

Overall Gambling Behaviors and Gambling Treatment Needs among a Statewide Sample of Drug Treatment Clients
in Ohio

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Abstract

Casino gambling in Ohio became available for the first time in May 2012. This gambling expansion led the Ohio Substance Abuse Monitoring (OSAM) Network, Ohio's drug abuse surveillance system that collects drug trend data on an ongoing basis, to amend its protocol in June 2011 to include collection of data related to problem and pathological gambling to inform *current* treatment and prevention needs. OSAM collected gambling data from July 2011 to June 2012 via focus group interviews of 714 drug users recruited from alcohol and other drug (AOD) treatment programs throughout Ohio. Participants who reported gambling during the past six months (n = 412) completed the South Oaks Gambling Screen (SOGS). This study found a prevalence estimate of 12.1 percent for probable pathological gambling among its statewide sample. Sizeable proportions of participants reported that they gambled more when using AOD (23.5%) and used more AOD when gambling (19.4%). A majority of study participants (59.2%) reported participation in at least one type of gambling during the past six months, and of those participants, only 22.2 percent reported ever having been asked about gambling while receiving AOD treatment services, with just 12.5 percent reporting ever having had gambling treatment services offered to them. Men were 4.1 times more likely to screen positive for probable pathological gambling than women; non-Whites were 61.0 percent more likely to screen positive than Whites. Findings presented in this report have the potential to help shape and strengthen problem and pathological gambling prevention and treatment measures in Ohio.

Introduction

Rates of problem and pathological gambling among those who abuse substances are higher than the general population. Estimates for problem and pathological gambling in the general population range from 1 to 2.5 percent (Ferris, Stirpe and Ialomiteanu 1996; Shaffer and Hall 2001); whereas, rates among substance abusers could be up to 10 times higher (Center for Substance Abuse Treatment, SAMHSA 2005; Feigelman et al. 1995). Studies of persons in residential treatment facilities for substance abuse have found problem and pathological gambling to range from 10.5 to 29 percent. Family history of problematic gambling has also been shown to be a factor in predicting problem and pathological gambling among individuals seeking treatment for alcohol and drug abuse (Ledgerwood and Downey 2002; Toneatto and Brennan 2002; Toneatto, Ferguson and Brennan 2003). The residual cost of problem and pathological gambling within the United States is approximately \$5 billion (Petry, Stinson and Grant 2005). Petry, Stinson and Grant (2005) demonstrated that problem and pathological gambling were more prevalent within the Midwest and Western regions when compared with other regions of the US. Therefore, this issue may be one of considerable concern for Ohio residents, a Midwestern state.

Past researchers have demonstrated a relationship between problem and pathological gambling and substance abuse. Some researchers have demonstrated an increased risk of problem and pathological gambling within particular populations, including men, African Americans, Latinos, individuals who were not currently married, and individuals with a diagnosis of substance abuse or dependence (Feigelman, Wallisch and Lesieur 1998; Petry, Stinson and Grant 2005, Toneatto and Brennan 2002). When compared with non-gamblers, problem and pathological gamblers were often more likely to use illicit drugs, particularly marijuana, cocaine and heroin (Feigelman et al. 1995; Ledgerwood and Downey 2002; Toneatto and Brennan 2002). Polysubstance abuse and difficulty abstaining from drug use were also more common among problem and pathological gamblers than non-problem gamblers (Ledgerwood and Downey 2002). In states that have recently allowed gambling, Toneatto, Ferguson and Brennan (2003) found that persons diagnosed with substance use disorders were increasingly more likely to engage in casino-style gambling after casinos opened in the region. Petry, Stinson and Grant (2005) investigated whether the presence of psychiatric conditions was directly related to problem and pathological gambling among adults within the US. They found that alcohol and other drug (AOD) dependence rates were highly prevalent among problem and pathological gamblers. Past researchers have concurred, suggesting that screening for and treating problem and pathological gambling should be a priority within the substance abuse treatment regimen (Feigelman et al. 1995; Feigelman, Wallisch and Lesieur 1998).

Casino gambling in Ohio became available for the first time in May 2012 with the opening of casinos in Cleveland and Toledo, followed by a casino opening in Columbus in October 2012; the last of Ohio's casinos opened in Cincinnati in March 2013. A portion of tax revenues collected from casinos has been slated to fund programs to assist Ohioans with gambling problems, as well as to offer assistance to those Ohioans at-risk for gambling problems. The primary purpose of this study was to inform policymakers on the current overall gambling behaviors of drug treatment clients in Ohio. The secondary purpose was to inform on the current level of gambling treatment exposure; specifically, this study aimed to gauge perceived personal need for gambling treatment, knowledge of gambling treatment and experience with gambling treatment among clients currently enrolled in drug treatment services throughout Ohio. This study assessed problem and pathological gambling through the administration of the South Oaks Gambling Screen (SOGS), a short questionnaire based on DSM IV criteria for problem and pathological gambling. SOGS was developed by Lesieur and Blume (1987) and is a widely used screening instrument for problem and pathological gambling in both community and clinical settings. Previous researchers have established that SOGS demonstrates satisfactory reliability and validity (Strong, Lesieur, Breen, Stinchfield and Lejuez 2004; Stinchfield 2002).

