

Chapter 4

Mental Health, Substance Use, and Other Risk and Protective Factors

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Chapter 4 Highlights

Mental Health, Substance Use, and Other Risk and Protective Factors

Problem gambling in racial/ethnic groups indicates that people of color, specifically Hispanic/Latinx (7.3%), other race/ethnicities (4.1%), and Black/African American (3.6%) Illinoisans had a higher prevalence of problem gambling than White Illinoisans (2.9%). Among frequent gamblers (monthly or more), about one-quarter of Hispanic/Latinx Illinoisans (25.9%) had a gambling problem, whereas about one in ten Black/African American Illinoisans (11.8%) and White Illinoisans (10.4%) did.

Motives for gambling most reported among Illinois adults who have ever gambled were “*for entertainment or fun*,” “*for excitement or as a challenge*,” and “*just to win money*.” Illinoisans with problem gambling reported gambling “*to relieve boredom*” and “*to escape from your problems or distract yourself*” more often than other groups.

Family history can play a role in the development of problem gambling. People with problem gambling (14.7%) and those at risk for problem gambling (17.1%) appeared more likely to report that someone in their family had ever had a gambling problem compared to frequent recreational gamblers (10.1%).

Gambling alone has been found to be a risk factor for gambling-related harm such as addiction. Among frequent gamblers in Illinois, 75.1% of Illinoisans with problem gambling reported gambling alone, compared to 58.0% of Illinoisans at risk for problem gambling, and 45.7% of frequent recreational gamblers.

People who engage in **substance use while gambling** are more likely to have a gambling problem. Among frequent gamblers in Illinois who

have problem gambling:

- 80.4% had ever used alcohol while gambling, compared to only 48.1% of frequent recreational gamblers.
- 44.5% had ever used marijuana while gambling, compared to only 10.4% of frequent recreational gamblers.
- Over 30% had ever used illicit drugs or prescription drugs not as prescribed while gambling, compared to less than 3% of frequent recreational gamblers.

Comorbidities—There are a number of risk factors and co-occurring conditions that are common among those who have a gambling problem, such as mental illness and substance use disorder. Approximately 69% of people with problem gambling experienced **serious anxiety and/or depression** in the past year, compared to 39.2% of people at risk for problem gambling and 27.9% of frequent recreational gamblers. Similarly, people with problem gambling were more likely to report **alcohol** (28.0% past year; 60.0% lifetime) and **drug** (14.0% past year; 32.3% lifetime) problems compared to their counterparts.

One in ten Illinoisans with problem gambling thought about or attempted **suicide** in the past year; one in three had done so in their lifetime.

Other addictions share underlying risk factors with gambling disorder and are prevalent among people with problem gambling. For Illinoisans with problem gambling, the most prevalent addictive behaviors they reported were work (39.6%), food (32.0%), pornography (29.7%), video gaming (26.7%), and exercise (20.7%).

Sociodemographics of People with Problem Gambling

Problem gambling disproportionately impacts marginalized communities. In the U.S., the overall prevalence of problem gambling is higher among Indigenous, Black/African American, Hispanic/Latinx, and Asian communities, which mirrors broader racial inequities [1–3]. Previous studies reveal that some factors that may put people of color at higher risk of problem gambling include acculturative stressors, racial discrimination, and gambling as a form of escape [4, 5]. Immigrants of color may also face unique challenges that increase risk factors for problem gambling. One study found that being an immigrant or the child of immigrants was associated with problem gambling, which was only partially accounted for by lower levels of education [6]. Within the Asian immigrant community, acculturative stressors, limited social connection, and cultural norms and perceptions around gambling may contribute to problem gambling rates [5, 7–9]. Furthermore, Asian immigrants have been targets of predatory marketing tactics and free transportation offerings to gambling venues in Chinatowns, where poverty is concentrated [10]. The unique experience of navigating an unfamiliar country and racial barriers pose distinct risk factors for problem gambling.

There are additional cultural and historical contexts to consider when understanding gambling and problem gambling within Asian communities. In the U.S., approximately 4.8% of Asian Americans met criteria for problem gambling [3]. Not all Asian ethnic groups have been actively studied in relation to problem gambling,

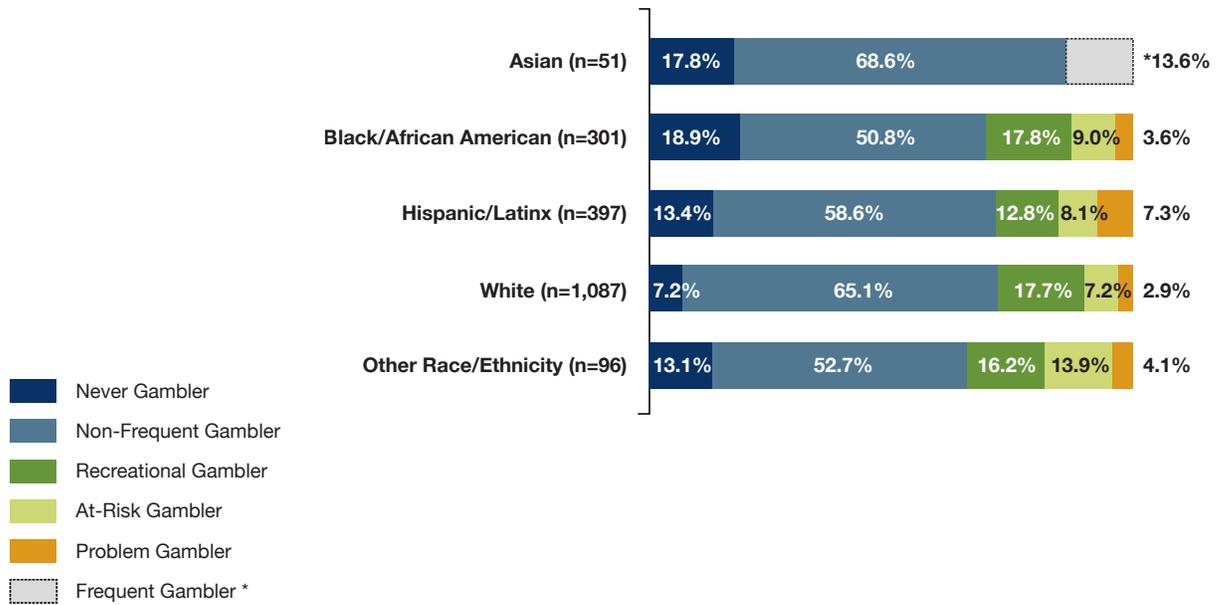
but there is a growing wealth of research exploring Chinese adults' experiences with gambling. Literature on Chinese ethnic groups in Western countries has highlighted that they experience higher rates of problem gambling than the general community [5]. Research exploring this trend suggests that acculturative stress, perceptions of skill or control over gambling outcomes, shame in help-seeking, and socialization may be playing a role [5, 8, 9]. When studying cultural factors and problem gambling, it is essential to recognize the cultural distinction between social gaming and high-stakes gambling. Historically in mainland China, high-stakes gambling was recognized as immoral whereas gaming was seen as a socially acceptable form of entertainment [11]. This understanding of gambling may ultimately contribute to a failure to identify excessive gaming or social wagering as a form of problem gambling. An Australian study reflected this understanding among Chinese respondents, where 17% reported playing the lottery despite identifying as never having gambled [12]. These multifaceted experiences with problem gambling across racial-ethnic groups warrants greater attention.

