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Subtypes of problem gamblers

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*(Introduction.)***Rachel Volberg**: When Keith Whyte and the program conference folks started planning this conference, Keith distributed the introduction to a book called *Stopping Family Violence*, published in 1988. It represented a consensus amongst experts and stakeholders in 1988 about what the most urgent research needs were in the emerging area of social problems. In a rather bizarre coincidence, I was reading *USA Today* yesterday, and I saw a small news item with a little graphic. It said that the rate of family violence had fallen by more than half, from 5.4 events per 1,000 to 2.1 per 1,000 between 1993 and 2002. I was struck by this because in a big-picture way, this is what we hope may come out of this event and this conference.

We've brought together experts from around the world to examine critical issues in the field of problem gambling, to shake up some of our established notions, hopefully, and to find consensus on others. The idea, or the hope that we have, besides having a great conference, is to identify the most urgent research needs in the field through a consensus process and a discussion process. The purpose of getting to that consensus is so that the National Council on Problem Gambling can focus its efforts and the efforts of a diverse board and diverse group of people on moving towards a national research agenda. We hope to shape the future of the field rather than be shaped by it, and I look forward to a couple of very exciting days.

We're starting today with a keynote address by a renowned colleague of mine, Alex—I won't try and say your last name properly. I'll say it the way that I usually say it, although you assured me that it was completely wrong. Alex Blaszczynski is the head of the Department of Medical Psychology at Westmead Hospital and Co-Director of the Gambling Research Unit at the University of Sydney. He has

conducted seminal investigations of the relationship of disordered gambling behavior to anxiety, depression, substance use, and suicide. Alex is a founding member of the Australian National Council for Problem Gambling and the National Association for Gambling Studies in Australia, and a Foundation Director of the Australian Institute of Gambling Studies. Alex tells me that he has promised that he will not be using any statistics today, so you can all open your eyes wide and pay attention. Rather, he wants to present to you a conceptual model with a clinical perspective that he hopes will help in developing or improving treatment for problem gamblers.

Alex Blaszczynski: G'day. I'm going to give this presentation in Australian, so I hope that you'll be able to understand me.

Today I want to start off on a somewhat somber note, and that is to inform people of the recent death of a great mentor and colleague and friend of mine, Neil McConaghy. Neil was a great person. I first met him in 1972 when he interviewed me for a job as a research assistant for a temporary position while I was looking for a job in economics and investor relations, and he certainly stimulated my interest in research in the area of compulsive sexual behaviors before my introduction to gambling in 1977. Neil was a great mentor. I credit him, basically, with shaping my thinking patterns, my writing style. My own incompetence I have managed to achieve myself, but he was a great thinker.

And my first memory of him was with psychophysiological work on compulsive sexual behaviors with Grass polygraph eight-channel equipment. We were standing there, and I was looking at this rather perplexing item hooked up to this person with GSR and penile plethysmography measuring sexual responses to some unusual stimuli. And I said to Neil, “Well, I'm having difficulty with this, Neil.” And he said, “Look, apply science to this.” He said, “If you're confronted with complexities and difficulties, always go back to the basics. The first thing you need to do is to turn on the equipment.”

But that, I think, indicates the importance to Neil of science and going back to the basics and to empirical evidence, and he always in arguments would say, basically, that it doesn't matter what my views are or what my philosophy or beliefs are. The weight of the evidence points this way or that way. And he was, I think, a consummate scientist, so that I'd like to tribute not only this keynote presentation but also many of my career achievements to Neil.

I'd like to thank Keith Whyte and the National Council on Problem Gambling for inviting me and giving me the honor of giving the keynote address. When Keith invited me in Barcelona, he said the next conference is in New Orleans, and I jumped at the chance. I jumped at the chance because my son goes to Nicholls State University here in Thibodaux, and he's done well. He's got a basketball

scholarship. Unfortunately, I misread the dates, and he's back in Australia. *(Laughter.)*

Another main reason I enjoyed accepting this particular conference was, again, coming back to Neil's concept of going back to the basics, and asking ourselves important questions to look at: what is the critical state of knowledge, what are the gaps in knowledge, and how do we translate research into practice?

Neil McConaghy, I think, was seminal in terms of looking at one particular procedure: imaginal desensitization. But, unfortunately, despite the research indicating its effectiveness, it's still not widely used, but it's a technique that I think Neil will be, certainly, remembered for and hopefully that will continue going from research into practice. And the other important element is where do we go from here? And I'd certainly recommend Bourbon Street, Oak Alley, and Thibodaux and Nicholls State basketball.

