired self-regulation.

Maintaining a new behavior pattern requires that the behavior becomes integrated into the lifestyle of the individual (which is the primary goal of the Maintenance stage of change). During the maintenance stage the new behavior pattern becomes engraved and requires little thought and effort to sustain it. The changed behavior pattern becomes the normative behavior pattern that is a familiar and integral part of the individual's behavioral repertoire. For the self-regulated gambler, the pattern is one of occasional or regular participation in lottery, card playing, sports betting, video-lottery playing or casino visits remains enjoyable, exciting and a form of relaxation. For the problematic gambler, the pattern becomes one of regular excessive engagement in gambling behaviors with significant negative consequences that accumulate over time. The well maintained patterns of both the self-regulated gambler and of the problematic gambler become a part of the individual's life and both patterns become highly resistant to change.

The maintenance stage for initiation of gambling has all the characteristics referred to as defining symptoms in the diagnostic categorization of compulsive gambling—recurrent engagement despite problems, failure to stop, preoccupation, and disruption in other areas of life (American Psychological Association, 1994). Lack of financial resources can make smaller losses problematic and can encourage illegal activities to obtain money for gambling. In many cases, engagement in gambling is already an illegal activity for some, depending on age and existing laws. Responsible, self-regulated gambling may be more difficult to achieve for regular adolescent gamblers. Thus, the path through action more easily moves into a problem and/or pathology track. Longitudinal studies of adolescents are needed to understand how adolescents move through this process of initiation of pathological gambling, to identify the critical markers of the transitions from one stage to another, and to delineate the loss of self-regulation.

This sequence of stages, as proposed in the model, identifies the critical experiences or tasks that accompany movement from one thinking or behavior pattern to another. According to the model, movement from an absence of gambling behavior at one extreme to regular problematic

gambling at the other would follow a path of change characterized by this sequence of stages. This assumption is based on initiation patterns of other addictive and health-related behaviors (DiClemente & Prochaska, 1998; Prochaska et al., 1994; Werch & DiClemente, 1994). However, strictly linear movement through these stages in a short period of time appears to be the exception and not the norm (Carbonari, DiClemente, & Sewell, 1999). Individuals can stay in a single stage, like contemplation, for a long period of time. At times they move backward as well as forward through early stages (precontemplation, contemplation, and preparation), while being influenced by peers, their environment, and opportunity. Finally, many move into action, begin to experience negative consequences that shift the decisional balance against regular gambling, and then they return to an earlier stage in the process of change. Movement through the stages of change is typically more cyclical and circuitous than the linear description of movement presented above. However, some individuals may move more quickly through the stages than others. Some adolescent pathological gamblers appear to move through these stages rather quickly, aided by biological factors, social setting, parental example, and other risk factors (Cunningham-Williams et al.,1998; Feigelman et al., 1998; Gupta & Derevensky, 1997; 1998a; Winters, Bengston, Dorr & Stinchfield, 1998)

The Problem Gambler and the Change Process

As individuals reach the maintenance stage of problematic, pathological gambling, their behavior becomes highly resistant to change. The well-maintained addictive behavior is integrated into the lifestyle of the individual and has become a significant source of reinforcement for that individual. The individual is no longer characterized as gambling but has become a gambler. Some basic patterns of life get organized around gambling, as gambling becomes a core or central activity for that individual. Compulsive gamblers can also be characterized as precontemplators for changing their gambling behavior. The same behavior change process characterized by the five stages of change (precontemplation, contemplation, preparation, action and maintenance) can be used to understand how problematic and compulsive gamblers move away from problem gambling into successful modification or cessation of their gambling behaviors.