Figure 1 shows the proportion of gambler types for each racial/ethnic group assessed in this study, in the general population of Illinois adults. The highest proportion of people who had never gambled were among Black/African American Illinoisans (18.9%). The highest proportion of frequent recreational gamblers were also among Black/African Americans (17.8%), and

for people at risk of developing a gambling problem, Black/African American residents (9.0%), and people of other races/ethnicities (13.9%). The prevalence of problem gambling was highest among Hispanic/Latinx Illinoisans (7.3%), followed by people of other race/

ethnicity (4.1%), Black/African American Illinoisans (3.6%), and White Illinoisans (2.9%). Comparisons should be interpreted with caution, due to differences in the number of survey respondents in different racial/ethnic subgroups.

Figure 1. PPGM Among Illinois Residents, by Race/Ethnicity, 2021 (n=1,932)



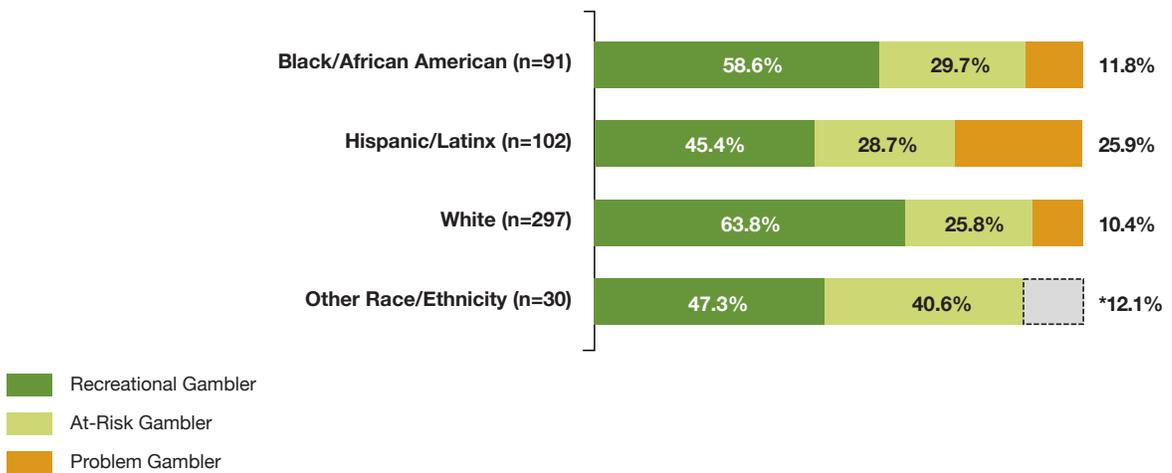
Data Source: IL Problem Gambling Assessment, Representative Population Sample, Weighted %, 2021

Note: *Asian frequent gamblers include recreational, at-risk, and problem gamblers.

Figure 2 focuses specifically on the sub-sample of the general population of Illinois adults who gamble frequently (monthly or more in the past year). Again, the highest proportion of Illinoisans with a gambling problem was among Hispanic/Latinx Illinoisans (25.9%), followed by approximately 10% of Black/African American Illinoisans (11.8%), and White Illinoisans (10.4%). The prevalence of at-risk gambling was highest among Illinoisans of other race/ethnicity background (40.6%), and Black/African-Americans (29.7%).

Over a quarter of Hispanic/Latinx Illinoisans who gamble frequently, have a gambling problem.

Figure 2. PPGM Among Illinois Residents Who Are Frequent Gamblers, by Race/Ethnicity, 2021 (n=527)



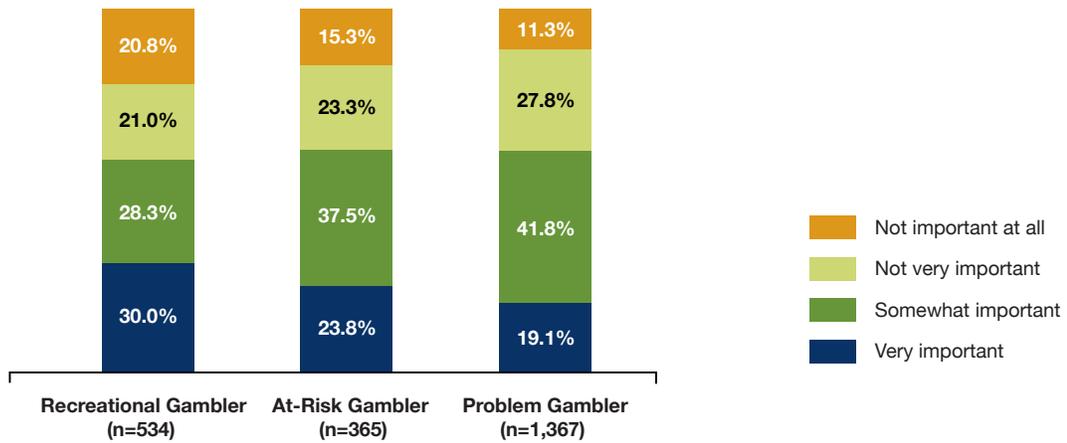
Data Source: IL Problem Gambling Assessment, Representative Population Sample, Frequent Gamblers Only, Weighted %s, 2021
Note: * n<10 interpret with caution.

While the Illinois Problem Gambling Assessment identified that Hispanic/Latinx Illinoisans were disproportionately affected by problem gambling, these racial inequities in problem gambling were not identified for Black/African American or Asian respondents. Despite these mixed findings of racial inequities in problem gambling in the Illinois Problem Gambling Assessment, an established literature indicates that problem gambling disproportionately impacts marginalized communities.

The literature suggests that there are, however, some notable protective factors that may mitigate these risks of problem gambling, including strong religious and moral beliefs, among some populations [13]. Previous studies indicate that religion can be a protective factor because of the social support network and moral structures associated with religion [14]. Additionally, studies have identified several factors such as parental supervision and high socioeconomic status as protective factors against problem gambling among youth [15].