The important element about science is that it's built up with facts, as a house is with stones, but a collection of facts is no more science than a heap of stones is a house. And I think that the current field of gambling is at this stage of collection of facts, and we need to put these into conceptual models to work out exactly what house we're building.

The objective of today's talk is to look at the construct of problem gambling, and I want to raise some questions, to get you to consider different perspectives, and possibly to offend a few people. But if I do that, and it leads to some degree of discussion, stimulation, and argument, then that would be good. I think what we need to do is to move away from the homogeneity myths, from the idea that all gamblers are exactly the same. What I'm looking for, basically, is a classification structure based on etiological factors and critical pathways that end up with a similar phenomenology that we see in our particular office each day and then ultimately present a pathways model looking at subtypes and then discuss the treatment implications of each of these particular taxons or groups.

The first question to ask is, does the construct of problem gambling exist? Is it a myth? Is it a syndrome? Is it a disease? Is it an illness? Is it a public health issue? A simple answer: yes. It does exist. We see it in clinical presentations to mental health services. We see individuals who complain of recurrent gambling behaviors that lead to distress and impairment in functioning. We don't have to go through DSM III, IV, V, VI, or VII to work that out: some people do experience intense distress.

There are high rates of comorbidity, depression, and substance abuse. We don't know what the directions of causality are, and not everybody becomes depressed, nor do they all have substance abuse. We know that 75 percent of people

presenting for treatment meet criteria for depression. Not surprising. In fact, I'm quite surprised that someone who is in significant debt, marital discord, suicidal ideation, is not depressed. The norm would be to expect someone in distress to be depressed. The question is, what is the etiological contribution of the depression? Does it precede or does it follow gambling behaviors? It's the same with substance abuse and other psychiatric disorders, and I think we need to go back and understand that.

We know that the severity of problem gambling is such that a significant proportion of people, roughly 40 percent of those presenting for treatment, manifest clinically relevant suicidal ideation, and some of our research indicates that 1.7 percent of Australian suicides are gambling related. And that's, I think, 1.7 percent too high.

Do we have a clear understanding of its construct, that is, the etiology, its pathology, and particular subtypes? At this particular state of our knowledge I don't believe we do. We're still collecting the facts. This is evident in the confusion in nomenclature and explanatory paradigms that are used to describe gambling.

We don't know how to refer to the person without a problem. A social gambler? A recreational gambler? A non-problem gambler? Does it imply that the non-problem gambler is a latent problem gambler subject to exposure to the right conducive environments? We refer to excessive gambling. Excessive relative to whom? What is excessive to one's spouse or partner may not be excessive to the gambler themselves. What do we mean by “at risk”? Does it suggest that someone may, in fact, be suffering a preclinical condition of pathological or problem gambling, that someone may, in fact, have some preclinical indicators of cancer? The disease remains asymptomatic in the disease process, but clinical pathology may subsequently discover some pathogenic process. Disordered gambling? Any gambling that leads to a loss, clearly, is disordered. Gambling that leads to winning is clearly ordered. What is a probable problem gambler as compared to a problem gambler, to a compulsive gambler? I think these particular terminologies are quite important because they do, in fact, shape our understanding of the construct that we're dealing with, and that, in turn, will lead our management and treatment interventions.

The science of pathological gambling is designed with one purpose in mind. That is to understand the etiology and the pathogenic process of problem gambling in order to provide adequate and effective treatment programs to reduce the distress and harm that individuals suffer, and I think we need to bear that in mind.

In terms of current conceptual models, we're looking at single-dimension models in the main, most of them regarding pathological or problem gamblers as one homogeneous entity and attempting to provide particular conceptual models across the broad class of gamblers. And we have the addictions, the predominant

paradigm, which have clear implications on how we treat problem gamblers.

We have the confusion of impulse-control disorders, but an impulse control that may, in fact, be premeditated, seems to be a bit of a contradiction. How can you premeditate an impulse? What exactly is an impulse? Is it something which is chronic, persistent, or is it something on the spur of the moment?

We're looking at cognitive models. We're looking at learning theories, at Eric Hollander's obsessive compulsive spectrum disorders, and we're looking at psychodynamic issues. And all of them, I believe, have merit. All of them, I think, are valid in some respect or valid according to some particular subgroup.

The other question I would like to have people ask themselves is, what is the threshold of harm required for the condition to be met? Have we stopped to ask ourselves what is the basis for harm? Because the predominant criterion identifying pathological gambling rests heavily on adverse consequences. What adverse consequences are we talking about, and what particular level of harm?