Method

Design and Sample

The Ohio Substance Abuse Monitoring (OSAM) Network conducts focus groups and individual interviews with active and recovering drug users and community professionals (e.g., treatment providers and law enforcement officers) to produce epidemiological descriptions of local substance abuse trends. Active drug users are persons currently using illicit substances, and recovering drug users are persons currently enrolled in an AOD treatment program with at least one Diagnostic and Statistical Manual of Mental Disorders (DSM) diagnosis of substance abuse or substance dependence. Qualitative findings are supplemented with available statistical data such as coroners' reports and crime laboratory data for the purpose of data triangulation, examining multiple data sources to support participant observations. In addition, media sources such as local newspapers are also monitored for information related to substance abuse trends. Once integrated, these valuable data provide Ohio Mental Health and Addiction Services (OhioMHAS) with real-time, accurate epidemiologic descriptions that policymakers need to plan appropriate prevention and intervention strategies. In addition to its responsibility for the prevention and treatment of substance use disorders, OhioMHAS is also responsible for the prevention and treatment of problem and pathological gambling. Thus, OSAM amended its protocol in June 2011 to include collection of data related to problem and pathological gambling.

This study was based upon survey data collected from July 2011 through June 2012 preceding all OSAM participant focus group interviews (qualitative findings from focus groups are presented in Targeted Response Initiative reports for January and June 2012 available for download via OhioMHAS website: <http://mha.ohio.gov/>). The sampling plan was one of convenience; participants were 714 recovering drug users recruited from AOD treatment programs in each of OSAM's eight regions: Akron-Canton, Athens, Cincinnati, Cleveland, Columbus, Dayton, Toledo and Youngstown. Note: while this study's findings were generated through convenience sampling, there was no reason to suspect that non-participating recovering drug users also enrolled in AOD treatment programming in Ohio differed from this study's sample, as the study sample was diverse and drawn from every region of Ohio and from every community type: urban, suburban, rural and Appalachian. Participants provided written informed consent, and study procedures were in accord with the standards of the Ohio Department of Health Institutional Review Board and the 1964 Helsinki Declaration and its later amendments; the authors also declare that they have no conflict of interest. Note: prevalence estimates were based upon 634 of the study's 714 participants: analyses excluded 18 participants who did not provide gambling data, thus essentially opting out of the study, and 62 gambling participants with missing or incomplete SOGS. Unfortunately, early training issues led to a data collector not administering SOGS to 14 gambling participants, and another data collector failed to provide the third page of SOGS to 17 gambling participants. The remaining 31 excluded cases were due to incomplete SOGS with one or more scored item left blank. However, when missing SOGS cases were examined in relation to SOGS present cases for each demographic variable and for each AOD variable either through chi-square or t-test, the only significant difference was found for the variable of OSAM Region. Proportions of SOGS missing cases by OSAM region were as follows: Youngstown (41.7%), Dayton (29.4%), Athens (15.6%), Cincinnati (12.2%), Cleveland (12.0%), Toledo (12.0%), Columbus (3.1%) and Akron-Canton (0.0%) ($N = 412$, $X^2 = 57.523$, $df = 7$, $p = .000$, $Cramer's V = .374$). There were no significant differences between missing and non-missing SOGS cases based on Sex, Race, Age, Education and Poverty Status or on any AOD use variable; thus, these two groups were deemed to be similar. And, while the OSAM Network typically reports data by region to highlight regional trends, due to the significant variance in missing SOGS cases across regions, the variable OSAM Region was removed from the data analysis plan of this current study.

Measures

Data collectors, or rather regional epidemiologists (REPIs), individuals with advanced degrees in social sciences (e.g., social work, counseling or public health) and trained to deliver OSAM data collection protocols, administered a 10-item *Brief Survey of Gambling Characteristics* along with a 10-item *Brief Survey of Participant Characteristics*. In addition, REPIs administered SOGS to all participants who reported participation in at least one type of gambling during the past six months. The OSAM Network is Ohio's drug abuse and problem gambling surveillance system; the Network collects data on an ongoing basis and publishes findings every six months to

illustrate *current* trends and inform *current* treatment and prevention needs. Thus, participants were not asked to complete SOGS if no gambling participation during the past six months, likewise participants were instructed to only report on AOD use during the past six months. OSAM researchers scored SOGS by assigning one point for each item positive response and then summed points across items. A cumulative score of zero through two equaled no problem gambling; scores of three or four equaled some problem gambling; and scores of five or higher equaled probable pathological gambling. All surveys were self-administered; participants were directed to check boxes to indicate responses.