Respondents to the Frequent Gambler Survey were asked how important religion was in their life. Patterns varied by PPGM score. For example, a lower proportion of people with problem gambling reported that religion was very important in their lives (19.1%), compared to people at risk for problem gambling (23.8%), and frequent recreational gamblers (30.0%) (Figure 3). However, a higher proportion of people with problem gambling reported that religion was somewhat important in their lives (41.8%), compared to people at risk for problem gambling (37.5%), and frequent recreational gamblers (28.3%). Frequent recreational gamblers were more likely to report that religion was not at all important in their lives (20.8%), compared to people who are at risk for problem gambling (15.3%), and people with problem gambling (11.3%). Statistical testing of comparisons was not conducted, however, so findings should be interpreted with caution, prior to further analysis. However, these patterns do not appear to be clear cut, and other factors are likely at play in the connections between gambling severity and religiosity. It is possible that people with a gambling problem are already involved with Gamblers Anonymous or Alcoholics Anonymous, which are based on the concept of a higher power.

Figure 3. Importance of Religion Among Frequent Gamblers, by PPGM, 2021 (n=2,266)



Data Source: IL Problem Gambling Assessment, Frequent Gamblers Sample, 2021

Risk & Protective Factors

Many factors influence the likelihood that a person will develop a gambling disorder. Risk factors are characteristics at the biological, psychological, family, community, cultural, or societal level that precede and are associated with a higher likelihood of negative outcomes. Protective factors are characteristics

associated with a lower likelihood of negative outcomes or that reduce a risk factor’s impact [14].

Protective factors can be seen as positive countering events to risk factors. The following section examines several risk and protective factors associated with problem gambling.

Motives for Gambling

The Top 6 Reasons for Gambling Among People with Problem Gambling

1. For entertainment or fun
2. Just to win money
3. For excitement or as a challenge
4. To escape from your problems or distract yourself
5. To relieve boredom
6. To win money for paying bills

To garner a comprehensive portrait of gambling in Illinois and to better address problem gambling, it is important to understand motivations for gambling. In interviews and community discussions, assessment participants named a variety of reasons and motives for gambling, including a desire to alleviate debts, earn additional income, experience the “*adrenaline rush*” of taking a risk and winning, distract themselves, alleviate stress, and socialize with friends/the community. Specific to the desire to earn income, some community members pointed out that when people lose money gambling, they often think they can “*bounce back*” and “*hope that one day they are going to become rich.*”

Survey respondents who reported ever gambling were asked their main reasons for gambling. Among Illinois adults, the most common reason for gambling was “for entertainment or fun” among all types of gamblers, followed by “for excitement or as a challenge” and

“just to win money” (Figure 4). A high proportion of Illinoisans with problem gambling reported gambling “to escape from your problems or distract yourself” (46.9%) and “to relieve boredom” (44.6%). Other reported reasons for gambling are shown in Figure 4.

Figure 4. Reasons for Gambling, Among Illinois Residents Reporting Ever Gambling, by PPGM, 2021 (n=1,738)

	Non-Frequent Gambler (n=1,205)	Recreational Gambler (n=317)	At-Risk Gambler (n=140)	Problem Gambler (n=70)
For entertainment or fun	68.5%	79.0%	81.3%	65.2%
To socialize with family or friends	38.6%	34.1%	44.0%	28.5%
Just to win money	34.0%	46.1%	55.0%	52.6%
For excitement or as a challenge	29.3%	44.9%	62.6%	51.8%
To support worthy causes	22.7%	19.6%	17.2%	14.7%
To relieve boredom	13.8%	17.5%	37.8%	44.6%
To win money for paying bills	7.5%	8.3%	15.9%	42.3%
As a hobby	7.5%	16.4%	26.0%	31.4%
To escape from your problems or distract yourself	6.5%	7.1%	18.3%	46.9%
Other	4.9%	–	–	–
Because of peer pressure/to fit in	3.9%	–	–	–
Because it makes you feel good about yourself	2.2%	–	–	18.2%

Data Source: IL Problem Gambling Assessment, Representative Population Sample, Weighted %s, 2021

Note: This question in the survey allowed for multiple responses; therefore, percentages may not add up to 100%. Values where n<10 are not presented.

Reasons for gambling appeared to vary by gender. Again, over 71% of both men and women in Illinois reported gambling for entertainment or fun, however 45.4% of men but only 28.7% of women reported gambling for excitement or as a challenge (Figure 5). Other top reasons for gambling reported by men included: gambling just to win money (44.0%),

to socialize with family or friends (39.4%), to relieve boredom (20.7%), to support worthy causes (19.6%), or as a hobby (17.3%). Among women, other reported leading reasons for gambling included: to socialize with family or friends (37.4%), just to win money (35.1%), to support worthy causes (23.6%), and to relieve boredom (16.7%).

Figure 5. Reasons for Gambling, Among Illinois Residents Reporting Ever Gambling, by Gender, 2021 (n=1,811)

	Women (n=995)	Men (n=816)
For entertainment or fun	71.4%	71.3%
To socialize with family or friends	37.4%	39.4%
Just to win money	35.1%	44.0%
For excitement or as a challenge	28.7%	45.4%
To support worthy causes	23.6%	19.6%
To relieve boredom	16.7%	20.7%
To win money for paying bills	9.6%	10.8%
As a hobby	9.5%	9.8%
To escape from your problems or distract yourself	8.7%	17.3%
Other	4.3%	3.6%
Because of peer pressure/to fit in	2.5%	4.8%
Because it makes you feel good about yourself	2.5%	4.9%

Data Source: IL Problem Gambling Assessment, Representative Population Sample, Weighted %s, 2021

Note: This question in the survey allowed for multiple responses; therefore, percentages may not add up to 100%.

Illinoisans' reasons for gambling appeared to vary somewhat by race/ethnicity. For Illinoisans of all races/ethnicities included in this assessment, gambling for entertainment or fun was the most common reason for gambling, followed by gambling just to win money, gambling to socialize with family or friends, and gambling for excitement or as a challenge, all following as second or third most common reasons

(Figure 6). Asian Illinoisans were the most likely to say they gamble to escape from their problems or distract themselves (31.0%). Black/African American Illinoisans were the most likely to say they gambled to win money for paying bills (50.4%).

Figure 6. Reasons for Gambling, Among Illinois Residents Reporting Ever Gambling, by Race/Ethnicity, 2021 (n=1,043)

	Asian (n=41)	Black/ African American (n=285)	Hispanic/ Latinx (n=357)	White (n=1,043)	Other Race/ Ethnicity (n=88)
For excitement or as a challenge	58.0%	68.1%	65.8%	74.1%	65.3%
For entertainment or fun	26.6%	34.2%	35.7%	40.4%	33.4%
To relieve boredom	37.4%	38.6%	31.5%	38.0%	37.9%
To win money for paying bills	47.5%	50.4%	39.3%	36.9%	48.9%
Just to win money	–	16.4%	18.3%	23.7%	19.3%
To escape from your problems or distract yourself	31.0%	24.6%	21.2%	16.8%	16.6%
To socialize with family or friends	–	15.5%	14.2%	12.0%	–
To support worthy causes	–	11.1%	11.7%	9.0%	–
Because of peer pressure/to fit in	–	19.5%	14.8%	7.2%	15.8%
Because it makes you feel good about yourself	–	4.3%	5.5%	3.5%	–
As a hobby	–	6.0%	3.4%	3.1%	–
Other	–	–	5.4%	2.8%	–

Data Source: IL Problem Gambling Assessment, Representative Population Sample, Weighted %s, 2021

Note: This question in the survey allowed for multiple responses; therefore, percentages may not add up to 100%. Values where n<10 are not presented.