We have Bourbon Street in 2005. I happened to pass by for research purposes. We have a nice confluence of slot machines next to an ATM. The ATM was quite productive in terms of payouts. Well, I was quite impressed. It kept on working. Always managed to get the right numbers in. But, I mean, we have a situation here where we have an environment, and a public health issue—and David Korn will talk later and more competently than I will on public health issues. But you have an environmental situation that is conducive to harm, where you are going to get social recreational non-problem gamblers playing, probably, longer than intended and spending more time and money than intended simply because they can just move one seat to access the ATM, get the money, and then reinvest it into the slot machine and the Louisiana State Government.

At what point does harm occur? There must be some particular point in the dimension of the career of pathological gambling when it translates from no harm to a pathological condition. With diabetes you may have precursors, but at some particular point something occurs, and there is a switch from a nonpathological state to a manifest pathological state. And my argument to consider here would be that it occurs on two bases, and that one can draw down all harm to the notion of a gambler exceeding discretionary available disposable income, that is, money that they can afford to spend. As soon as you spend one cent more than discretionary disposable income, you are now getting into money that should be going for other sources—mortgage, necessities, holidays, buying mint juleps at Oak Alley. As soon as that occurs, then there is an opportunity cost. In economic terms, you are taking money from one particular area and redirecting it into another.

So, as soon as you spend one cent beyond discretionary available income, harm

occurs. The more you spend out of discretionary income, clearly, the greater the harm. If you're spending all your salary on gambling and borrowing more money to gamble, then, clearly, there are severe problems emanating, and that becomes manifest in the legal repercussions—once all your funds are exhausted, you then turn to criminal behaviors, and we know that roughly 60 percent of people with gambling problems participate in criminal offenses.

The same occurs with leisure time. As soon as the person spends more than their available leisure time on gambling, they now have an opportunity cost. They should be doing work or family or social obligations. So, at that particular point harm occurs. But we are aware that harm may be transient, and it may be inconsequential. And, again, we're looking on the one hand at severe and recurrent harm that we see daily in our clinical practices, quite severe harm that requires some form of intervention, and where some individuals require protection from themselves. On the other hand, there are other transient and inconsequential harms. People may spend more money than they can afford on a particular day. They may go hungry or they may need to walk home. It doesn't persist, and it doesn't create any major problems.

If we look at adolescence, we can see a lot of harm there, which may be transient and inconsequential. For some of us, drinking when we were adolescents, many of us here on occasions have drunk too much, embarrassed ourselves, created some degree of harm, but that did not lead to any requirement for intervention or concern. From a public health policy, clearly, there was harm, and the importance is to reduce hazardous levels of drinking or gambling or smoking behavior, looking at risk-taking behaviors to minimize the potential risk of later harm.

But the importance of this combination of the nature of the harm and its severity is important because it does influence health resource allocation. And, certainly, in Australia there's been a great clamor following the Productivity Commission to indicate that 1.2 percent, 1.7, 2.3 percent of people meet criteria for pathological problem or severe problem gambling–related behaviors, and, therefore, there was a requirement for clinical counseling services to be established.

And when we start to look at the figures, we find that, in fact, a lot of people don't come in for treatment and the question is, why don't they come for treatment? So we're starting to look now at the possibility that there may be people who are adapting to levels of harm, don't recognize the harm they're experiencing, or are experiencing and adapting to the level of harm and believe that they're going to manage it on their own or hit the brick wall, and then there's spontaneous recovery, and they go on to cease gambling behaviors.

But the level of intervention ranges widely. It starts with psychoeducational material and self-help books. There are brief interventions, and David Hodgins's work, I

think, is instrumental and quite influential in looking at the effectiveness of brief interventions. We're looking at the next level of intensive cognitive behavioral type programs, counseling programs, support groups, support for Gambler's Anonymous and other self-help organizations, and then we need specialized hospital or residential programs looking for those at the severe end of the spectrum, including those with hospitalization for suicidality.

In terms of the various levels of intervention and the various conceptual models and looking at some of the subtypes and some of the confusion, we're looking at primary prevention for dealing with problem gamblers, or the population prior to exposure, trying to educate them, trying to put in protective factors that will prevent them from actually developing gambling problems. In some elements, primary prevention is geared towards education. In other elements it's the reduction of the supply of the gambling products. We'll talk about this in a later session in terms of machine modifications.

In Victoria recently they have attempted to reduce the number of gaming machines in particular venues, and they contrasted the reduction of the number of gaming machines in five venues compared to a control group of five other venues that didn't have any reduction in the gaming machines. And the results were somewhat inconsistent. In some venues revenue went down. In others the reduction in machines led to an increase in revenue. What was interesting was the fact that the smoking ban was most effective in reducing revenue.