Brief Survey of Gambling Characteristics. This survey asked the following questions: *What types of gambling have you participated in over the last six months?* Check all that apply: bingo, lottery/scratch-offs, casino gambling, dice/craps/poker non-casino, horse/dog racing, sports betting/office sports pools, stock market/day trading, Internet gambling, other gambling specify and no gambling over the last six months (if respondent selected this option, respondent was instructed to stop and return survey to REPI); *What is your primary gambling type?* Check only one response: bingo, lottery/scratch-offs, casino gambling, dice/craps/poker non-casino, horse/dog racing, sports betting/office sports pools, stock market/day trading, Internet gambling or other gambling specify; *Have you ever tried to get help for your gambling?* yes/no; *Have you ever participated in gambling treatment?* yes/no; *Do you currently need help for a gambling problem?* yes/no; *Have you ever been asked about gambling while in treatment for alcohol/drug use?* yes/no; *Have gambling treatment services ever been offered to you?* yes/no; *Are you familiar with Gamblers Anonymous?* yes/no; *Have you ever attended a Gamblers Anonymous meeting?* yes/no; *What is the relationship between your gambling and your alcohol/drug use?* Check all that apply: did not use alcohol/drugs when gambling, used more alcohol/drugs when gambling, used less alcohol/drugs when gambling, gambled more when using alcohol/drugs, gambled less when using alcohol/drugs, gambled to buy alcohol/drugs, substituted gambling for alcohol/drug use and other relationship specify.

Brief Survey of Participant Characteristics. This survey asked the following questions: *What is your sex?* male/female; *Are you of Hispanic, Latino or Spanish origin?* yes/no; *What is your race?* Check all that apply: White, Black or African American, American Indian or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander and other race; *As of today's date, what is your age in years?* *What is the highest level of school you have completed?* Check only one response: less than high school graduate, high school graduate (including GED), some college or associate's degree and bachelor's degree or higher; *How many people made up your household last year?* *Of the number of people included in your household last year, how many were children under 18 years of age?* *What was your household's approximate total income last year?* Check only one response: less than \$11,000, less than \$15,000, less than \$19,000, less than \$22,000, less than \$26,000, less than \$30,000, less than \$34,000, less than \$38,000, or more than \$38,000; *What drugs have you used over the last six months?* Check all that apply: alcohol, marijuana, powdered cocaine, crack cocaine, heroin, prescription opioids ("pain killers"), methamphetamine, prescription stimulants (e.g., Adderall[®] or Ritalin[®]), Ecstasy, sedative-hypnotics ("benzos," e.g., Xanax[®]) and other drug specify.

South Oaks Gambling Screen (SOGS). This instrument contains 20 scored items designed to assess some problem and probable pathological gambling: *When you gamble, how often do you go back another day to win back money you have lost?* Check only one response: never, some of the time (less than half the time I lose), most of the time I lose, or every time I lose; *Have you ever claimed to be winning money gambling, but weren't really? In fact, you lost?* Check only one response: never, yes (less than half the time I lost), or yes (most of the time); *Do you feel you have ever had a problem with betting or money gambling?* Check only one response: no, yes, or yes (in the past, but not now); *Did you ever gamble more than you intended to?* yes/no; *Have people criticized your betting or told you that you had a problem, regardless of whether or not you thought it was true?* yes/no; *Have you ever felt guilty about the way you gamble, or what happens when you gamble?* yes/no; *Have you ever felt like you would like to stop betting money on gambling, but didn't think you could?* yes/no; *Have you ever hidden betting slips, lottery tickets, gambling money, IOUs, or other signs of betting or gambling from your spouse, children or other important people in your life?* yes/no; *Have money arguments ever centered on your gambling?* yes/no; *Have you ever borrowed from someone and not paid them back as a result of your gambling?* yes/no; *Have you ever lost time from work (or*

school) due to betting money or gambling? yes/no; If you borrowed money to gamble or to pay gambling debts, who or where did you borrow: from household money? yes/no; from your spouse? yes/no; from other relatives or in-laws? yes/no; from banks, loan companies, or credit unions? yes/no; from credit cards? yes/no; from loan sharks? yes/no; You cashed in stocks, bonds or other securities? yes/no; You sold personal or family property? yes/no; You borrowed on your checking accounts (passed bad checks)? yes/no.

Analysis Plan

This study's data analysis plan included univariate, bivariate and multivariate analyses. All analyses were conducted using SPSS. An alpha level of .05 was used for all statistical tests. Counts and frequencies were run for each variable, with measures of central tendency reported for the variable Age (mean, median and mode). Chi-square tests were performed to examine the associations between Gambling Participation and the independent variables of Sex, Race, Education and Poverty Status. An independent samples t-test was performed to compare the mean age of gambling participants versus non-gambling participants. The categorical variable Approximate Household Income was not included in analyses, as this variable did not describe household incomes greater than \$38,000. The purpose of this categorical variable, asked along with number of persons in household, was to create the variable Poverty Status (living below the 2010 federal poverty level: yes/no). Data were collected primarily from public treatment programs where the vast majority of clients were non-privately insured and mostly indigent; just 16.2 percent of the study population reported an approximate household income greater than \$38,000. Gambling Participation was defined as participation in any gambling type during the past six months: bingo, lottery/scratch-offs, casino gambling, dice/craps/poker non-casino, horse/dog racing, sports betting/office sports pools, stock market/day trading, Internet gambling, other gambling specify (if no responses were checked across gambling types, and the response option of no gambling was not checked, data were coded missing).