There is a similar set of stages of change for cessation of problematic or pathological gambling once it has become established as a recurrent and habitual pattern of behavior. Precontemplators for stopping or modifying gambling behaviors must develop a decisional balance that favors the change (Contemplation), create and nurture the commitment

and action plan (Preparation), successfully implement this action plan (Action), and finally maintain the behavioral change over a significant period of time (Maintenance). Many who make an attempt at stopping will relapse and return to problematic gambling before they are able to successfully change (Echeburua, Fernandez-Montalvo, & Baez, 2000; Marlatt & Gordon, 1985). Movement through these stages of change often presents more of a cyclical and spiral pattern than a linear one (DiClemente & Prochaska, 1998; Prochaska et al., 1992). Problematic and pathological gamblers would conceivably move through the same stages of precontemplation, contemplation, preparation, action and maintenance in the recovery process as they did for the initiation of gambling behavior. Again, as in the case with initiation, cyclical movement through the stages is more normative than strictly linear movement.

As has been described elsewhere (DiClemente & Prochaska, 1998), individuals attempting to modify a problem behavior move from not considering change (Precontemplation) to seriously considering change (Contemplation) and then committing to a plan (Preparation) before they take Action and are able to sustain the change over time (Maintenance). Once an adolescent has become a compulsive gambler, the challenge shifts from preventing initiation to promoting cessation or, at minimum, significant modification of the gambling behavior. The compulsive gambler must become convinced that the negative consequences associated with the gambling behavior outweigh the positive ones, make a firm decision to stop, develop a viable plan, take effective action, and sustain that action over time. It is these tasks that are delineated in the various stages of change that become the focus of any intervention. Which task becomes the primary focus depends on where the compulsive gambler is in the cycle of the stages of recovery.

Often compulsive gambling in adolescents is associated with other emotional and behavioral problems (Cunningham-Williams et al., 1998; Feigelman et al., 1998; Winters et al., 1998; Yoeman & Griffiths, 1996). Drinking and drug use, illegal activities, and family problems promote problematic engagement in and complicate recovery from gambling. The complexity of multiple problems creates additional challenges for treatment both of adolescents and adults. There are, however, two important considerations that need to be addressed. The first is that readiness and the process of change for each of the associated problems can be viewed through the same perspective of the stages of change. Unwillingness to change drinking behavior, for example, may realistically limit the amount of sustained change of gambling behavior that can be accomplished. Moving individuals through the process of change for two behaviors simultaneously is a daunting challenge but can be accomplished. The second consideration is

that working to resolve problems in other areas of life functioning may necessitate establishing priorities and can have a positive impact upon movement through the stages for modifying the compulsive gambling. For a 40 year-old gambler who began gambling as an adolescent, the span of time separating early motivations from current considerations may lessen the importance of etiology. However, for the adolescent compulsive gambler, the short time span between initiation and current behavior preserves the importance of associated problems that also played a role in initiation. Without losing sight of the central focus on compulsive gambling, interventions could be targeted first at associated problems (academic, interpersonal, familial, or psychological) and then at the gambling behavior, should research indicate this approach seems to work best (see Gupta & Derevensky, in this volume). This approach is more likely to be successful with gambling problems than with substance use behaviors. Interestingly, although there are very few controlled trials of treatment efficacy, the components that have proven helpful in treatment of problem gambling address thinking patterns, problem solving skills, social skills, and preventing relapse (Sylvain, Ladouceur, & Boisvert, 1997). Treatment approaches that are gaining support are typically multi-modal and cognitive-behavioral (Gupta & Derevensky, in this volume; Lopez Viets & Miller, 1997; Nower & Blaszczynski, in this volume).

One of the most important discoveries about the process of change is that the stages of change interact with the processes of change in a predictable manner (DiClemente & Prochaska, 1998; Perz, DiClemente, & Carbonari, 1996; Prochaska, Velicer, DiClemente, Guadagnoli & Rossi, 1991). In the earlier stages the cognitive and experiential processes of change are more salient, while in the later stages the behavioral processes of change are more relevant. Treatment should not be uniform throughout the change process or consist of simply doing more of the same at latter stages but rather should consist of doing the right thing at the right time in the process of change (Perz et al., 1996; Velasquez, Maurer, Crouch & DiClemente, 2001). In practice this goal has led clinicians and researchers to develop techniques that are more motivational in nature and concentrate on decision making for individuals in the early stages of change (Miller & Rollnick, 1991; Miller, Zweben, DiClemente, & Rychtarik, 1992). Behavioral strategies, like counter-conditioning, stimulus control, reinforcement management and self-liberation, are most important during the later stages from preparation to action and maintenance (DiClemente & Prochaska, 1998). Sequencing and shifting intervention strategies to meet the needs of the client moving through the stages of change, either linearly or cyclically, lie at the core of the Transtheoretical Model of intentional behavior change (DiClemente, 2003; DiClemente & Prochaska, 1998).