Divided by age, results were similar, with gambling for entertainment or fun being the most common reason for gambling among all age groups, followed by gambling for excitement or as a challenge, gambling just to win money, and gambling to socialize with family or friends,

all following as second or third most common reasons (Figure 7). Younger age groups more commonly said they gambled to relieve boredom and to win money for paying bills.

Figure 7. Reasons for Gambling, Among Illinois Residents Reporting Ever Gambling, by Age, 2021 (n=1,824)

	18 to 24 (n=155)	25 to 44 (n=543)	45 to 64 (n=764)	65+ (n=362)
For entertainment or fun	57.9%	72.9%	74.8%	68.5%
To socialize with family or friends	36.1%	39.9%	37.1%	39.3%
For excitement or as a challenge	39.1%	44.6%	34.5%	25.7%
Just to win money	49.3%	45.6%	34.1%	33.2%
To support worthy causes	14.3%	18.1%	24.6%	26.6%
To relieve boredom	21.4%	25.1%	14.3%	13.6%
As a hobby	17.2%	16.1%	10.3%	9.8%
To escape from your problems or distract yourself	11.2%	10.5%	9.5%	7.7%
To win money for paying bills	15.9%	13.8%	7.4%	5.8%
Other	–	4.9%	3.7%	0.7%
Because of peer pressure/to fit in	5.4%	4.7%	2.5%	3.2%
Because it makes you feel good about yourself	8.5%	4.9%	2.0%	2.0%

Data Source: IL Problem Gambling Assessment, Representative Population Sample, Weighted %, 2021

Note: This question in the survey allowed for multiple responses; therefore, percentages may not add up to 100%. Values where n<10 are not presented.

There was also some variation in reasons for gambling by region. Illinois residents of rural counties had the lowest prevalence reporting gambling for excitement or as a challenge (32.5%), and gambling to socialize with family or friends (26.5%), (Figure 8). Residents of rural

counties (11.9%), Chicago (11.5%), and Cook County (11.2%), appeared to more commonly report gambling to escape problems or distract themselves, compared to those from Collar counties (7.9%), or other urban counties (7.3%).

Figure 8. Reasons for Gambling, Among Illinois Residents Reporting Ever Gambling, by Region, 2021 (n=1,818)

	Chicago (n=352)	Cook County (excl. Chicago) (n=402)	Collar Counties (around Cook) (n=489)	Urban Counties (n=334)	Rural Counties (n=241)
For entertainment or fun	65.5%	73.7%	72.0%	72.9%	71.7%
To socialize with family or friends	42.2%	42.5%	39.9%	36.3%	26.5%
Just to win money	44.4%	38.7%	36.9%	40.2%	37.9%
For excitement or as a challenge	41.8%	38.1%	35.6%	36.9%	32.5%
To support worthy causes	19.7%	20.6%	20.7%	23.3%	24.8%
To relieve boredom	20.7%	17.0%	15.8%	21.2%	20.4%
To win money for paying bills	14.5%	9.9%	7.9%	10.1%	9.8%
As a hobby	13.6%	14.3%	10.8%	16.1%	9.8%
To escape from your problems or distract yourself	11.5%	11.2%	7.9%	7.3%	11.9%
Other	5.6%	2.3%	3.9%	4.2%	–
Because it makes you feel good about yourself	3.9%	3.6%	3.3%	3.9%	3.8%
Because of peer pressure/to fit in	5.1%	3.9%	2.6%	3.7%	–

Data Source: IL Problem Gambling Assessment, Representative Population Sample, Weighted %s, 2021

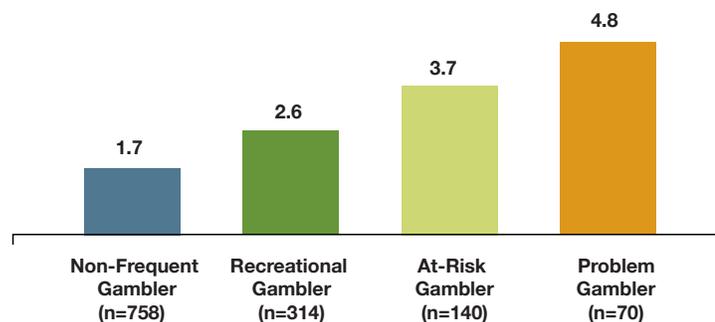
Note: This question in the survey allowed for multiple responses; therefore, percentages may not add up to 100%. Values where n<10 are not presented.

Number of Types of Gambling

Based on reported gambling for each type, a sum of the number of types of gambling engaged in in the past year were calculated for each respondent. Among the representative sample, on average, non-frequent gamblers engaged in 1.7 types, of gambling, recreational gamblers 2.6 types, at-risk 3.7 types, and

gamblers with problem gambling 4.8 types (Figure 9). This may indicate a broader desire to gamble generally for those at risk for or with current problem gambling, rather than a desire to engage in a specific type of gambling. Treatment providers and professionals screening for problem gambling should consider number of types of gambling engaged in as a possible target for intervention or harm reduction.

Figure 9. Mean Number of Types of Gambling Engaged in, in the Past Year, Among Illinois Residents Reporting Ever Gambling, by PPGM, 2021



Data Source: IL Problem Gambling Assessment, Representative Population Sample, Weighted %s, 2021

Age of Initiation

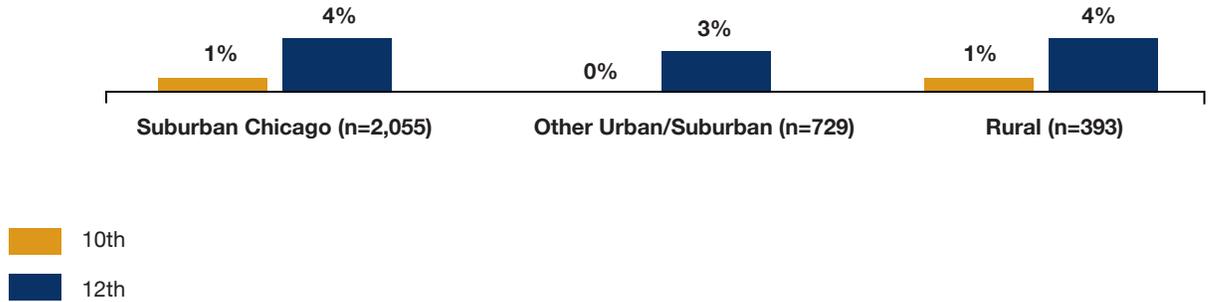
Knowledge of the age of onset for gambling is important for creating prevention and intervention strategies. According to research, the age of onset for gambling typically ranges from the mid-20's to late 30's [16]. Gambling that begins in adolescence is associated with a higher likelihood of problem gambling later in life [17]. Qualitatively, most community members did not describe in depth their age of initiation into gambling, although many described that the progression from recreational gambler to a person with a gambling problem is a slow progression often starting in the teenage years. Specific to young people, one community member said, *“For young people, gambling starts off as just entertainment but then they get hooked with one win.”* Respondents to the Frequent Gambler Survey were also asked when they first participated in any type of gambling activity. The average age of

first gambling was very similar for frequent recreational gamblers (23.0 years old), people at risk of problem gambling (22.5 years old), and people with problem gambling (23.2 years old) (data not shown).