But the question is, does revenue reduction automatically mean a reduction in problem gambling? Or is it that recreational people are not gambling as much, and, therefore, there's a reduction, and the hardcore pathological or problem gambler is continuing to gamble? We need to look at that.

What we do know is that within that mix of the population there is a variety of people who are at risk, who may have the propensity to develop problem gambling, and these are the people that I think primary prevention programs should be targeting, selecting those who exhibit high-risk behaviors in socially disadvantaged areas or those people who are, in fact, attending venues. And we know from our research that although the general population prevalence rates are roughly 1 percent, yet when you look at specific venues—such as clubs or hotels—the rates increase dramatically to 18 to 25 percent. Clearly, people who attend venues are the ones at risk.

The secondary approach is looking at people who do gamble and looking at ways of protecting them. Again, we have people who are active gamblers, and again, some people at risk. And that risk increases with exposure. Clearly, you cannot have problem gambling without the opportunity to gamble, but we do know that—from the prohibition era and other areas where gambling is banned—people do

continue gambling. We're not going to get rid of it.

The third group we filter down to includes the treatment providers. Much depends on your particular orientation. From a public health perspective, clearly, you're going to look at primary prevention and secondary prevention issues. If you're a treatment counselor, then the primary focus is on the third group. So we can, I think, conceptualize all these particular interventions as falling across these particular strata.

The difficulty, of course, is that we have vested interests and sometimes it's hard to differentiate which group falls where. But, quite clearly, the position here is that we are in a difficult conflict of interest where the government—depending on your jurisdiction—either is the agent for gambling or derives substantive tax revenue from gambling and has vested interests in promoting gambling. The industry has vested interests in promoting gambling. Churches, welfare groups, gambling counselors have a vested interest in promoting problem gambling because they get research and treatment funding, and academics themselves have conflicts of interests because we want to highlight the issue. We want research funding. Everybody, in fact, is in this tumultuous scenario where we have our own particular philosophies and perspectives.

There is a lot of ideology and philosophy involved in this. There are a lot of people who are antigambling for a variety of reasons, some justified. I want to move away from that particular issue to look, basically, at the science of it. We recognize that there are conflicts of interest. The question we need to ask is, are we looking towards banning gambling totally? I think the prohibition era suggests probably not because there are other unintended consequences if we totally ban gambling. Do we allow a laissez-faire promotion of gambling? Again, no, because, clearly, there is a relationship between gambling opportunities, promotion of gambling, attitudinal shifts, and development of problem gambling. To what level is society prepared to accept harm and to allow gambling to continue? Is it worthwhile to have a sustainable industry?

We can draw many parallels. For example, as I see it there is no benefit from smoking. One cigarette causes problems, yet we continue to allow smoking to occur. There are a lot of lobby groups and so forth, but, clearly, the lobby groups, the government, and the industry are quite powerful.

If you look at alcohol, there are some benefits, medicinal purposes, as we in the audience only drink for medicinal purposes. We have a balance with the recognition of significant harm associated with alcohol. We need to moderate it, teach people to reduce alcohol consumption, but we do it in a variety of ways. We don't do it by prohibition—although there have been some attempts, quite unsuccessful. We can reduce the level of alcohol in the beer so people drink twice

as much to get the same effect. We can sell it in smaller bottles. Or the ultimate test would be to put vinegar in and make it unpalatable.

And the same analogy can be drawn with poker machines or slot machines and gambling. We could reduce the rates of losses on slot machines by having one reel spin every 10 minutes, having a jackpot payout of $1. I mean, there are variety of different ways, but what we're ultimately looking at is destroying the product, so from a philosophical/ideological point of view, are we at one extreme where we say “no gambling,” the other extreme of laissez-faire gambling? Or do we try to find some particular balance between harm and acceptable harm?

For an unpalatable concept of allowing harm, look at the motor vehicle—as a clinician I'm involved in treatment of posttrauma, and we did some studies on road trauma and the implications of that. Look at the harm that the motor vehicle contributes in terms of rehabilitation costs, distress to the family, spinal cord injuries, brain damage, hospitalizations, and you're looking at the environment, freeways, pollution, and yet I've never heard anybody arguing for a ban on motor vehicles. They're always striving towards higher minimization, but, again, we have safer cars, separating pedestrians from motor vehicle, air bags, braking systems, safety belts. And what do people do? Compensate for it. They drive faster because they feel safer, so there are accidents. Rates of injuries persist, but the mortality rate decreases. We need to find some particular balance between these particular issues.