Tailoring Prevention Interventions to the Stages of Initiation

If initiation of problematic gambling involves a process of change that occurs over time and requires a sequence of different tasks that are reflected in the stages of change, then prevention efforts of necessity must be flexible and targeted. All individuals are not equally and simultaneously vulnerable to engaging in gambling behavior. An individual's behavior depends on where he or she is in the process of initiation, along with the influence of past experiences, expectations, and social context. The same individual may react differently to the identical situation depending on where in the process of change this experience occurs. Different strategies would be required in schools or communities where most individuals are in precontemplation for initiation versus those where many people have moved forward into preparation and action stages of initiation (i.e., those seeking treatment). Prevention specialists can tailor programs to specifically target individuals and groups. In order to do this they should first track the process of change that constitutes the initiation of self-regulated or pathological gambling among the target population. Interventions can then be tailored to address the stages of initiation for those receiving the prevention program initiatives.

The initial challenge for prevention is to assess and identify the distribution of the population across the stages of initiation. This requires a stage-based epidemiology rather than a simple count of the number of individuals who have ever engaged in gambling behavior or have done so in the past month. The initial step is to identify how many in the population are in action or maintenance mode, either for self-regulated or for problematic gambling. For those not in action or maintenance, some assessment of attitudes and intentions related to gambling can be used to classify them into the precontemplation, contemplation, and preparation stages of change. Thus, estimates can be generated for the entire population that categorize individuals into one of these stages of change. In one community there might be a distribution of 2% in maintenance and another 3% in action for pathological gambling with 30% in action or maintenance for self-regulated gambling and the rest distributed throughout the earlier stages of precontemplation (25%), contemplation (20%) and preparation (20%) for initiation. Another group of adolescents could present a very different picture with a distribution of 10% in action or maintenance for pathological gambling and 50% in action or maintenance for self-regulated gambling with only 10% in precontemplation, 10% in contemplation and 20% in preparation for initiation. These two groups would be considered very different, requiring different types of prevention. Not only would they have different amounts of gambling, these two different communities would exhibit

different norms and social influences regarding gambling by virtue of the distribution across the stages. Consequently, different types of prevention and treatment efforts should be presented. In the first case, efforts could be focused on keeping individuals from moving into action. In the case of the second group, increases in treatment options and aggressive responsible gambling campaigns may well be the intervention of choice (DiClemente, 1999; Werch & DiClemente, 1994).

Both at the level of the individual and of the community, it makes a difference where individuals lie in the process of gambling initiation. The more individuals there are in earlier stages, the more primary prevention efforts are needed. Once individuals become engaged in gambling behavior and move into the later stages of initiation, secondary prevention, harm reduction, and early treatment programs are warranted. When the focus of the intervention is on those in the action stage, and the goal is to promote responsible and controlled use; prevention addresses an at-risk population and tries to facilitate the transition to maintained, self-regulated use. Individuals already well into the action stage of change should be considered already in difficulty and require programs to prevent movement to a continued addiction. However, once individuals have reached the Maintenance stage of addiction, programmatic shifts using the stages of recovery are needed. There is no "one size fits all" prevention strategy that could be effective with every individual or with every community across the spectrum of the stages of initiation. Some individuals and communities have greater access to gambling and more risk and less protective factors, all of which would promote movement through these stages. Prevention programs should be multidimensional and sustained over time.