Chi-square tests were performed to examine the associations between Probable Pathological Gambling and each of the aforementioned independent variables, as well as each AOD use variable. An independent samples t-test was performed to compare the mean age of probable pathological gamblers versus non-probable pathological gamblers. Probable Pathological Gambling was defined as participant having a SOGS score of five or greater; non-probable pathological gambling was defined as participant having a SOGS score of zero to four or no SOGS score due to non-gambling status (if a scored SOGS item was left blank, SOGS was invalid and coded missing). Chi-square tests were also performed to examine the associations between Probable Pathological Gambling and each gambling type. Independent samples t-tests were performed to compare the mean number of gambling types participated in and the mean number of AOD types used during the past six months for probable pathological gamblers versus non-probable pathological gamblers. Lastly, in order to identify the relative importance of participant characteristics to probable pathological gambling, a logistic regression model was developed wherein Probable Pathological Gambling was entered as the dependent variable and the following independent variables were entered through block entry: Sex, Race, Age, Marijuana Use, Ecstasy Use and Number of AOD Types. All of the entered independent variables were found to have a significant association with probable pathological gambling through bivariate analyses, thus each was included in the model and each was hypothesized to have relative importance to probable pathological gambling. Odds ratios with corresponding confidence intervals were generated and set at 95%. Note: due to few cases of some problem gambling ($n = 32$) and criticism that SOGS overestimates gambling severity, OSAM researchers decided to examine the correlates of probable pathological gambling only.

Results

Participant Gambling Experience

The majority of participants (59.2%; $n = 412$) reported participation in at least one type of gambling during the past six months, with 46.6 percent of gambling participants indicating participation in two or more gambling

types. When gambling participation was examined among study participants ($N = 696$) based on relevant independent variables, significant associations were found for sex and education. A higher proportion of men reported gambling participation during the past six months than did women (66.1% vs. 51.8%; $N = 693$, $X^2 = 14.693$, $df = 1$, $p = .000$, $\phi = .146$); and higher proportions of participants who reported completing high school and/or any degree of higher education were more likely to report gambling participation than participants who did not complete high school (63.8% vs. 61.2% vs. 49.0%; $N = 681$, $X^2 = 9.321$, $df = 2$, $p = .009$, $Cramer's V = .117$). This weak association between the variable Education and the variable Gambling Participation, whereby participants with less education participated in gambling less, might be explained by the fact that a significantly higher proportion of participants with less than high school graduation lived in poverty than did participants who completed high school and/or some college or more (78.0% vs. 58.6% vs. 51.0%; $N = 646$, $X^2 = 27.265$, $df = 2$, $p = .000$, $Cramer's V = .205$). Focus group participants often expressed the viewpoint that gambling and AOD addiction are incompatible because these behaviors would be in competition for the same resources. In fact, nearly all participants with this viewpoint felt that those addicted either were addicted to gambling or AOD because most people don't have enough money to support both addictions. A participant stated, "I don't really know too many tweakers that gamble, they're just trying to get high first ... all of the time." Other participants agreed with the previous statement and said that the need to prevent withdrawal symptoms and/or seek an intense high would lead users to serve their AOD addiction over any desire to gamble. Thus, participants in this study who did not complete high school lived on less money and possibly had fewer resources to participate in gambling, using their limited resources to support their AOD dependence. Figure 1 illustrates the demographic characteristics of the 412 study participants who reported gambling. These participants reported participation in a variety of gambling types (see Figure 2).

Relationship between Gambling and AOD Use

Participants who gambled during the past six months ($n = 412$) also used a variety of alcohol and other drugs. While the majority of gambling participants (61.0%) reported using between two and six different drugs, 16.3 percent reported using seven or more different drugs during the past six months. When asked about the relationship between gambling and AOD use, 37.6 percent of gambling participants who responded ($n = 372$) reported that they did not use AOD when gambling; and of these participants who did not use AOD when gambling, nearly half reported lottery play as the only gambling type participated in during the past six months. Thus, the high percentage of this study's AOD abusing/dependent population who reported no AOD use with gambling may have been referencing the infrequent or occasional purchase of a lottery ticket. However, sizeable proportions of participants reported that they gambled more when using AOD (23.5%) and used more AOD when gambling (19.4%); smaller proportions reported that they gambled less when using AOD (10.2%) and used less AOD when gambling (4.9%). In addition, 12.1 percent of gamblers reported gambling to buy AOD and 4.9 percent reported that they substituted gambling for AOD use. Lastly, only a few participants indicated an 'other' relationship between gambling and AOD use, most often providing responses to indicate that they rarely gambled or that there is no relationship between their gambling and their AOD use.

Prevalence Estimates of Some Problem and Probable Pathological Gambling

Of the 350 gambling participants for whom a valid SOGS existed ($M = 2.63$, $SD = 3.907$), 31.7 percent screened positive for either some problem gambling (9.1%) or probable pathological gambling (22.6%). Prevalence estimates for some problem and probable pathological gambling within this study population, and thus prevalence estimates for co-occurring problem and pathological gambling with substance use disorder among drug users enrolled in AOD treatment in Ohio is 4.9 percent for some problem gambling and 12.1 percent for probable pathological gambling; 83.0 percent of participants either did not participate in gambling or screened as having no problem or pathological gambling on SOGS.

