

Disordered Gambling Among University-Based Medical and Dental Patients: A Focus on Internet Gambling

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The authors evaluated gambling behaviors, including Internet gambling, among patients seeking free or reduced-cost dental or health care. Three hundred eighty-nine patients at university health clinics completed a questionnaire that included the South Oaks Gambling Screen (SOGS; H. R. Lesieur & S. Blume, 1987). All respondents had gambled in their lifetimes, with 70% gambling in the past 2 months. On the basis of SOGS scores, 10.6% were problem gamblers, and 15.4% were pathological gamblers. The most common forms of gambling were lottery, slot machines, and scratch tickets. Internet gambling was reported by 8.1% of participants. Compared to non-Internet gamblers, Internet gamblers were more likely to be younger, non-Caucasian, and have higher SOGS scores. This study is among the first to evaluate the prevalence of Internet gambling and suggests that people who gamble on the Internet are likely to have a gambling problem. Results also illuminate the need to screen patients seeking health care services for gambling problems.

The fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1994) describes pathological gambling as a disorder that involves preoccupation with, tolerance of, and loss of control relating to gambling behaviors. A recent meta-analysis of prevalence rates (Shaffer, Hall, & VanderBilt, 1999) concluded that approximately 1.6% of North American adults may be Level 3 (pathological) gamblers. An additional 3.9% may be Level 2 (problematic) gamblers, bringing the combined percentage of disordered gamblers to more than 5%.

Although prevalence rates in general populations have been described (Shaffer et al. 1999), there is a paucity of studies that have focused on the prevalence of gambling among primary-care patients (Miller, 1996b; Pasternak & Fleming, 1999; Van Es, 2000). As a consequence, health care professionals may not be aware of the impact that gambling behaviors can have on the health of their patients. Health comorbidities found to be associated with pathological gambling include substance abuse, circulatory disease, gastrointestinal distress, sexual dysfunction, anxiety disorders, and depression (Bergh & Kuhlhorn, 1994; Daghestani, 1987b; Lesieur, Blume, & Zoppa, 1986; Miller, 1996a; Pasternak & Fleming, 1999).

This study presents two central opportunities for contribution to the existing body of knowledge about disordered gambling. First, we directed our attention toward gambling behaviors among a subset of the population that seeks free or reduced-cost health care. A second focus of this study was the types of gambling activities in which people engage, with special attention paid to Internet gambling. Many researchers have examined the prevalence of disordered gambling (e.g., Shaffer et al., 1999), but few have presented data on the types of gambling in which individuals participate, and no known published studies have focused on the prevalence of Internet gambling.

Method

Participants for this study were drawn from patients seeking treatment at the University of Connecticut Health Center (UCHC) each year. Of the 389 patients included in this study, 76.5% were from UCHC dental clinics, which serve primarily uninsured patients. The remaining 22.5% of participants were from other UCHC medical clinics. The UCHC is located 8 miles southeast of Hartford, Connecticut, and is approximately 65 miles from two large casinos.

Procedures

Questionnaires were left in the waiting areas of various UCHC health and dental clinics for 13 months (8/1/99–9/2/00) along with collection boxes. Approximately 2,000 patients were treated in these clinics during the study period. Signs encouraging questionnaire completion were displayed in these general areas. On occasion, a research assistant would approach patients within clinics and ask them to complete a screen. No patients who were verbally asked to complete a questionnaire refused. Nonresponses were probably a result of failure to notice the signs and questionnaires rather than refusal to participate. An overall average return rate of 85.7% across the UCHC clinics was determined on weeks in which the numbers of screens left out and collected were monitored.

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Measures

The 2-page questionnaire consisted of the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987) as well as questions regarding demographic information and gambling activities.

Data Analysis

We used the SOGS (Lesieur & Blume, 1987) component of the questionnaires to classify participants as Level 1 (score of 0–2), Level 2 (score of 3–4), or Level 3 (score >5) gamblers (Lesieur & Heineman, 1988; Shaffer et al., 1999).

We present here the types of participants' gambling activities, along with the frequency and intensity of recent gambling behaviors (past year, past 2 months, and past week) by level of disordered gambling. We compared participants who reported experience with Internet gambling and participants who reported no experience with Internet gambling on demographic variables and SOGS scores. We evaluated differences among the three levels of gamblers, as well as between Internet versus non-Internet gamblers, using the chi-square test for categorical data, analysis of variance for continuous data, and Kruskal–Wallis tests for non-normally distributed continuous data.

Results

Response Rates and Demographic Characteristics of the Respondent Sample

In total, 402 questionnaires were filled out. Thirteen respondents left many SOGS items unanswered and were thus excluded, leaving 389 questionnaires for further analysis.