Tailoring Treatments and Interventions to the Stages of Change

As is true with the stages of initiation, assisting individuals in moving away from pathological gambling requires some knowledge of their current stage and how to engage the appropriate strategies that can move them toward successfully maintaining change. Convincing youth that their gambling behavior is problematic and requires modification is the first step to moving from precontemplation. Motivational interventions that avoid argumentation and concentrate on the individual's decisional considerations would be useful for engaging the person in the process of change. Coping skill assessment and development are critical during the preparation stage to ensure that they have all the psychological equipment to carry through on the action plan. Behavioral strategies that include viable substitutes, stimulus control of the environment to avoid cues and people associated

with gambling, and developing contingencies that support change are needed in the action and maintenance stages. Skills related to money management and anxiety management could complement the action strategies. Relapse prevention strategies would be most relevant for the person who had achieved some measure of success. Treatment programs are needed that can track the process of change for problem and pathological gamblers and assist them to make their way through the steps needed to achieve recovery. Recent research supports the need for multi-component, skills-based treatment programs (Gupta & Derevensky, 1998a, 1998b, in this volume; Ladouceur, Boisvert & Dumont, 1994; Lopez Viets & Miller, 1997; McCormick, 1994; Sylvain et al., 1997). Incorporating a process of change perspective in the application of these programs represents a next logical step in creating treatments for gamblers.

Initial investigations into the treatment for pathological gambling appear to parallel treatment research in other areas of addictive behaviors and make an argument for understanding the process of change model. Toneatto and Ladouceur (2003) conducted a review of eleven empirically based studies on the treatment of compulsive gambling. The studies examined treatments from several different perspectives, including behavioral, cognitive, pharmacological, and self-help. Multi-component, multidimensional treatments appeared more effective overall. Although they found little discussion about the process of change model, they did present studies that demonstrated an effect for brief, self-help interventions that were motivational in nature and seemed to work best for individuals with less severe gambling problems (Hodgins, Currie, & el-Guebaly, 2001). As is often the case, even individuals assessed in the wait list control group showed some improvement. Over 80% of the sample demonstrated reduced gambling behavior during the one-year period after treatment. It is not clear how much of this may be simply a reflection of the natural fluctuations in gambling behavior over time or the process of natural recovery. Another small study has begun to examine the processes of change in recovery from gambling addiction. Hodgins (2001) incorporated a modified version of the Processes of Change Questionnaire (Prochaska, Velicer, DiClemente & Fava, 1988) to measure the 10 processes that have been reliably found in studies of recovery with other addicted populations. Gamblers who did not receive treatment were found to less likely experience cognitive experiential processes of change including consciousness-raising, self-reevaluation, helping relationship, environmental reevaluation and dramatic relief compared to their treatment-seeking counterparts. Similarly non-treatment seeking gamblers appeared to engage in less stimulus control activity and experience less social liberation. Treatments seem to be related to process of change activity although the results of this study must be interpreted cautiously as it

was a retrospective report from a small number of individuals. Nevertheless, these studies suggest a need to better understand the process of recovery and how self-help, treatment, and the processes of change interact.

Recommendations Based on a Process Analysis

Although prevention and treatment of gambling behavior represent a rather new field of research and clinical practice, there is a substantial body of research and practice with other addictive and health compromising behaviors. While there are discussions about whether to classify gambling as an impulsive, compulsive, or addictive behavior, there is no question that there are similarities in etiology as well as in emotional and behavioral aspects of gambling with other addictive behaviors including substance abuse and dependence (DiClemente 2003; Glantz & Pickens, 1992). Examining parallels and prior research can be instructive and offer both promising directions and paths to avoid. Initiation of gambling is most similar to initiation of alcohol consumption. There could be important advantages to examining the similarities and differences among multiple addictive behaviors when seeking answers to prevention of and intervention with gambling behavior.

Prevention of gambling problems should focus on achievable goals. Prevalence data suggests that it may be impossible to prevent exposure and experimentation for the majority of adolescents. Currently, there are too many activities, venues, and opportunities to gamble. However, we can influence the expectancies about the odds and the rewards of gambling as well as teaching self-control. More realistic expectancies can help adolescents in their decision considerations and lead to attempts to moderate and self-regulate their gambling behavior. In addition, individuals most vulnerable to move into the Action stage for compulsive gambling can be identified. These vulnerable individuals can be targeted with interventions to reduce risk and increase protective factors. For the group of adolescents who are already reaching sustained problematic gambling, treatment strategies must be initiated.