Probable Pathological Gambling by AOD Use

When probable pathological gambling was examined in relation to AOD type among study participants, significant associations were found for marijuana use and Ecstasy use only. A higher proportion of participants who screened positive for probable pathological gambling reported marijuana use during the past six months than did participants who either did not participate in gambling or screened as having no probable pathological gambling (72.2 % vs. 57.4%; $N = 628$, $X^2 = 6.243$, $df = 1$, $p = .012$, $phi = .100$); and a higher proportion of participants who screened positive for probable pathological gambling reported Ecstasy use during the past six months than did participants who either did not participate in gambling or screened as having no probable pathological gambling (17.7% vs. 8.6%; $N = 628$, $X^2 = 6.608$, $df = 1$, $p = .010$, $phi = .103$). For number of AOD types used during the past six months, probable pathological gamblers ($M = 4.27$, $SD = 2.540$) reported having used significantly more AOD types than did non-probable pathological gamblers ($M = 3.55$, $SD = 2.523$), $t(2.366) = .718$, $p = .018$, $df = 634$.

Probable Pathological Gambling by Gambling Type

When probable pathological gambling by gambling type was examined based on the 350 participants for whom a valid SOGS existed, significant associations were found for bingo, lottery, casino gambling, dice/craps/poker non-casino, horse/dog race track, sports betting/office sports pools and Internet gambling. Higher proportions of participants who screened positive for probable pathological gambling reported engagement in each of the aforementioned gambling types, with the exception of lottery, than did participants who screened as having no probable pathological gambling; 86.7 percent of non-probable pathological gamblers participated in lottery versus 75.9 percent of probable pathological gamblers ($N = 350$, $X^2 = 5.353$, $df = 1$, $p = .021$, $phi = -.124$). Significantly higher proportions of probable pathological gamblers reported participation in all other aforementioned gambling types than non-probable pathological gamblers: 31.6 percent versus 16.2 percent for bingo ($N = 350$, $X = 9.177$, $df = 1$, $p = .002$, $phi = .162$); 36.7 percent versus 15.9 percent for casino gambling ($N = 350$, $X = 16.261$, $df = 1$, $p = .000$, $phi = .216$); 34.2 percent versus 20.7 percent for dice/craps/poker non-casino ($N = 350$, $X = 6.174$, $df = 1$, $p = .013$, $phi = .133$); 8.9 percent versus 3.3 percent for horse/dog race track ($N = 350$, $X = 4.303$, $df = 1$, $p = .038$, $phi = .111$); 36.7 percent versus 10.7 percent for sports betting/office sports pools ($N = 350$, $X = 29.927$, $df = 1$, $p = .000$, $phi = .292$); and 21.5 percent versus 7.7 percent for Internet gambling ($N = 350$, $X = 11.984$, $df = 1$, $p = .001$, $phi = .185$). For number of gambling types participated in during the past six months, probable pathological gamblers ($M = 2.52$, $SD = 1.431$) reported participation in significantly more gambling types than did non-probable pathological gamblers ($M = .81$, $SD = 1.067$), $t(12.732) = 1.712$, $p = .000$, $df = 632$.

Probable Pathological Gambling by Participant Characteristics

When probable pathological gambling was examined among study participants based on relevant independent variables, significant associations were found for sex, race and age. A higher proportion of men screened positive for probable pathological gambling than did women (19.4% vs. 4.8%; $N = 640$, $X^2 = 31.297$, $df = 1$, $p = .000$, $phi = -.221$); a higher proportion of non-Whites screened positive for probable pathological gambling than did Whites (20.8% vs. 8.9%; $N = 652$, $X^2 = 17.284$, $df = 1$, $p = .000$, $phi = -.163$); and a significant mean age difference was found between probable pathological gamblers ($M = 34.59$, $SD = 12.126$) and non-probable pathological gamblers ($M = 31.36$, $SD = 10.837$), $t(2.407) = 3.234$, $p = .016$, $df = 636$. Additionally, Table 1 displays the results of logistic regression modeling. The following factors were found to be significant:

- Sex was significantly associated with probable pathological gambling ($p = .000$, OR = 4.08); men were 4.1 times more likely to screen positive for probable pathological gambling than women.
- Race was significantly associated with probable pathological gambling ($p = .001$, OR = 0.39); non-Whites were 61.0 percent more likely to screen positive for probable pathological gambling than Whites.

- Age was significantly associated with probable pathological gambling ($p = .015$, OR = 1.03); with every one year increase in age, participants were 3.0 percent more likely to screen positive for probable pathological gambling.

Pearson correlations were generated for each pairing of study variables in the model and examined in order to determine if multicollinearity was a significant factor. All correlations were small to moderate, suggesting the multicollinearity was not a significant factor. The largest coefficient produced was for the correlation between Ecstasy Use and Number of AOD Types ($r = -.541$).