Illinois Youth Survey Data

According to the Illinois Youth Survey, in 2020 the vast majority of high school students in Illinois reported that they do not gamble. The prevalence of gambling among 10th graders across all regions of Illinois was low, with <1% of youth reporting gambling in 2020. Among 12th graders, these proportions were slightly higher, with 4% of 12th graders in suburban Chicago area, 3% in other urban/suburban areas, and 4% in rural areas reporting gambling in the past year. Figure 10 visually presents these percentages. As noted in the Methods section, students from Chicago were not included in the 2020 survey because of the COVID-19 pandemic.

Figure 10. Percent of Youth Gambling at a Machine in a Bar, Restaurant, Gas Station, or Gambling Establishment, by Grade and Community Type, Illinois, 2020

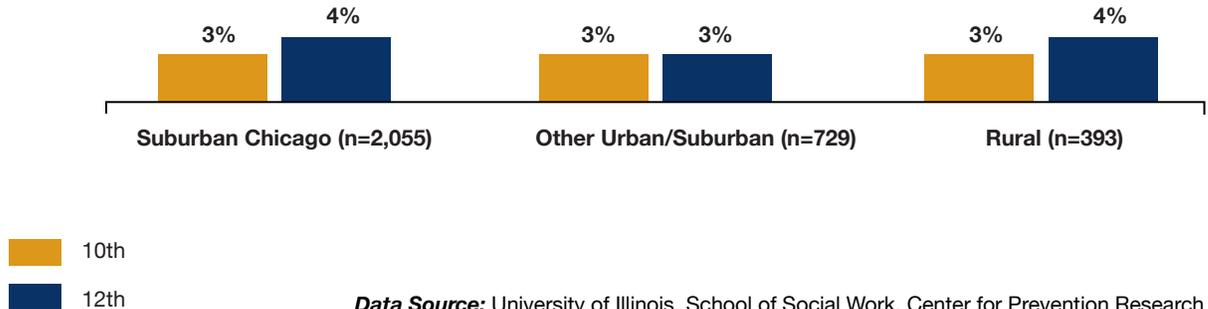


Data Source: University of Illinois, School of Social Work, Center for Prevention Research and Development, Illinois Youth Survey, 2020

Note: Figure only shows the percentage of respondents indicating that they gambled less than once a month, 1–3 times per month, or once a week in the past 12 months.

Among youth respondents who reported gambling in the past 12 months, around 3% of 10th graders in each geographic category of Illinois report online gambling; a similar proportion of 12th graders reported online gambling (3-4%) (Figure 11).

Figure 11. Percent Youth Gambling Online, by Grade and Community Type, Illinois, 2020



Data Source: University of Illinois, School of Social Work, Center for Prevention Research and Development, Illinois Youth Survey, 2020

Note: Figure only shows the percentage of respondents indicating that they gambled less than once a month, 1–3 times per month, or once a week in the past 12 months.

Spotlight

Youth

Youth are another demographic group vulnerable to developing problem gambling. It is estimated that 2.1% to 2.6% of North American youth have a gambling problem [18, 19]. However, not all youth are equally vulnerable to developing problem gambling. At the individual level, some characteristics such as being male, impulsivity, sensation-seeking, and exposure to gambling via peers or family are associated with problem gambling [20, 21]. These characteristics may also shift over time, for example, sensation-seeking is not stable over time and is subject to sociocultural influences [22]. Additionally, emerging research beyond the gender binary also indicates that transgender and gender diverse youth experience problem gambling at higher rates than their cisgender counterparts [23]. Many youth that struggle with problem gambling also experience other mental health issues such as depression, anxiety, and substance misuse [24]. In particular, youth with poor coping strategies may use gambling as a way to escape from their problems [25]. Some youth in community discussions also noted that they could “*get the adrenaline rush*” from electronic games with micro transactions.

More broadly, socio-environmental risk such as neighborhood disadvantage, poor family cohesion, gambling availability, and exposure to gambling marketing may heighten youth vulnerability to problem gambling [21, 26, 27]. Community discussion and interview participants also echoed that targeted advertising, and the availability of online gambling and gaming applications may contribute to increases in youth gambling.

With the increasing popularity and convenience of online gambling, there are additional concerns that the accessibility and affordability of online gambling may make youth more susceptible to problem gambling [25]. Youth from community discussions highlighted micro transactions in readily accessible free-to-play games as “*overly predatory*”. Youth in these discussions also reported that gambling was becoming more accessible in local stores, however sports betting and online gambling were reported as the most common forms of gambling. Specifically, youth indicated gambling was common among peers via mobile games and e-sports applications. Given the documented risk associated with gambling availability and socializing among peers that gamble, more attention towards the evolving nature of youth problem gambling is necessary [21, 28, 29].