A similar array of treatment approaches has been proposed for treatment of gambling behavior as has been used for other addictive behaviors (Lopez Viets, 1998). However, readiness to change has often proved to be a better predictor of outcome than type of treatment program (Project MATCH, 1997; 1998). A treatment program that utilizes established change strategies and is applied skillfully with sensitivity to motivational considerations can produce significant change despite differences in treatment philosophy (Project MATCH, 1997). Research on interventions for gambling should focus on the process of change rather than replicate the competitive, treatment

comparison studies that have been done with other addictive behaviors. An array of treatments should be provided to those who have already become problem or pathological gamblers recognizing the important role of motivation, decision-making, skills development, action and maintenance.

There are significant implications for policy makers and politicians that flow from this analysis. Increasing opportunity to gamble brings with it the obligation to understand the development of problematic gambling so that legislation and social policies can be developed to lessen the probability of young adolescents gaining access to gaming venues and to promote responsible gambling.

Extreme gambling is a risky behavior for society as well as for the individual. Serious economic, personal, familial, and social consequences are an integral part of widespread gambling. However, gambling problems and their negative consequences may not be immediate or uniform between individuals. Problematic, compulsive gambling involves a process of initiation and modification that needs to be explicated and better understood. Armed with a better this understanding of the process for initiation of and recovery from compulsive gambling, prevention and treatment professionals will be empowered to create more effective interventions.

References

American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.). Washington, DC: American Psychiatric Association.

Arcuri, A.F., Lester, D., & Smith, F. O. (1985). Shaping adolescent gambling behavior. *Adolescence, 20,* 935–938.

Bandura, A. (1977). The anatomy of stages of change. [Editorial] *American Journal of Health Promotion, 12,* 8–10.

Bandura, A. (1997). *Self-Efficacy: The Exercise of Control.* New York: W.H. Freeman & Company.

Blum, K., Cull, J. G., Braverman, E. R., & Comings, D. E. (1996). Reward deficiency syndrome: Addictive, impulsive and compulsive disorders including alcoholism, attention-deficit disorder, drug abuse and food bingeing may have a common genetic basis. *American Scientist, 84,* 132–145.

Carbonari, J. P., DiClemente, C.C. & Sewell, K. B. (1999). Stage transitions and the transtheoretical "stages of change" model of smoking cessation. *Swiss Journal of Psychology, 58,* 134–144.

Chassin, L., Presson, C.C., Sherman, S.J. & Edwards, D.A. (1991). Four pathways to young-adult smoking status: Adolescent social-psychological antecedents in a midwestern community sample. *Health Psychology, 10,* 409–418.

Crockford, D.N. & el-Guebaly, N. (1998). Psychiatric comorbidity in pathological gambling: A critical review. *Canadian Journal of Psychiatry, 43,* 43–50.

Cunningham-Williams, R.M., Cottler, L.B., Compton, W.M., & Spitznagel, E.L. (1998). Taking chances: Problem gamblers and mental health disorders—Results from the St. Louis Epidemiological Catchment Area (ECA) Study. *American Journal of Public Health, 88,* 1093–1096.

Derevensky, J., & Gupta, R. (2004). Adolescents with gambling problems: A review of our current knowledge. *e-Gambling: The Electronic Journal of Gambling Issues, 10,* 119–140.

Dell, L. J., Ruzicka, M. F., & Palasi, A. T., (1981). Personality and other factors associated with the gambling addiction. *The International Journal of the Addictions, 16,* 149–156.

Dickson, L., Derevensky, J., & Gupta, R. (2004). Harm reduction for the prevention of youth gambling problems: Lessons learned from adolescent high-risk prevention programs. *Journal of Adolescent Research, 19,* 233–263.

