Original Research

Effect of a New Casino on Problem Gambling in Treatment-Seeking Substance Abusers

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Problem gambling rates are frequently found to be higher in those who abuse substances than in the general population, and this group represents a well-established high-risk population for developing the disorder. In this study of 853 residential substance abusers, approximately 10% scored in the problem gambling range on the South Oaks Gambling Screen (SOGS). On most descriptive variables, these subjects appeared to be similar to substance abusers who do not have gambling problems. However, they tended to participate in more gambling behaviours and had more relationships with individuals who also gambled. There is some evidence that the introduction of a new casino in the community increased the SOGS scores for subjects who gambled most frequently on such casino-related gaming as slot machines, cards, and casino games.

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Clinical Implications

Screening for gambling problems among treatment-seeking substance abusers may identify potential additional serious clinical issues.

Involvement in gambling after addiction treatment may worsen gambling behaviour in those who gamble frequently.

Limitations

All data were self-reported and uncorroborated.

The study design permitted only correlational analyses, preventing any causal statements about the role of casinos in problem gambling.

Key Words: *gambling, Niagara casino, substance abuse, addiction treatment*

The DSM-IV has modelled pathological gambling after substance dependence (1). Symptoms defining pathological gambling strongly resemble those for substance dependence (for example, preoccupation with gambling, tolerance to gambling-related excitement, gambling-related withdrawal symptoms, and repeated efforts to cut down or stop gambling [2]). Further, treatment approaches for problem gambling have tended to resemble those offered to substance abusers, including residential, outpatient, and self-help approaches such as Gamblers Anonymous (3). Discussions of treatment for both chemical and behavioural addictions commonly employ concepts such as high-risk situations, relapse prevention, urges and cravings, denial, abstinence, and withdrawal. Not surprisingly, a considerable body of research has established a robust relation between chemical dependencies and pathological gambling (4,5). In general, higher rates of alcoholism and other substance use have been reported among gamblers, compared with the general population (6–8). Likewise, rates of pathological gambling appear to be higher among substance-abusing populations than among the general population (9–12). Spunt and others have noted that most of the available data have focused on subjects with alcohol or methadone-maintained opiate addictions (4); much less is known about gambling and other psychoactive substances.

The primary goals of this study were to assess the prevalence of problem gambling in samples of treatment-seeking

Table 1 Description of the sample

Variable	Nonproblem gamblers (*n* = 764)		Problem gamblers (*n* = 89)	
	n	%	*n*	%
Sex				
Male	498	65.2	66	74.2
Female	266	34.8	23	25.8
Source of Income				
Salary	234	34.0	32	34.4
Government assistance	454	66.0	61	65.6
Legal Problems				
None	521	69.0	63	64.9
Some	234	31.0	34	35.1
Marital Status				
Partnered	175	23.2	28	28.9
Nonpartnered	580	76.8	69	71.1
Substance Problem				
Alcohol	239	31.3	22	24.7
Stimulants	416	54.5	51	57.3
Cannabis	27	3.5	8	9.0
Opiates	61	8.0	8	9.0
Other	21	2.7	0	0
Family Gambling				
Father	54	7.2	20	20.6
Friend	116	15.4	40	41.2
Grandparent	18	2.4	9	9.3
Mother	39	5.2	14	14.4
Sibling	51	6.8	12	12.4
Spouse	33	4.4	7	7.2
Psychiatric Treatment				
Yes	255	33.4	23	25.8
Employment Status				
Employed	247	32.7	29	29.9
Not employed	509	67.3	68	70.1

subjects with alcohol, cocaine, cannabis, and opiate dependencies, and to evaluate whether problem gambling rates among substance abusers were affected by the introduction of the Niagara Casino in Niagara Falls, Ontario in 1996. To do this, we examined gambling behaviour and problem gambling rates among substance abusers in the 2 subsequent years (1997 and 1998). Room and colleagues recently found that the general rate and level of casino gambling increased significantly within 1 year of the introduction of the Niagara Casino but that there was little measurable impact on other gambling in the community (13). In addition, gambling problems and rates of related problems among family and friends were also found to rise. Since a strong association has been established between gambling and other psychopathology that includes addictions (5), substance abusers may be a group at a higher risk for developing gambling problems, compared with the general population, when access to gambling venues and activities is increased.

Method

We asked a consecutive sample of 853 individuals seeking residential substance-addiction treatment during a 36-month period to complete the 20-item South Oaks Gambling Screen (SOGS) (14) as part of the general intake assessment. This assessment also collected demographic data and information on the primary substance problem and self-reported lifetime psychiatric problem. The SOGS is a widely used and extensively validated screening measure for gambling problems (6).