The other question is, what are the core minimal requirements for problem gambling? Do we focus on adverse consequences or impaired control? And I think this is an important question. How many people could identify a problem gambler as they walk into their clinic within two to three minutes? Anybody? A few people could. Why? Because we're starting to look at particular patterns of behavior, and we intuitively identify core elements of problem gamblers. If I asked each of you to look at three questions that you would ask a pathological gambler or someone presenting with pathological gambling problems, only three clinical questions to ascertain a diagnosis, what would those three questions be? I'm asking that as a rhetorical question, I'm not going to answer it. Some people would look towards the concept of harm, but, again, we need to look at the level and the nature of harm and its impact on the levels of distress. Or is it impaired control, and what do we actually mean by impaired control?

But the question I'm raising for you is to ask, do we define this particular construct of problem gambling on the basis of only adverse consequences, or is it because of the presence of impaired control? Let me give you two quick anecdotes.

Anecdote #1. Let us assume that I am Catholic, and Catholics are not antigambling. In fact, they build some of their churches on raffles. I'm quite happy

and comfortable with the notion of gambling, and I work in a nice institution where my boss and a few other people enjoy purchasing lottery tickets every Monday. We have a little syndicate, and every Monday I give my $10. And being a social worker, I'm on a salary of $200,000 a year, so I can well afford it. I give the $10. I get the ticket. My wife is a devout Muslim and because of her beliefs, which forbid gambling, she is totally antigambling. And on Monday evenings, as she is wont to do, she goes through my wallet, finds this syndicate lottery ticket, and we have an argument. She refuses to eat the dinner I cook. (It's typical for the males to cook in Australia.) We have arguments, and these arguments persist. And this is a recurrent theme every week. Am I a problem gambler? Is there harm emanating from my gambling? Do I require treatment, or does my wife require treatment? How would you manage this particular scenario? Is it a gambling problem, or is it a reflection of some obstinacy in myself that I'm not prepared to compromise? Do I have the problem? I refute that entirely, but the question is, would I have such a problem?

Anecdote #2. Let's take another case. This involves a chap whom I saw many years ago. He inherited $60,000. He complained that he was going to the club, and was gambling more money than he'd intended. He was concerned that he was unable to control his behavior. Is he a problem gambler? He had no adverse consequences beyond the self-report that he gambled more than he intended. He could see the consequences in the long term and wanted to take action. He accepted the fact that there was some element of impaired control within him. Would you treat this person? No adverse consequences as yet. Does he meet the criteria for problem gambling, or do we have to wait until there are adverse consequences?

These are questions I hope to have you ask yourselves. What I'm arguing is that problem gambling is a term applied to a class of individuals who are defined by negative consequences and exhibiting characteristics that imply impaired control and/or poor decision making.

We have various subtypes. We have the horse race gambler who loses his shirt. We have the casino player who loses his trousers. Take a close look at this person. Anyone recognize him? We have the card player with the smoking addiction. We have the slot machine player. They're all different types and permutations of gamblers, but what I'm looking at—and I pose this particular question—is that we have the problem gambler, who's the individual who manifests harm associated with their gambling behavior. There are some adverse consequences of a level of severity that cause complaints to or distress to the individual.

The second global subgroup is the pathological gambler, and this is the core group of individuals who exhibit impaired control demonstrated by the inability to cease despite repeated efforts. And what I'm arguing, in a sense, is that you can have a

situation where, with a problem gambler, they don't try to resist, they don't want to resist gambling, and they resist all efforts to have them stop gambling, yet they're causing harm to others. We've all come across those individuals in clinical practice. All pathological gamblers are problem gamblers, but I would argue that not all problem gamblers are pathological gamblers. The distinction resides in the core element of impaired control.

The implications of this, I think, are quite interesting. Screening and diagnostic instruments emphasize different components. Some look at impaired control, some at harm and the consequences. We have different instruments providing different rates. We have, in fact, the question of interpretation of items, and Bob Ladouceur recently did a study looking at clarifying the items and finding that clarifying SOGS (South Oaks Gambling Screen) items led to a reduction in scores.

Michael Walker did a study recently. I think it's reported in the latest edition of *International Gambling Studies*. In it he looked at providing written and verbal clarification of SOGS scores and found discrepant findings. Providing verbal clarification increased SOGS scores. There was a difference between verbal and written instructions and their impact on SOGS scores.

We need to look at that. Sensitivity and specificity vary between particular measures, between the SOGS and DSM. They're not picking up the same cases. The SOGS is excellent in clinical treatment samples, but has poor accuracy in the general population, identifying twice as many cases as does DSM. We're looking at the concept that some individuals are not identified the same way by different instruments, and there's a great deal of discordance.