DiClemente, C. C. (1994). If behaviors change, can personality be far behind. In T. Heatherton & J. Weinberger (Eds.), *Can personality change* (pp. 175-198). Washington, DC: American Psychological Association.

DiClemente, C. C. (1999). Prevention and harm reduction for chemical dependency: A process perspective. *Clinical Psychology Review, 19,* 473–486.

DiClemente, C. C. (2003). *Addiction and change: How addictions develop and addicted people recover.* New York: Guilford Press.

DiClemente, C.C., Carbonari, J.P., Montgomery, R., & Hughes, S. (1994). The Alcohol Abstinence Self-Efficacy Scale. *Journal of Studies on Alcohol, 55,* 141–148.

DiClemente, C. C., Fairhurst, S. K., & Piotrowski, N. A. (1995). The role of self-efficacy in the addictive behaviors. In J. Maddux (Ed.), *Self-efficacy, adaptation and adjustment: Theory, research and application.* New York: Plenum Press.

DiClemente, C. C. & Prochaska, J. O. (1998). Toward a comprehensive, transtheoretical model of change: Stages of change and addictive behaviors. In W. R. Miller & N. Heather (Eds.), *Treating Addictive Behaviors* (2nd Ed., pp. 3–24). New York: Plenum.

DiClemente, C. C., Prochaska, J. O., & Gibertini, M. (1985). Self-efficacy and the stages of self-change smoking. *Cognitive Therapy and Research, 9,* 181–200.

DiClemente, C.D., Story, M., Murray, K. (2000). On a roll: The process of initiation and cessation of problem gambling among adolescents. *Journal of Gambling Studies,* 16,289–313.

Echeburua, E., Fernandez-Montalvo, J. & Baez, C (2000). Relapse prevention in the treatment of slot-machine pathological gambling: Long-term outcome. *Behavior Therapy,* 3,351–364.

Emerson, M. O., & Laundergan, J. C. (1996). Gambling and problem gambling among adult Minnesotans: Changes 1990 to 1994. *Journal of Gambling Studies, 12,* 291–304.

Feigelman, W., Wallisch, L. S., & Lesieur, H. R. (1998). Problem gamblers, substance users, and dual-problem individuals: An epidemiological study. *American Journal of Public Health, 88,* 467–470.

Fisher, S., &. Griffiths. M. (1995). Current trends in slot machine gambling: Research and policy issues. *Journal of Gambling Studies, 11,* 239–247.

Gaboury, A., & Ladouceur, R. (1993). Evaluation of a prevention program for pathological gambling among adolescents. *The Journal of Primary Prevention, 14,* 21–28.

Glantz, K., & Pickens, R. (1992). *Vulnerability to drug abuse.* Washington, DC: American Psychological Association.

Govoni, R., Rupcich, N., & Frisch, G. R. (1996). Gambling behavior of adolescent gamblers. *Journal of Gambling Studies, 12,* 305–317.

Gupta, R., & Derevensky, J. L. (1996). The relationship between gambling and video-game playing behavior in children and adolescents. *Journal of Gambling Studies, 12,* 375–394.

Gupta, R., & Derevensky, J. (1997). Familial and social influences on juvenile gambling behavior. *Journal of Gambling Studies, 13,* 179–192.

Gupta R., & Derevensky, J. (1998a). Adolescent gambling behavior: A prevalence study and examination of the correlates associated with excessive gambling. *Journal of Gambling Studies, 14,* 319–345.

Gupta, R., & Derevensky, J. (1998b). An empirical examination of Jacobs' general theory of addictions: Do adolescent gamblers fit the theory? *Journal of Gambling Studies, 14,* 17–49.

Gupta, R., & Derevensky, J. (2000). Adolescents with gambling problems: From research to treatment. *Journal of Gambling Studies, 16,* 315–342.

Hodgins, D. C. (2001). Processes of changing gambling behavior. *Addictive Behaviors, 26,* 121–128.

Hodgins, D. C., Currie, S. R., & el-Guebaly, N. (2001). Motivational enhancement and self-help treatments for problem gambling. *Journal of Consulting and Clinical Psychology, 69,* 50–57.