Exposure to Gambling Treatment

Table 2 illustrates gambling participant responses to the seven survey questions designed to assess perceived need for gambling treatment, knowledge of gambling treatment and personal experience with gambling treatment. Only six participants, four of whom were SOGS positive for probable pathological gambling, reported ever trying to get help for gambling; only seven participants, one of whom was SOGS positive for probable pathological gambling, reported ever having participated in gambling treatment; only 13 participants, 10 of whom were SOGS positive for probable pathological gambling, reported currently needing help with gambling; 85 participants, representing 22.2 percent of SOGS positives for probable pathological gambling, reported ever having been asked about gambling while in treatment for AOD use; 47 participants, representing 12.5 percent of SOGS positives for probable pathological gambling, reported ever having gambling treatment services offered to them; 129 participants, representing 35.6 percent of SOGS positives for probable pathological gambling, reported being familiar with Gamblers Anonymous; and only four participants, two of whom were SOGS positive for probable pathological gambling, reported having ever attended a Gamblers Anonymous meeting.

Discussion

This study's findings generate many prevention and treatment considerations for Ohio's AOD prevention and treatment systems as legalized gambling expands throughout Ohio. However, data limitations need to be noted. Study data were collected through convenience sampling of those currently enrolled in AOD treatment and do not include data from those not currently enrolled in treatment, thus findings may not generalize to the overall population of active and recovering drug users. Moreover, prevalence estimates were based upon a primary self-report screen for gambling disorder and not upon a complete diagnostic interview. Strengths of this study include the utilization of SOGS which has established reliability and validity and its diverse study population. This study found prevalence estimates of 4.9 percent for some problem gambling and 12.1 percent for probable pathological gambling among its sample of drug users in treatment from throughout Ohio. While a majority of study participants reported participation in at least one type of gambling during the past six months, only a minority of these participants reported ever having been asked about gambling while in treatment for their substance use disorder. Thus, education on problem and pathological gambling need to be included in all inpatient and outpatient AOD treatment programs. Furthermore, all AOD clients need to be screened for gambling disorder upon intake for treatment services, with individuals screening positive for some problem or probable pathological gambling referred to assessment for gambling treatment services. All persons receiving AOD prevention services should also be exposed to prevention measures addressing co-occurrence of substance use disorders with problem and pathological gambling, as our results suggest that those who abuse or are dependent upon AOD are at increased risk for gambling disorder.

Overall participation in casino gambling was 18.7 percent of those who gambled during the past six months. However, this study also found that nearly half of those who participated in casino gambling screened positive for either some problem or probable pathological gambling. Casino gambling in Ohio recently became available; thus, it can be hypothesized that participation in casino gambling will increase among persons with substance use disorders in regions of Ohio where casinos are located. In their three-year study of casino-related gambling in Niagara, Ontario, Canada, Toneatto, Ferguson and Brennan (2003) found that casino gambling