Again, the work of Bob Ladouceur is important in this, for with the NORC measure versus clinical interview, there was a 23 percent discrepancy in identifying cases. Low correlations between particular measures, and perhaps the most interesting one, which I recently came across, not all clients in treatment in gambling counseling centers meet criteria. In one study 25 percent of people being treated for problem gambling failed to meet DSM criteria, at least in one particular setting.

We're looking at some of these discrepancies and the lack of correlations and discordancies between particular measures dependent upon the notion that some of them are picking up elements to do with problem gamblers and others to do with impaired control and pathological gamblers. Are they targeting the same particular population?

I want to get on quickly (because we're running out of time) into the homogeneity myth, and I'm arguing that not all problem gamblers are the same. Let's set the scene for subtyping and look at some of the premises, principles, and assumptions behind it. What we need to do is deconstruct it and try to put some conceptual

order onto it.

What I'm arguing is that there are multiple subtypes of this genus of problem gambler. One subspecies includes the pathological gambler, in which there are significant neurobiological foundations and intrapsychic conflicts that merge and have an interrelationship. We have cognitive elements and reward deficiency systems that interact. The second group includes problem gamblers whose main focus is on the development of erroneous perceptions and irrational beliefs and peer-group interactions. They're not mutually exclusive in that we may have neurological issues to do with problem gambling, but their particular contribution is less important than erroneous perceptions and irrational beliefs. There are other groups in which gambling problems are secondary to mania, risk-taking behavior, complexes, or marital conflicts.

What we're looking at, I would argue, are multiple etiological components that lead to different pathways that result in a common phenomenology, and what we're looking at is the end result, which is this common phenomenology. This view is influenced in many respects by Howard Schaffer's clarity of thought, but I have a slight departure from him because he's focusing on the addiction model, and my position is that that is relevant and important, but doesn't fit all particular gamblers. And, hence, I'm moving a step aside and saying that there are, in fact, other multiple etiological components, not just addiction, in gambling as an addictive disorder.

It's complex. There are precursors, and these are neurobiological, genetic, involving the mesolimbic orbitofrontal reward systems—dopamine in particular—the amygdala segmental area reverberating through the frontal area and creating reward deficiencies. Components are similar across a broad range of addictive behaviors, and we have a good substrate for vulnerabilities to a broad range of addictive behaviors.

But we also have other important influences that may add to or have an effect that is independent of that, and those are family history, modeling, attachment, trauma, rejection. Dewey Jacobs's model, I think, is quite important in that regard, as is some of the work of Jeff Derevensky. We have personality traits, in particular, impulsivity, that may have some neurological basis. Personality traits interact with coping strategies, and the work of Lia Nower and Mark Dickerson, I think, is important in understanding that as well. We also have peer-group interactions, which I think are important in terms of shaping attitudes and beliefs. And then, ultimately, we have many other convergences between belief systems and schemas in the cognitive belief structures.

These are fluctuating. These are not static. These are dynamic precursors that may well set the scene, but they in themselves are not going to create gambling

unless you have some degree of exposure to gambling. And we have the ecological government policy and public health relevance at this particular level. The gambling opportunity provides the groundwork or the foundations for the precursor elements to actually interact with protective factors to develop gambling. So, there is exposure to gambling, but we also need to have some affective shift, some salience of gambling.

As I experienced in my university days, I was taken to the track, and we had a number of bets. Seven of the bets lost. The last one won, and I managed to come out 10 cents in front. At the end of it I thought, “This is a relief. Thank God I got my money back. No more.” And it took me years of practice to get back into gambling. But, in essence, that experience didn't excite me about gambling, and yet among other people, the colleagues that demonically influenced me to go to the racetrack, one of them in hindsight was a problem gambler. He had won big early in his career, had a salience and preoccupation, and developed the cycle that we well know.

So, my basic view is that there is an important element that interacts with the neurobiological level, also subjective excitement, and generates and influences cognitive belief structures. But the important element is that there is some point at which the person suddenly has this affective shift.

Some social gamblers gamble for many years, on average five to nine years, without problems. Then, suddenly, something occurs, and there is a particular shift in cognitions and interactions with mood that provides a new meaning to gambling behavior. And some of that salience, I believe, is relevant to belief structures and to neurobiology and leads to the common phenomenon of problem gambling.