Huba, G. & Bentler, P. (1982). A developmental theory of drug use: derivation and assessment of a causal modeling approach. In P. Baltes & O. Brim (Eds.) *Life-span development and behavior* (Vol. 4, pp. 147–203). San Diego, CA: Academic Press.

Janis, I.L., & Mann, L. (1977). *Decision making.* New York: Free Press.

Jessor, R. & Jessor, S. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth.* San Diego, CA: Academic Press.

Jessor, R., Van Den Bos, J., Vanderryn, J., Costa, F.M., & Turbin, M. S. (1995). Protective factors in adolescent problem behavior: Moderator effects and developmental change. *Developmental Psychology, 31,* 923–933.

Ladouceur, R, Boisvert J.-M., & Dumont J. (1994). Cognitive-behavioral treatment for adolescent pathological gamblers. *Behavior Modification, 18,* 230–242.

Lesieur, H. R., & Blume, S. B. (1991). Evaluation of patients treated for pathological gambling in a combined alcohol, substance abuse, and pathological gambling treatment unit using the Addiction Severity Index. *British Journal of Addiction, 86,* 1017–1028.

Lopez Viets, V. C. (1998). Treating pathological gambling. In W. R. Miller & N. Heather (Eds.), *Treating Addictive Behaviors* (2nd ed., pp. 259–270). New York: Plenum Press.

Lopez Viets, V. C., & Miller, W. R. (1997). Treatment approaches for pathological gamblers. *Clinical Psychology Review, 17,* 689–702.

Marlatt A., & Gordon, J. (1985). *Relapse Prevention,* New York: Guilford.

McCormick, R. A. (1994). The importance of coping skill enhancement in the treatment of the pathological gambler. *Journal of Gambling Studies, 10,* 77–86.

Miller, W. R., & Rollnick, S. (1991). *Motivational interviewing: Preparing people to change addictive behavior.* New York: Guilford Press.

Miller, W., Zweben, A., DiClemente, C. C., & Rychtarik, R. G. (1992). Motivational enhancement therapy manual: A clinical research guide for therapists treating individuals with alcohol abuse and dependence. *National Institute on Alcohol Abuse and Alcoholism Project MATCH Monograph Series, 2* (Department of Health and Human Services Publication No. (ADM) 92–1894. Bethesda, MD: National Institute on Alcohol Abuse and Alcoholism.

Moore, S. M., & Ohtsuka, K. (1997). Gambling activities of young Australians: Developing a model of behaviour. *Journal of Gambling Studies, 13,* 207–236.

National Research Council (1999). *Pathological gambling: A critical review.* Washington, DC: National Academy Press.

Orford, J. (1985). *Excessive appetites: A psychological view of addictions.* New York: John Wiley & Sons.

Perz, C. A., DiClemente, C. C., & Carbonari, J. P. (1996). Doing the right thing at the right time? Interaction of stages and processes of change in successful smoking cessation. *Health Psychology, 15,* 462–468.

Prochaska, J. O., & DiClemente, C. C. (1982). Transtheoretical therapy: Toward a more integrative model of change. *Psychotherapy: Theory, research and practice,* 19(3), 276–288.

Prochaska, J. O., & DiClemente, C. C. (1984). *The Transtheoretical approach: Crossing the traditional boundaries of therapy.* Malabar, FL: Krieger.

Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: Applications to addictive behaviors. *American Psychologist, 47,* 1102-1114.

Prochaska, J. O., Velicer, W. F., DiClemente, C. C., Guadagnoli, E., & Rossi, J.S. (1991). Patterns of change: Dynamic typology applied to smoking cessation. *Multivariate Behavioral Research, 26,* 83-107.

Prochaska, J. O., Velicer, W. F., DiClemente, C. C. & Fava, J. (1988). Measuring processes of change: Applications to the cessation of smoking, *journal of Consulting and Clinical Psychology, 56,* 520–528.