Continuum of SOGS Scores

Of the respondents, 46.8% scored a 0 on the SOGS, indicative of no problematic gambling behaviors. Additional segments of respondents scored 1 (17.0%) and 2 (10.3%) on the SOGS. Therefore, according to the classification system described by Shaffer et al. (1999), 74.0% of respondents qualified as Level 1 gamblers, and 10.6% of the respondents were classified as Level 2 gamblers, with 6.2% scoring a 3 and 4.4% scoring a 4. The final 15.4% of respondents were classified as Level 3 gamblers, with 6.9% scoring between 5 and 9, 5.7% scoring between 10 and 14, and 2.8% scoring between 15 and 20.

Demographic Characteristics

Although no statistically significant group differences were found with regard to gender, the three groups of gamblers differed on other demographic characteristics. Specifically, differences among the groups emerged with respect to age, $F(2, 382) = 8.58, p < .01$; ethnicity, $\chi^2(6, N = 374) = 23.01, p < .001$; marital status, $\chi^2(8, N = 384) = 18.80, p < .001$; education, $\chi^2(8, N = 376) = 34.45, p < .001$; and yearly income, $\chi^2(6, N = 374) = 12.89, p < .05$. Compared to Level 1 gamblers, Level 2 and 3 gamblers were more likely to be younger, of non-Caucasian ethnicity, not married, and have lower levels of education and income.

Gambling Participation

All of the respondents reported having gambled in their lifetimes, with 90.0% having gambled within the past year, 70.0%

within the past 2 months, and 42.0% within the past week. The most common form of gambling was the lottery, with 89.2% of the total sample having lifetime experience with the lottery. Twenty-five percent of the sample reported weekly or more frequent lottery playing. Slot machines were the next most popular gambling activity, with 81.7% of the sample having lifetime experience, and 6.7% playing slots at least weekly. Scratch tickets were played by 78.7%, with 19.0% of participants playing at least weekly. Card-playing forms of gambling were reported by 70.8%, with 8.7% of participants playing at least weekly. More than half of the participants reported lifetime participation in sports betting (56.9%), bingo (56.0%), and animal betting (52.7%). Lifetime participation in other gambling activities, such as games of skill (40.8%), roulette (37.1%), dice (33.8%), high-risk stocks (23.6%), and video lottery (21.7%) were each reported by only a minority of the total sample.

Internet Gambling

Of note is that 8.1% ($n = 31$) of participants reported Internet gambling in their lifetimes, including 3.7% ($n = 14$) who reported gambling on the Internet at least weekly. Demographic and other characteristics of Internet gamblers compared to non-Internet gamblers are shown in Table 1. Age, $F(1, 378) = 17.68, p < .01$, and ethnicity, $\chi^2(3, N = 376) = 17.80, p < .001$, were found to differ significantly among participants who reported Internet gambling compared to those who did not. Younger participants were more likely than older participants to have Internet gambling experience. Although non-Caucasian participants represented 15.8% of the total participants, they represented 35.8% of those participants who had experience with Internet gambling.

The comparison of participants with or without Internet gambling experience revealed significant differences in both SOGS scores, $F(1, 382) = 40.79, p < .01$, and classified gambling levels, $\chi^2(2, N = 389) = 63.23, p < .001$. Only 22% of participants without any Internet gambling experience were Level 2 or 3 gamblers. In contrast, 74% of participants with Internet gambling experience were classified as Level 2 or 3 gamblers.

Discussion

We examined gambling participation and problems of 389 patients who completed questionnaires at the UCHC medical and dental clinics. When the lifetime rates of 10.6% for Level 2 and 15.4% for Level 3 gamblers are combined, the resulting 26.0% rate of disordered gambling (Levels 2 and 3) in this study far exceeds the 6.7% derived from general population surveys conducted since 1993 (National Gambling Impact Study Commission, 1999; Shaffer et al., 1999).

The higher rates of Level 2 and 3 gamblers found in this study may be due to a response bias. Individuals who liked to gamble or who had a problem with gambling may have been more likely to complete the questionnaire. However, considering that 74.0% of the participants were classified as nonproblematic gamblers and that 58.2% scored 0 on the SOGS, the majority of participants who completed the questionnaires had no apparent gambling problems. Another explanation for the higher rates of disordered gambling in this population may be related to the demographics of the sample. People who seek services at UCHC dental clinics have risk factors

Table 1
Demographic and South Oaks Gambling Screen (SOGS) Scoring Characteristics