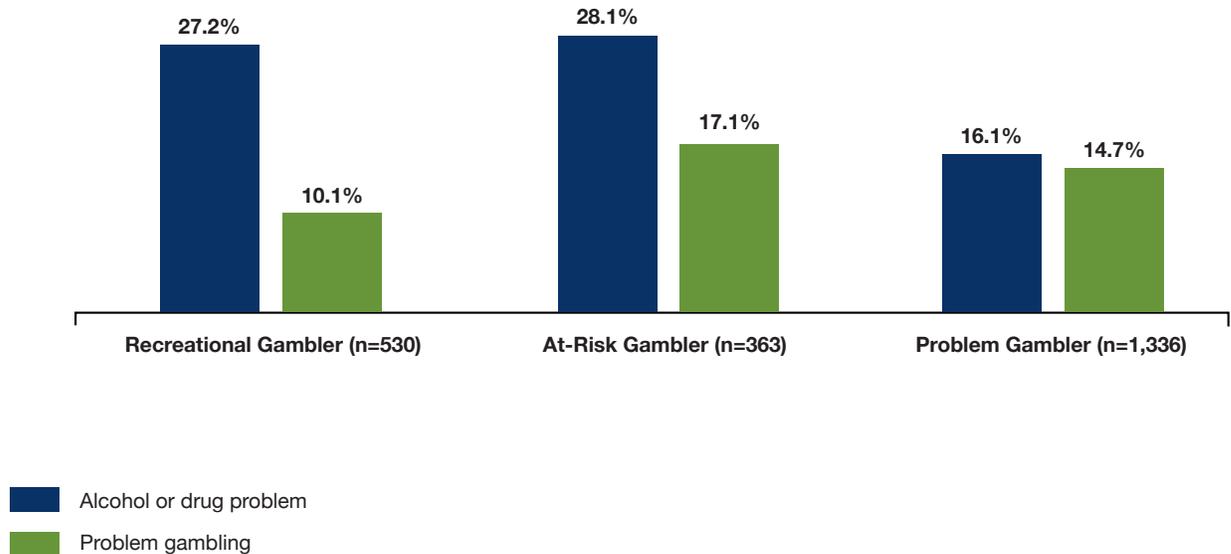
Family History / Generational Addiction

Family history can play a role in the development of a gambling disorder [30]. Research has found that parental gambling history is a risk factor in subsequent problem gambling. In Illinois, people who gamble frequently were asked survey questions about their family history of problem gambling (Figure 12). Illinoisans at risk for problem gambling (17.1%), and those with a gambling problem (14.7%), had the highest prevalence of a reported family history of problem gambling, while 10.1% of frequent recreational gamblers reported a family history of problem gambling. Qualitatively, several community discussion participants described having grown up in an extended family of whom many

are gamblers. As one person noted, “Family members together would place bets informally on anything with odds,” for example the birth date or sex of an unborn child.

Survey respondents who were frequent gamblers were also asked about their family history of substance use disorders (SUD), including both alcohol and drug problems (Figure 12). Reporting a family history of SUD was more common among people at risk for a gambling problem (28.1%), and frequent recreational gamblers (27.2%), whereas 16.1% of people with problem gambling reported a family history of substance use disorders. Given the high rates of co-occurrence of gambling disorders and SUDs, in addition to the role of family history in creating risk for addictive behaviors [31], this is a surprising finding.

Figure 12. Family History of Alcohol or Drug Problem and Problem Gambling, Among Frequent Gamblers, by PPGM, 2021 (n=2,178)



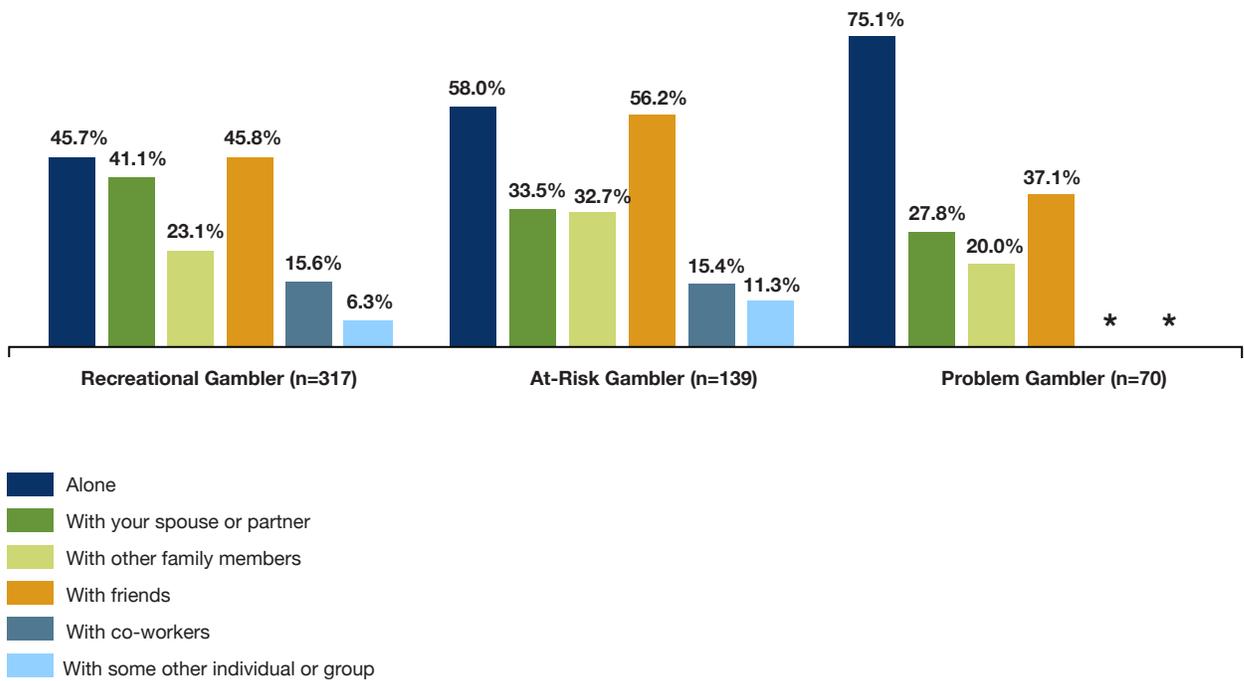
Data Source: IL Problem Gambling Assessment, Frequent Gambler Sample, 2021
Note: Ns presented are for responses to family history of an alcohol or drug problem. Responses to family history of problem gambling was slightly less (n=2,178).

Behaviors While Gambling

Gambling alone is thought to be a risk factor for gambling-related harm such as addiction [32]. Survey respondents were asked who they gambled with when participating in their favorite form of gambling (Figure 13). Among a representative sample of frequent

gamblers in Illinois, 75.1% of Illinoisans with problem gambling reported gambling alone, compared to 58.0% of people at risk for problem gambling and 45.7% of frequent recreational gamblers (Figure 13). Gambling with friends was most commonly reported among at-risk (56.2%) and frequent recreational gamblers (45.8%), compared to just over one-third (37.1%) of people with problem gambling.

Figure 13. Companionship While Gambling, Among Frequent Gamblers, by PPGM, 2021 (n=526)



Data Source: IL Problem Gambling Assessment, Representative Population Sample, Frequent Gamblers Only, Weighted %s, 2021

Note: * Values where n<10 are not presented. This question in the survey allowed for multiple responses; therefore, percentages may not add up to 100%.

Concurrent Substance Use

Respondents to the survey of frequent gamblers were asked about their substance use while gambling. Understanding simultaneous substance use is important, since evidence suggests that those who drink while gambling are more likely to have a gambling problem compared to those who drink, but not while gambling [33]. While less is known about the risk associated with other concurrent substance use and problem gambling, there is a higher prevalence of substance use disorders among people with problem gambling [34]. Among people with problem gambling, 55.0% reported using alcohol while gambling in the past 12 months and 29.9% more than 12 months ago (Figure 14). A total of 80.4% of people with problem gambling reported ever using alcohol while gambling. Respondents at risk of problem gambling appeared to use alcohol while gambling more in the past year

(38.3%) compared to in previous years (19.3%).