But we're looking at the notion or the assumption that there are different subtypes leading to different critical pathways, and to try to put this into some visual perspective, children and adolescents are exposed to gambling at a variety of ages and through a variety of different media, including parents. Many of them don't gamble or gamble intermittently and are then exposed—depending on your legal jurisdiction—at age 18 in Australia, 21 years in the U.S. They're exposed to family and peer games, gambling for matches—the family that plays together stays together—sports betting amongst peers, and lottery and horses, in particular, parental purchases, quite often the parents providing birthday scratch cards or gifts. It sets a nice model that gambling is fine. Many of those we know, like us, go on to develop social gambling behaviors, quite normal in the broadest meaning of the term.

In terms of adolescent gambling and youth gambling, we should acknowledge the work of Jeff Derevensky and Rina Gupta, looking at the nature of adolescence, motivation linked to enjoyment, excitement, money, the influence of poor self-

esteem and stress, looking at the need for interventions designed to enhance problem solving for a proportion of individuals with difficulty coping. We have the requirements of attitudinal shift, the image promotion of gambling in the community, parental acceptance of gambling as an acceptable behavior, and then information balanced against that is information being provided by the public health approaches. But we know that information, per se, isn't sufficient to shift behaviors. We need the attitude, so we need to look towards the importance of early attitudinal shifts and learning behavior.

It becomes important because, currently, we have Texas Hold'em, and I'm observing the interest in the television shows on cable TV, celebrity poker, on-line poker. I'm watching my son as he's engaging in and playing these particular games, and it is, in fact, starting to take on a degree of interest and promotion among adolescents. And it's a fascinating game. Many of them don't see it as gambling behavior, but as skills based and no different from any other video-type games. But I think with technological advances with handheld and Internet access using personal organizers it may become a problem later on. It's a great game to play. I play it every night, only for fun and for research.

We know that some people experience transient problem gambling and then they hit some brick wall early on and cease gambling. Others develop problem gambling and have major problems. We have a number of individuals who exhibit at-risk behaviors, a whole range of risky populations—reckless driving, exposure to or experimenting with drugs, alcohol, sexual practices, et cetera. Some of these remain at school, and they're poor at learning achievements. Others drop out of school and don't finish. On top of that we have another group of individuals who have comorbid conditions: attention deficit, conduct disorders, and other problems, and are more likely to seek treatment in the early phases and develop gambling problems and problems that are comorbid with gambling.

And so we have this particular confusion of social gamblers, a mixture of problem and pathological gamblers, and then another group of people who have more biologically based and physiological elements.

I'm arguing that we can distinguish at least three groups of pathological gamblers, and I believe that we can break these down into further subgroups within each particular category.

The behaviorally conditioned individuals are those who, when exposed to gambling opportunities and to reinforcement and cognitive distortions, end up making poor decisions, believing that you can win at gambling, and pursue gambling behaviors.

We have a second group who are emotionally disturbed individuals, and their gambling, basically, is to relieve or modulate affective states. And on top of that is

the behavioral conditioning, the excitement, and cognitive belief structures on top of that, but their primary reason to gamble is emotional.

The third group are those who are biologically vulnerable, more prone to addictive-type behaviors. They have high levels of impulsivity and exhibit multiple maladaptive behaviors and, again, are subject to behavioral conditioning.

In the last few minutes I want to talk about some of the clinical issues. Ecology is important. The environment, the attitudes, peer-group interactions are quite important in establishing the opportunities to gamble. Through the influx of classical and operant conditioning, excitement, physiological, and subjective arousal, we have excitement associated with gambling cues. We also have the beliefs that Bob Ladouceur, Tony Toneatto, and others have described in detail: the erroneous cognitions associated with gambling, misunderstanding of randomness, beliefs that you can actually win at gambling. Sometimes you do win, which reinforces those particular notions. That then leads to problem and pathological gambling.

This is pathway one. Minimal psychopathology. The gambling is primarily in peer-group contexts or exposed through peer groups, initially motivated by competitiveness, excitement, and winning. When they present for treatment, they have a shorter period of excessive gambling. Their problems are less severe at the time of presentation, or they have a particular crisis rather than recurrent crises. And they manifest a stable childhood and family history and background. In terms of psychopathology, there's an absence of gross premorbid indicators of psychopathology. There's a predominance of erroneous, irrational beliefs. They continue believing that you can win at gambling, but there's less evidence of neurological deficits, less neurotransmitter disregulation, conduct disorder, attention deficit, and learning disorders.

The affective and behavioral disturbances associated with gambling, many of the negative consequences and depression are in response to gambling-induced problems—depression, anxiety, worry about disclosure. Any substance abuse is to mediate the emotions caused by gambling concerns, and any criminal offense occurs in the absence of personality disorders, such as antisocial personality. There are lower levels of impulsivity, but it's still present. And there's more sensation-seeking combined with some impulsivity, but low levels of dysfunctional impulsivity.