Results and Discussion

Demographic Variables

Table 1 describes the sample's demographic characteristics. Problem gamblers and nonproblem gamblers did not differ on

Table 2 SOGS scores, year of admittance to substance abuse treatment, and effect of year of admittance and type of gambling on SOGS score for each gambling behaviour

Gambling Type	Participation in the previous 12 months by gambling status				Participation in the previous 12 months by year of admittance			Analysis of variance on SOGS score: effect of		
	Nonproblem gambling $n = 764$		Problem gambling $n = 89$		1996 $n = 103$	1997 $n = 404$	1998 $n = 346$	Year	Frequency	Year by frequency
	n	%	*n*	%	%	%	%			
Lottery	146	19.1	46	52.3	64.1	59.1	58.3		$P < 0.001$	
Pulltabs	46	6.0	32	36.0	34.0	33.7	42.6		$P < 0.001$	
Sports	44	5.8	28	31.5	24.3	25.3	27.5		$P < 0.001$	
Bingo	25	3.3	23	26.1	30.1	23.8	26.7		$P < 0.001$	
Race Tracks	6	0.8	10	18.0	19.4	13.4	15.1		$P < 0.001$	$P < 0.01$
Card Games	30	3.9	21	23.6	22.3	30.0	25.1	$P < 0.05$	$P < 0.001$	$P < 0.01$
Slot Machines	21	2.7	23	25.8	17.5	24.8	31.8		$P < 0.001$	$P < 0.001$
Casino Games	11	1.4	17	19.1	14.5	28.2	36.2		$P < 0.001$	$P < 0.01$
Dice	5	0.7	9	10.1	2.9	9.7	10.7		$P < 0.001$	$P < 0.01$
Stock Speculation	10	1.3	2	2.3	3.9	4.0	9.3		$P < 0.05$	

SOGS = South Oaks Gambling Screen

the following variables: rates of salaried vs socially assisted employment, sex, legal problems, self-reported psychiatric treatment, or participation in partnered relationships. The mean age of the sample was 33.8 years (SD 8.8).

The mean (SD) SOGS score for the entire sample was 1.3 (2.9). Using the standard criterion for determining a potentially clinically significant gambling problem (scores > 4) (14), 10.4% ($n = 89$) of the sample could be considered to have a gambling problem. An additional 3.9% ($n = 33$) endorsed 3 or 4 symptoms, considered an indication of a potential or preclinical gambling problem. Thus, 14.3% of this sample of treatment-seeking substance abusers reported clinically significant gambling-related symptoms within the past year. About one-third of the sample ($n = 277$; 32.5%) scored positive on at least 1 item on the SOGS. These rates are comparable to other studies of gambling among substance-abusing populations (for example, 9) and are much higher than the rates reported in the general population (7,15).

Stimulants were the most common primary problem substances, followed by alcohol, opiates, and cannabis. Problem gambling was significantly related to primary substance type, ($^2 = 13.76$, df 6; $P < 0.05$): subjects who primarily abused cannabis were more likely also to have a gambling problem (22.9%). These data suggest that the problem and nonproblem gambler groups were very similar demographically, except that cannabis use was more likely among subjects with a gambling problem.

Gambling Behaviour

As Table 2 shows, the subjects in this sample who had a gambling problem gambled statistically significantly more frequently for all forms of gambling assessed (except for stock market trading) than did the treatment-seeking subjects without a gambling problem.

Table 2 also shows that the subjects without a gambling problem most frequently gambled on lotteries; other forms of gambling were much less common in this group. This is consistent with the trends in the Ontario population as a whole (16,17). The group that abused substances and had a gambling problem also tended to play lotteries most frequently; however, this group also participated widely in other types of gambling. Subjects with a gambling problem reported playing significantly more games in the past year (mean 2.8, SD 2.2) than did those without a gambling problem (mean 0.5, SD 1.0; $F_{851} = 291.7$; $P < 0.0001$), suggesting a generally greater involvement in gambling activities.

Social Environment

Table 1 demonstrates elevated rates of gambling behaviour among family and friends of those with a gambling problem, relative to those without a gambling problem. The rates were highest among friends (41.2%) of problem gamblers, compared with friends (15.4%) of nonproblem gamblers. Subjects with a gambling problem reported a mean of 1.1 (SD 1.0) significant others who gambled, compared with a mean of 0.4 (SD 0.9) in the group without a gambling problem ($F_{851} = 49.0$; $P < 0.0001$). While the social environment of those with problem gambling often includes individuals who also gamble, it is not possible to evaluate whether those with problem gambling seek out relationships with people who also gamble, encourage gambling by these individuals, or are influenced by others' gambling behaviour.