This pattern could reflect the effect of the COVID-19 pandemic on drinking behavior and should be monitored in future assessments.

Drug use while gambling in the past year and/or prior years was more prevalent among people with problem gambling, followed by people at risk for problem gambling and frequent recreational gamblers (Figure 14). For example, 44.5% of people with problem gambling reported ever using marijuana while gambling, while only 10.4% of frequent recreational gamblers reported marijuana use while gambling. About one-third of people with problem gambling reported ever using illicit drugs or prescription drugs not as prescribed while gambling, compared to many fewer at-risk and frequent recreational gamblers. These patterns suggest a graded relationship between alcohol and drug use and PPGM status.

Figure 14. Concurrent Substance Use While Gambling, Among Frequent Gamblers, by Substance, 2021

	Recreational Gambler	At-Risk Gambler	Problem Gambler
Alcohol (n=2,270)			
Yes, in the past 12 months	23.0%	38.3%	55.0%
Yes, more than 12 months ago	26.1%	19.3%	29.9%
Ever	48.1%	55.4%	80.4%
Marijuana (n=2,261)			
Yes, in the past 12 months	5.8%	13.3%	21.2%
Yes, more than 12 months ago	4.8%	12.0%	27.6%
Ever	10.4%	23.9%	44.5%
Illicit Street Drugs (n=2,288)			
Yes, in the past 12 months	—	4.3%	13.3%
Yes, more than 12 months ago	2.0%	9.5%	21.6%
Ever	2.8%	14.6%	33.8%

	Recreational Gambler	At-Risk Gambler	Problem Gambler
Prescription Drugs Not as Prescribed (n=2,251)			
Yes, in the past 12 months	—	—	13.7%
Yes, more than 12 months ago	—	4.9%	18.6%
Ever	2.2%	7.4%	30.3%

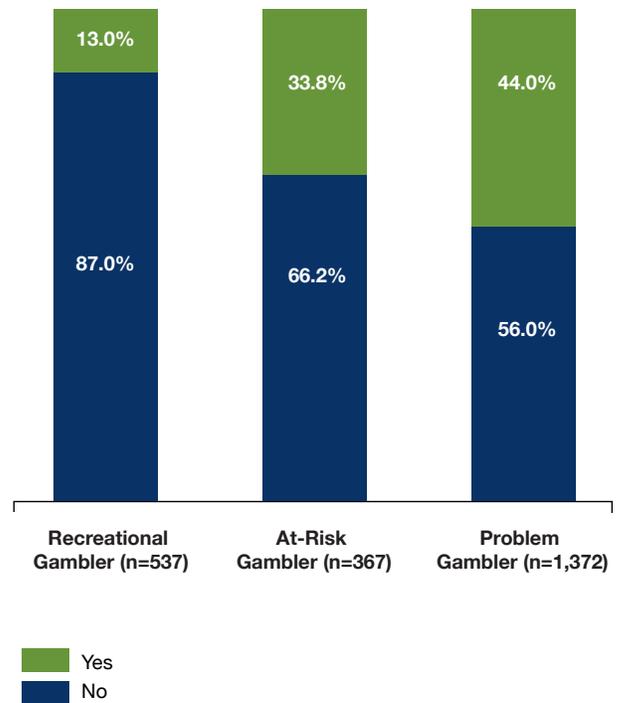
Data Source: IL Problem Gambling Assessment, Frequent Gambler Sample, 2021

Note: This question in the survey allowed for multiple responses; therefore, percentages may not add up to 100%.

Values where n<10 are not presented.

Frequent gamblers were asked if they had gambled while drunk or high in the past 12 months. Forty-four percent of people with problem gambling reported that they gambled while they were drunk or high in the past year, followed by 33.8% of people at risk for problem gambling, and 13.0% of frequent recreational gamblers (Figure 15).

Figure 15. Gambling While Drunk or High Among Frequent Gamblers, Past Year, by PPGM, 2021 (n=2,276)



Data Source: IL Problem Gambling Assessment, Frequent Gambler Sample, 2021

Comorbidities

As with most conditions, problem gambling is typically not a condition that happens in isolation. There are a number of risk factors and co-occurring conditions that are common among those with problem gambling. The following section discusses some of those risk factors and co-occurring conditions, known clinically as comorbidities.

Psychiatric Symptoms / Disorders

The literature indicates that mental health issues are over-represented in people with problem gambling, with 96% of people with problem gambling also meeting criteria for another mental illness [34, 35]. In previous studies, mood disorders were also associated with additional risk of problem gambling. For example, the risk of problem gambling was shown to be 1.7 times higher among those with a mood or anxiety disorder compared to adults with no mood or anxiety disorders [36]. Among people with problem gambling, major depressive disorder was the second most common comorbid condition and another community sample found that the prevalence of major depressive disorder among Canadians with a gambling problem was 32.4% [37, 38]. Other mental health factors such as history of severe childhood maltreatment, high stress, and impulsivity are all associated with increased risk of problem gambling [39–42]. Therefore, problem gambling and mental health should be considered in tandem.

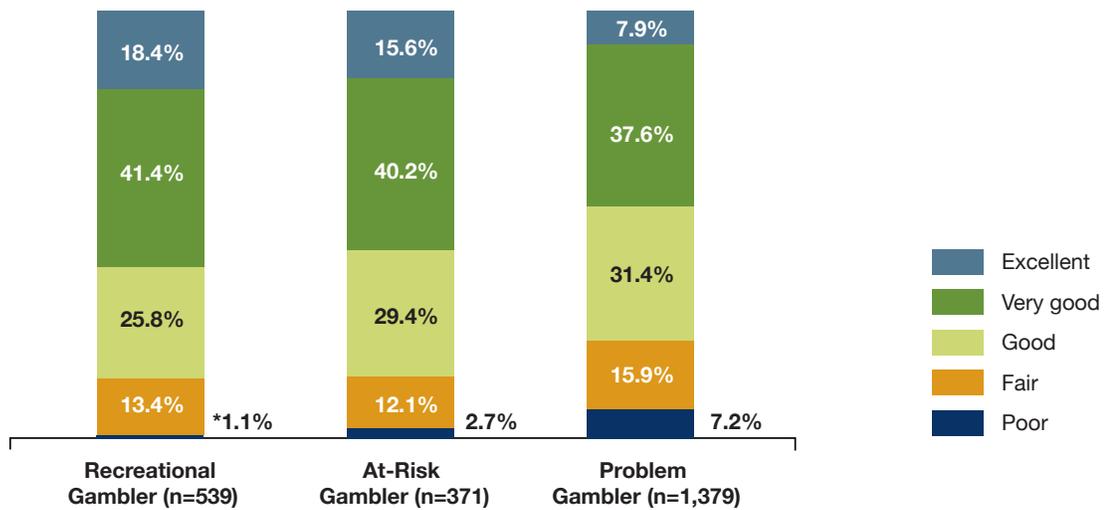
In this Illinois assessment study, interview and community discussion participants recognized the link between and co-occurrence of gambling and mental health. As one participant said, *“there are some people*

who are gambling to cope with another stressor or illness that they are not receiving help for.” A handful of participants discussed gambling-associated suicide and shared personal stories of friends or relatives dying by suicide due to gambling-related issues, such as extreme financial loss.