Within this cohort natural recovery is more common. Self-help material and brief interventions are highly effective, and motivation enhancement is quite important. These are the nice people to work with because they're motivated, they comply with treatment, and they have a positive response to treatment, and they are highly recommended to deal with.

The second group, the emotionally vulnerable, I argue, have some degree of primary motivation linked to emotional escape through dissociation, through a narrowing of attention. And these people evidence some degree of vulnerability, factors which include childhood disturbances, or certain personality traits, which may manifest themselves in increased anxiety, some impulsivity, poor coping strategies, poor stress management and problem-solving capacities, and a family history of gambling behavior, which may or may not be genetic, some elements of trauma and abuse—and I think we need to explore that area further—lower levels of self-esteem, sense of rejection, building up their ego through gambling behaviors. Parental modeling, attachments, and shifts in attitude are quite important in this regard. Again, there is a lack of clarity with respect to genetic versus environmental factors, and I think there may be an interaction there.

The concepts of early onset, severity of the disorder, and predictors of later gambling in adolescents in treatment who drop out all refer to the concepts of impulsivity. Again, I think that there is a bimodal distribution, in particular, amongst females and the elderly, where you have some females developing this particular emotional escape early on in adolescence and young adulthood and then a second cohort in middle age and towards older age in respect to the empty-nest syndrome. The family has moved out, there's a sense of alienation or other difficulties that they may experience within the family, they get exposed to gambling, and then gambling provides them with this particular need. They have higher levels of psychopathology—mood disturbances, maladaptive coping styles—which tend to predate the gambling, and elements of risk-taking and impulsivity. Again, the gambling and substance abuse is motivated by the need for emotional escape, and they're using substances—prescription drugs and alcohol—in the same way that they're using gambling: to deal with their particular issues.

Irrational beliefs are prominent, but with less focus on winning. The primary motivator is to win to allow the gambling to continue, so they're looking towards winning, obviously, to get that magic jackpot, but primarily to get more money to sustain and continue their particular gambling behavior.

These people require more intensive cognitive behavioral therapy programs, a broader intervention that looks at stress management and problem solving, targeting some of the important factors that they have difficulty dealing with. Treatment of depression and other comorbid conditions takes greater predominance in this particular group, and they require longer-term supportive interventions and participation in self-help groups.

The third pathway includes the individuals you'd like to refer to people you don't like. They have neurobiological factors and they're difficult to treat. They have an early onset of gambling in early adolescence. They have a history of dysfunctional family backgrounds, abuse and neglect, and high levels of impulsivity, antisocial-

type behaviors, and risk-taking across a wide domain of behaviors, which extend beyond just gambling behaviors. And you can see experimentation, risk-taking behaviors, drugs, unprotected sex, and so forth, superficial relationships in early adolescence. They have a predominance of impulsivity and other related personality disorders. There is substance abuse that is independent of and aggravated by gambling, and there's a mixture between the two. There's evidence of neurological deficits in early childhood, and, as I've mentioned, there's a broad spectrum of gambling and non-gambling related criminal behaviors. And there's a greater level of instability in interpersonal relationships and employment.

The treatment implications for pathway three are intensive cognitive therapy coupled with the prospect of medication with some of the SSRIs (selective serotonin reuptake inhibitors), although we're not sure whether they target the depression or the impulsivity, and also interventions for non-gambling related comorbid conditions, in particular, some of the personality disorders, so that there is a broader treatment-resistant, more addictive-type group related to these.

In terms of future directions—I won't belabor this because we'll talk about this during the course of the next two days—I think we need to start looking at longitudinal studies to start clarifying predictor variables that will identify problem versus pathological gambling in some of the particular subtypes, trying to define more clearly what is the construct of the various subtypes of gambling. And that relates to some empirical tests and looking for study and research designs that will clearly differentiate some of these particular clusters and identify and refine further these three particular model groups.

Importantly, we need to work out the mechanism or the mode of action of treatment, and ask, is that consistent with the conceptual framework? In other words, if we're applying cognitive therapy, we're assuming and targeting cognitive ideation. Is there a dose-dependent relationship between behavioral treatment outcomes and changes in irrational cognitions? We need to address those things. If you're focusing on habituation, cue exposure, and imaginal desensitization, which are more physiologically based, do they operate through reduction of arousal, or do they operate through cognitive shifts or an interaction between the two? And I think we need to start looking more clearly at treatment implications by going through randomized control outcome studies and trying to get a better handle in terms of understanding what is the best treatment intervention for which particular subtype of problem gambler.

[End of presentation.]

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