Impact of a New Casino on Problem Gambling Rates

This data set includes individuals who sought addiction treatment in 1996 (the year that the Niagara Casino became operational) and in the 2 following years (1997 and 1998). It may be possible to assess the impact of increased access and availability of casino gambling on the gambling behaviour and rates of problem gambling in this high-risk group. Table 2 describes the gambling behaviour for each of the 3 study years (1996, 1997, and 1998). We found that casino-related gambling (that is, casino games and slot machines) increased significantly across the 3 study years, approximately doubling. However, participation in gambling behaviours that remained relatively equally available throughout this period (for example, lotteries and horse racing) was generally unaffected by the introduction of a casino. This suggests that introducing the casino had a measurable impact on the likelihood that this sample of treatment-seeking individuals would participate in casino-related gambling behaviour.

Using analysis of variance (ANOVA), Table 2 also evaluates the relation of SOGS scores to year of admittance for substance abuse treatment and the reported frequency of participation in each gambling behaviour (less than weekly, weekly, or more often). As Table 2 shows, we found a main effect for frequency for all gambling behaviours: individuals who gambled at least once weekly had higher SOGS scores than did those who gambled less frequently. We found a main effect for year of admittance only for those participating in card games whose SOGS for 1998 (mean 1.5) was higher than for 1997 (mean 1.2) or 1996 (mean 1.2).

However, of greatest interest are the interaction effects found for several casino-related gambling behaviours (for example, slot machines, casino games, card games, or dice games) as well as for horse racing. Except for horse racing, individuals engaging in casino-related gambling behaviour at least weekly had higher SOGS scores than did those who played less frequently (that is, not at all or less than weekly). Thus, not only was this sample more likely to gamble in casinos and on slot machines following the opening of the Niagara Casino, those who participated at least weekly in these types of gambling showed significantly elevated SOGS scores. The respective SOGS means for those who gambled less than weekly, weekly, or more often than weekly were as follows: for casino gamblers, 1.5, 6.3, and 7.3; for dice gamblers, 0, 5.1, and 10.3; for slot-machine gamblers, 2.6, 4.9, and 7.1; and for card gamblers, 4.0, 4.1, and 6.3.

Conclusion

This study indicates that participation in gambling behaviours and rates of problem gambling among treatment-seeking substance abusers are several times higher than rates in the general population, which are consistently reported to be between 1% and 2% across most jurisdictions throughout North America (15). Subjects who abused substances and who also met screening criteria for problem gambling were found to participate in more gambling behaviours and to be in contact with others who also gambled to a higher degree than those without a gambling problem. However, there were very few differences between the groups on other demographic or descriptive variables. Cannabis problems and problem gambling seem to be significantly associated. These results suggest that subjects with substance abuse and gambling problems may not differ greatly from substance abusers without gambling problems and can be treated for problem gambling within the general treatment stream. For example, specialized interventions for problem gambling could be integrated into the core substance abuse treatment program. Also, attention might be given to the family and social environment of substance abusers with a gambling problem.

There is some evidence suggesting that the presence of a new casino may be affecting gambling behaviour in this high-risk population. Earlier, Room and others (13) detected a measurable impact on reported gambling problems within 1 year of the 1996 introduction of the Niagara casino. In this study of treatment-seeking substance abusers—a population at greater risk for problem gambling—we measured a similar impact. While participation in most gambling types remained constant between 1996 and 1998, we observed a significant increase in slot-machine and casino gambling. In addition, when we analyzed the rates of problem gambling across the 3 study years, as measured by the SOGS, we observed a significant interaction with the frequency of several types of casino-related gambling behaviours. However, these interactions only occurred for those who abused substances and who gambled at least weekly.

The correlational nature of these data precludes any statement of a causal connections between the introduction of a new casino and the observed increased problem gambling among the most frequent gamblers in this sample. However, we did not observe this pattern among gambling behaviours relatively unaffected by the new casino's presence (for example, lotteries, sport lotteries, or stock speculation). This suggests a potential relation, which should be further studied, between the presence of a casino and gambling by high-risk populations.

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Résumé : Effet d'un nouveau casino sur le jeu compulsif de toxicomanes en traitement

Les taux de jeu compulsif sont souvent plus élevés chez les toxicomanes que dans la population générale, et les toxicomanes représentent une population reconnue à risque élevé de développer ce problème. Dans cette étude menée auprès de 853 toxicomanes en résidence, environ 10 % se classaient dans le segment de jeu compulsif, à l'échelle de jeu de South Oaks (SOGS). À la plupart des variables descriptives, ces sujets apparaissaient semblables aux toxicomanes qui n'ont pas de problèmes de jeu. Cependant, ils avaient tendance à participer à plus de comportements de jeu compulsif et avaient plus de relations avec des personnes qui jouaient aussi. Certaines preuves indiquent que l'apparition d'un nouveau casino dans la communauté rehaussait les scores à la SOGS pour les sujets qui jouaient le plus souvent à des jeux liés au casino comme les machines à sous, les cartes et autres jeux de casino.