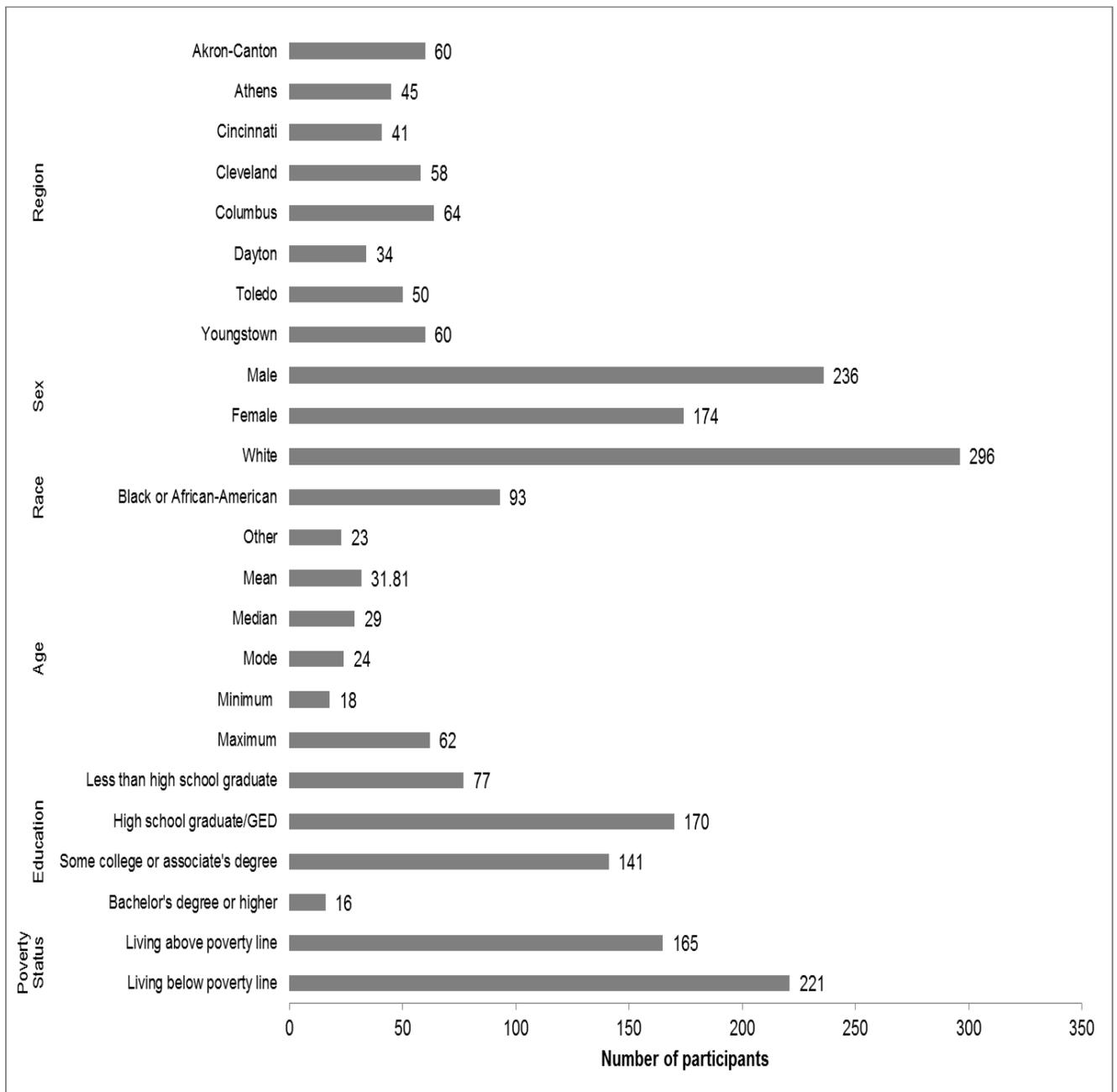
increased significantly, approximately doubling, among AOD treatment seeking individuals after casino gambling became available. The aforementioned researchers suggested that the introduction of casino gambling had an impact on the likelihood that persons diagnosed with substance use disorders would engage in casino gambling after casinos opened in their region. Ohio treatment providers in casino regions (i.e., Cincinnati, Cleveland, Columbus and Toledo) particularly need to emphasize co-occurrence of gambling and substance use disorders while imparting appropriate relapse prevention skills to prevent client return to AOD use and participation in gambling. Throughout all regions, both gambling and non-gambling participants thought that there was a relationship between gambling and AOD use. Sizeable proportions of gambling participants reported that they used more AOD when gambling and gambled more when using AOD. Thus, relapse prevention for both AOD use and gambling need to emphasize avoiding triggers (e.g., not frequenting bars and casinos) that may lead recovering persons to return to active participation in their addiction(s).

In addition to treatment providers offering gambling treatment services to persons with substance use disorders who participate in any type of legal or illegal gambling, prevention of problem gambling should include community-based interventions delivered in partnership with operators of gambling establishments to disseminate information on how to access gambling treatment services and to increase awareness and knowledge of warning signs of problem gambling. In January 2013, Ohio for Responsible Gambling published the *Ohio Problem Gambling Prevention Resource Guide* in which it is recommended that prevention of problem gambling include delaying the onset of gambling until legal age and preventing the onset of problem gambling by reducing associated risk factors (e.g., substance abuse). In addition to imparting information and offering brief screens, prevention of problem gambling should also incorporate strategies for responsible gambling in tandem with strategies to change social and cultural norms around problem gambling and seeking access to services. The *Ohio Problem Gambling Prevention Resource Guide* also includes a compendium of promising problem gambling prevention programs. Epidemiological data presented in this report's results section have the potential to help shape and strengthen prevention measures targeted at those most at risk for problem gambling. However, future research is needed to further examine this study's finding that non-Whites are more likely to experience problem gambling than Whites, as prevention strategists need to consider sex and other demographic differences to be most effective in impacting those at risk. In terms of prevention of pathological gambling, prevention programs should include psychosocial interventions (e.g., Cognitive Behavior Therapy and motivational interviewing) and may need to include pharmacological interventions (e.g., medication that addresses impulse control, depression, anxiety). The OSAM Network will continue to collect data on problem and pathological gambling every six months to continue to provide current data needed for ongoing prevention and treatment planning.