Prochaska, J. O., Velicer, W. F., Rossi, J. S., Goldstein, M. G., Marcus, B. H., Rakowski, W., et al. (1994). Stages of change and decisional balance for 12 problem behaviors. *Health Psychology, 13,* 39–46.

Project MATCH Research Group. (1997). Matching alcoholism treatments to client heterogeneity: Project MATCH post-treatment drinking outcomes. *Journal of Studies on Alcohol, 58,* 7–29.

Project MATCH Research Group. (1998). Matching alcoholism treatments to client heterogeneity: Project MATCH three year drinking outcomes. *Alcoholism Clinical and Experimental Research, 22,* 1300–1311.

Rotgers, F., Keller, D.S. & Morgenstern, J. (1996). *Treating substance abuse: Theory and technique.* New York: Guilford Press.

Schulenberg, J., Maggs, J.L., Steinman, K.J., and Zucker, R.A. (2001). Development matters: Taking the long view on substance abuse etiology and intervention during adolescence. In P. M. Monti, S.M. Colby and T.A. O'Leary (Eds.), *Adolescents, alcohol and substance abuse*. (pp. 19–57). New York: Guilford Press.

Shaffer, H. J. (1996). Understanding the means and objects of addiction: Technology, the internet, and gambling. *Journal of Gambling Studies, 12,* 461–469.

Shaffer, H. J., & Hall, M. N. (1996). Estimating the prevalence of adolescent gambling disorders: A quantitative synthesis and guide toward standard gambling nomenclature. *journal of Gambling Studies, 12,* 193–214.

Slutske, W.S., Jackson, K.M., & Sher, K. J. (2003). The natural history of problem gambling from age 18 to 29. *Journal of Abnormal Psychology, 112,* 263–274.

Spunt, B., Dupont, I., Lesieur, H., Liberty, H. J., & Hunt, D. (1998). Pathological gambling and substance misuse: A review of the literature. *Substance Use and Misuse, 33*, 2535–2560.

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.

Tartar, R.E. & Mezzich, A.C. (1992). Ontogeny of substance abuse: Perspectives and Findings. In M. Glantz & R. Pickens. (Eds.), *Vulnerability to drug abuse* (pp. 149–178). Washington DC: American Psychological Association.

Toneatto, T. & Ladouceur, R. (2003). Treatment of pathological gambling: A critical review of the literature. *Psychology of Addictive Behaviors, 17,* 284–292.

Velasquez, M.M., Maurer, G.G., Crouch, C. & DiClemente, C.C. (2001). *Group treatmentfor substance abuse: A stages of change therapy manual.* New York: Guilford Press.

Velicer, W.F., DiClemente, C.C., Prochaska, J.O. & Brandenburg, N. (1985). A decisional balance measure for assessing and predicting smoking status. *Journal of Personality and Social Psychology, 48,* 1279-1289.

Velicer, W.F., DiClemente, C.C., Rossi, J. & Prochaska, J.O. (1990). Relapse situations and self-efficacy: an integrative model. *Addictive Behaviors, 15,* 271–283.

Vitaro, F., Ferland, F., Jacques, C., & Ladouceur, R. (1998). Gambling, substance use, and impulsivity during adolescence. *Psychology of Addictive Behaviors, 12,* 185–194.

Werch, C. E., & DiClemente, C. C. (1994). A multi-component stage model for matching drug prevention strategies and messages to youth stage of use. *Health Education Research: Theory & Practice, 9,* 37-46.

Winters, K. C., & Anderson, N., (2000). Gambling involvement and drug use among adolescents. *Journal of Gambling Studies, 16,* 175–198.

Winters, K. C., Bengston P., Dorr D., & Stinchfield, R. (1998). Prevalence and risk factors of problem gambling among college students. *Psychology of Addictive Behaviors, 12,* 127–135.

Winters, K. C., Stinchfield, R. D. & Fulkerson, J. (1993). Patterns and characteristics of adolescent gambling. *Journal of Gambling Studies, 9,* 371–386.

Yoeman, T. & Griffiths, M. (1996) Adolescent machine gambling and crime. *Journal of Adolescence, 19,* 183–188.