Variable	Without Internet gambling experience	With Internet gambling experience	Total sample
<i>N</i>	351	31	389
Gender (female)	56.7	41.9	54.4
Age (<i>M/SD</i>)	43.5/15.8	31.7/13.6	42.8/16.0
Education level			
No high school diploma	9.3	20.0	9.8
High school diploma	27.0	36.0	27.9
Some college	23.8	8.0	22.6
College diploma	21.5	20.0	21.3
Postcollege	18.3	16.0	18.4
Ethnicity ^a			
African American	7.7	12.9	8.3
Caucasian	86.3	61.3	84.2
Hispanic	5.4	22.6	6.7
Other	0.6	0.3	0.8
Marital status			
Divorced or separated	15.0	19.4	15.1
Living w/partner	10.4	16.1	10.7
Married or remarried	46.7	29.0	45.6
Single	23.6	29.0	24.0
Widowed	4.3	6.5	4.7
Income			
Under \$10K	13.7	22.6	14.4
\$10–25K	21.7	22.6	21.4
\$25,001–50K	24.7	22.6	24.9
Above \$50K	39.9	32.2	39.3
SOGS score (<i>M/SD</i>) ^a	1.8/3.4	7.8/2.0	2.26/4.01
SOGS level ^a			
Level 1	78.3	25.8	74.0
Level 2	10.5	9.7	10.6
Level 3	11.1	64.5	15.4

Note. All values are percentages unless otherwise indicated.

^a Groups differ, $p < .001$.

for disordered gambling identified in other studies of special populations, such as relatively younger age, lower income, and less education (Cunningham-Williams, Cottler, Compton, & Spitznagel, 1998; Feigelman, Wallisch, & Lesieur, 1998; Pasternak & Fleming, 1999; Shaffer et al., 1999; Stinchfield & Winters, 1998; Volberg, 1998; Westphal & Rush, 1996). The prevalence of disordered gambling in this sample of medical and dental patients is similar to rates reported in substance abusing populations (Feigelman et al., 1998; Lesieur et al., 1986; Petry, 2000b; Shaffer et al., 1999).

Because only one other known study reported on the prevalence of Internet gambling, comparisons of the rates of Internet gambling found in this study to other populations are premature. Only Petry and Mallya's (2001) study provides a comparative perspective. Using a methodology similar to that of the present study, Petry and Mallya examined rates of Internet gambling among UCHC health center employees ($n = 907$) who, as a group, had an almost identical mean age (42.8) but higher annual income and educational achievement than participants in the present study. Yet Petry and Mallya found a prevalence rate of Internet gambling of just 1.2%, which is a considerable departure from the present study's findings of 8.1%. Because access to the Internet is traditionally correlated with populations that have higher income and educational attainment, the present study's higher rate of Internet gambling was not expected.

The relative difference in Internet gambling rates between the present study and that of Petry and Mallya (2001) may be due to the higher percentage of Level 2 and 3 gamblers found in the present study. Among UCHC employees, Petry and Mallya found a much smaller overall percentage of Level 2–3 gamblers (4.8%) than the present study (26.0%). With the present study's higher overall percentage of problematic gamblers, an associated increase in percentage of Internet gambling may not be surprising. Indeed, 74.2% of Internet gamblers were found to be Level 2 or 3 gamblers, with 64.5% classified as Level 3 gamblers.

Although Internet gambling was the least common gambling activity, the 8.1% ($n = 31$) of participants who reported experience with Internet gambling remains an important finding. Accessibility and use of Internet gambling opportunities are likely to increase with the explosive growth of the Internet. The University of California, Los Angeles (UCLA) Internet Report (UCLA Center for Communication Policy, 2000) indicated that the number of Americans using the Internet exceeded 100 million by 1999. During each day of the first 3 months of 2000, approximately 55,000 individuals logged on to the Internet for the first time (UCLA Center for Communication Policy, 2000). Thus, an increase in Internet use may foster the development of more Level 2 and 3 gamblers, or attract individuals who already have a gambling problem. Indeed, the availability of Internet gambling may draw

individuals who seek out isolated and anonymous contexts for their gambling behaviors.

The high rates of disordered gambling found among UCHC patients illustrate the potential for proactive screening and interventions by health professionals. Health professionals typically attend to a range of patient health and behavior correlates, such as alcohol use, sleep, diet, exercise, and other psychosocial factors. These behaviors and contextual attributes are understood to affect, in complex ways, the health outcomes of patients. Yet attention to gambling as a marker of potential comorbidities is still lacking within health clinic settings. Persons struggling with gambling behaviors are often burdened by health and emotional difficulties (Daghestani, 1987a; Pasternak & Fleming, 1999). These problems include substance abuse, circulatory disease, digestive distress, depression, sexual dysfunction, pervasive anxiety, and risky sexual behaviors (Daghestani, 1987b; Lesieur et al., 1986; Miller, 1996a; Petry, 2000a, 2000b). Screening for disordered gambling among patients may enhance the ability of health professionals to intervene in the physical and emotional health of individuals. Screening strategies are particularly important when dealing with populations in which regular visits to dental or general health clinics may be the exception rather than the norm.

With the expansion of localized and Internet gambling, a rise in disordered gambling may be inevitable as individuals gain easier access to gambling opportunities. The consequences of gambling expansion may continue to negatively affect the health and social contexts of individuals. As interest in treatments for disordered gambling grows (Petry & Armentano, 1999), health professionals should be aware of the signs of disordered gambling and proactively inform patients of the risks involved.

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