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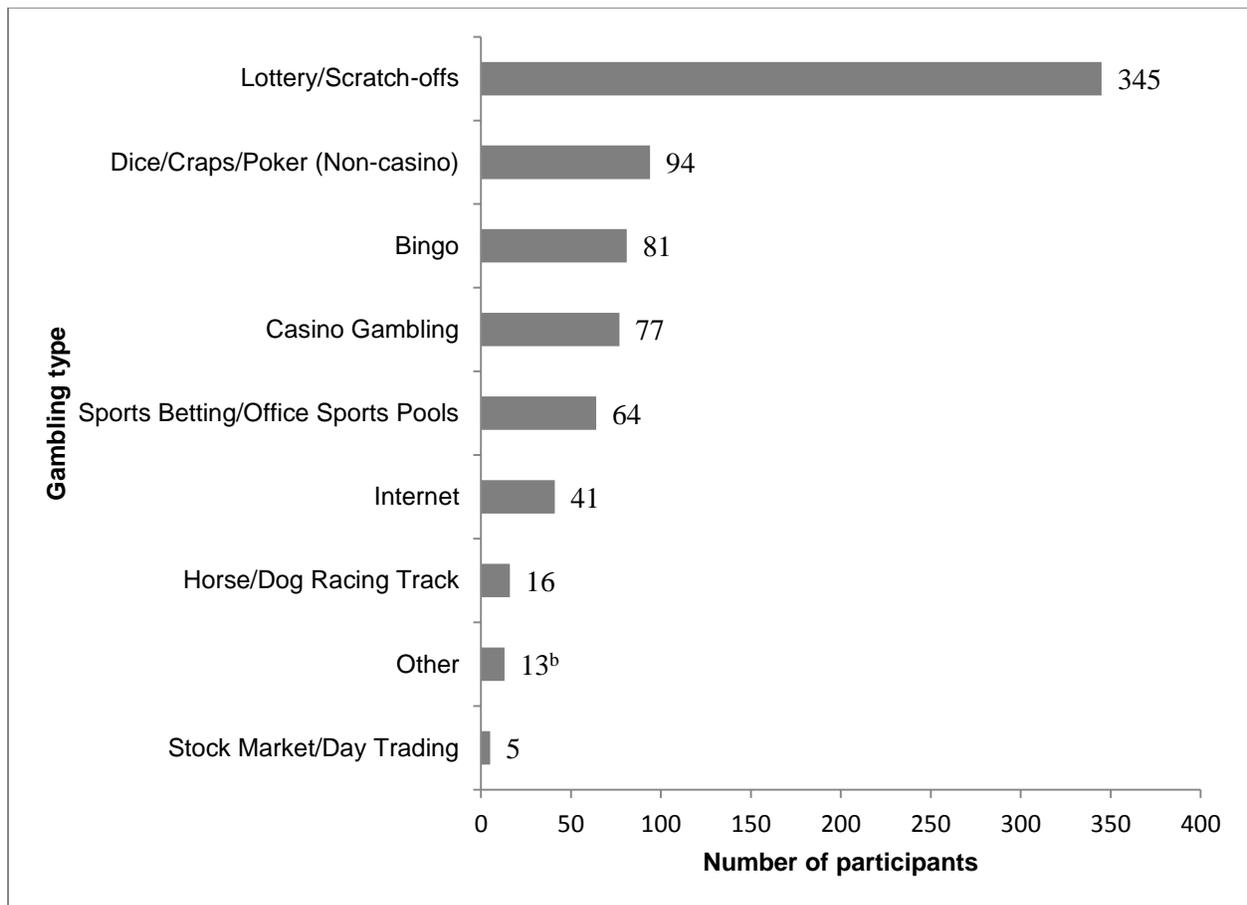
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Figure 1. Characteristics of participants reporting gambling during the past six months^a.



^aNot all participants responded to every demographic question; thus, variable Ns may not equal 412.

Figure 2. Gambling participation during the past six months by type (N=412)^a.



^a192 gambling participants reported participation in multiple gambling types during the past six months.

^bExamples of other gambling participation include billiards and 50/50 raffle.

Table 1

Analyses of associations among participant characteristics and probable pathological gambling (N = 620)

| | <u>Logistic Regression</u> | | | | | |
|---------------------|--------------------------------|---------------|-------|------------------------------|-------|-------|
| | Model χ^2 | df | p | Goodness of fit ^a | df | p |
| Overall Model | 57.13 | 6 | 0.000 | 4.17 | 8 | 0.842 |
| | <u>95% Confidence Interval</u> | | | | | |
| | β | Wald χ^2 | p | OR | Lower | Upper |
| Sex* | 1.41 | 21.02 | 0.000 | 4.08 | 2.24 | 7.45 |
| Race* | -0.95 | 10.55 | 0.001 | 0.39 | 0.22 | 0.69 |
| Age* | 0.03 | 5.95 | 0.015 | 1.03 | 1.01 | 1.05 |
| Marijuana Use | 0.31 | 0.84 | 0.360 | 1.36 | 0.71 | 2.61 |
| Ecstasy Use | 0.47 | 1.11 | 0.292 | 1.60 | 0.67 | 3.85 |
| Number of AOD Types | 0.12 | 3.08 | 0.079 | 1.132 | 0.99 | 1.30 |
| Constant | -3.95 | 40.87 | 0.000 | 0.02 | | |

^aHosmer and Lemeshow test

* $p < .05$

Table 2

Gambling treatment survey responses^a (N = 412)

| Item | No | Yes |
|--|-------|-------|
| Have you ever tried to get help for your gambling? | 98.5% | 1.5% |
| Have you ever participated in gambling treatment? | 98.2% | 1.8% |
| Do you currently need help with a gambling problem? | 96.5% | 3.5% |
| Have you ever been asked about gambling while in treatment for alcohol/drug use? | 76.1% | 23.9% |
| Have gambling treatment services ever been offered to you? | 87.3% | 12.7% |
| Are you familiar with Gamblers Anonymous? | 61.8% | 38.2% |
| Have you ever attended a Gamblers Anonymous meeting? | 98.7% | 1.3% |

^aQuestion Ns were either 394 or 395 due to missing responses; percentages are valid percentages.