Illinois survey findings presented suggest a strong connection between gambling and mental health. Many of the findings presented in this section suggest a graded relationship between PPGM (Problem and Pathological Gambling Measure) status and the prevalence of mental health or substance use issues. That is, the prevalence of reported mental health issues is highest among people at risk for problem gambling and people with a gambling problem. Sometimes known as a dose-response relationship, these patterns that show gradation by severity of symptoms are an indication of the validity and robustness of these associations. Though statistical testing was not conducted to confirm these relationships, apparent graded relationships are noted below when they stand out in the findings. They appear in graphs as a stepwise increase or decrease in prevalence, across gambler types.

Among frequent gamblers, self-reported overall mental health varied by problem gambling status. Excellent self-reported mental health was most prevalent among recreational gamblers (18.4%), followed by 15.6% of people at risk for problem gambling, whereas only 7.9% of people with problem gambling reported excellent mental health (Figure 16). Conversely, poor mental health was endorsed by 2.7% of people at risk for problem gambling and 7.2% of people with problem gambling.

Figure 16. Self-Reported Overall Mental Health, Among Frequent Gamblers, by PPGM, 2021 (n=2,289)



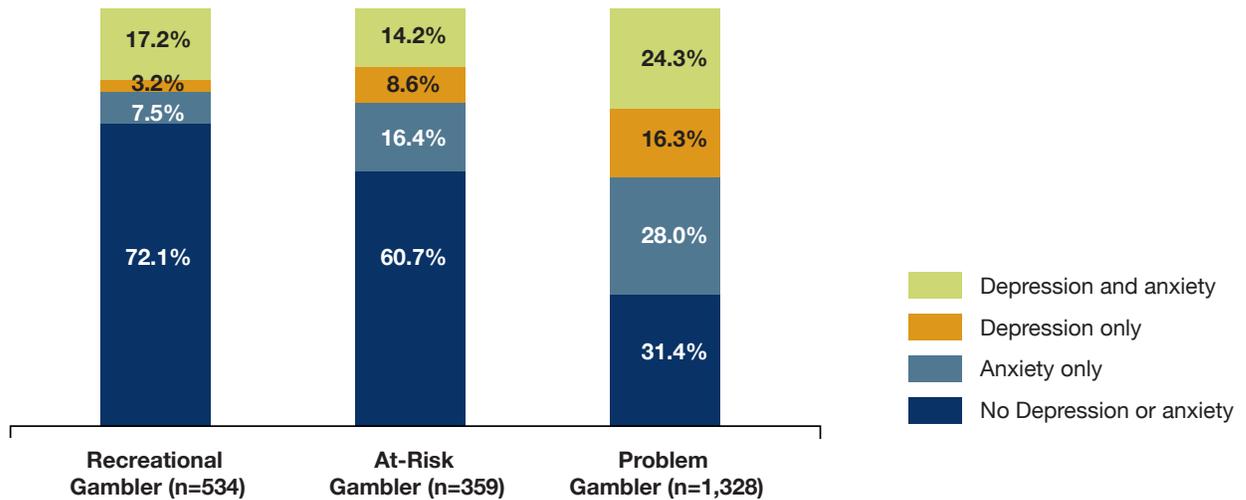
Data Source: IL Problem Gambling Assessment, Frequent Gambler Sample, 2021

Note: *n<10 interpret with caution.

Similarly, past-year depression and anxiety were more common among people with a gambling problem. Among people with problem gambling, 28.0% reported experiencing anxiety in the past year, 16.3% reported depression, and an additional 24.3% reported experiencing both depression and anxiety (Figure 17). In total, 68.6% of people with problem gambling reported experiencing anxiety and/or depression in the past year, compared to 39.2% of people at risk for problem gambling and 27.9% of frequent recreational gamblers. Notably, the prevalence of depression and anxiety is high for all categories of frequent gamblers, though these rates may be inflated due to the COVID-19 pandemic. For comparison, in a 2019 U.S. adult population sample, on average 10.8% of respondents reported symptoms of anxiety and/or depressive disorder in the past year [43].

68.6% of people with problem gambling experienced serious anxiety and/or depression in the past year, compared to 39.2% of people at risk for problem gambling and 27.9% of frequent recreational gamblers

Figure 17. Self-Reported Serious Depression and/or Serious Problem with Anxiety, Stress, or Panic in the Last 12 Months, Among Frequent Gamblers, by PPGM, 2021 (n=2,221)

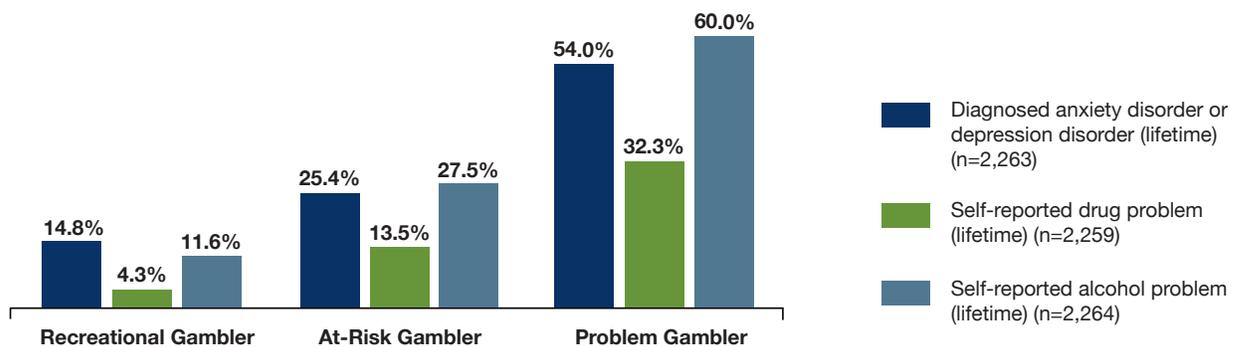


Data Source: IL Problem Gambling Assessment, Frequent Gambler Sample, 2021

Respondents to the Frequent Gambler Survey were also asked about their lifetime history of mental and substance use disorders. Among people with problem gambling, 54.0% reported that they had ever been told they had an anxiety or depressive disorder by a doctor,

compared to 25.4% of people at risk for problem gambling, and 14.8% of frequent recreational gamblers (Figure 18). Similar patterns by PPGM status were apparent for reports of a drug problem or an alcohol problem at some point in respondents' lives.

Figure 18. Lifetime Prevalence of Mental and Substance Use Disorders Among Frequent Gamblers, by PPGM, 2021

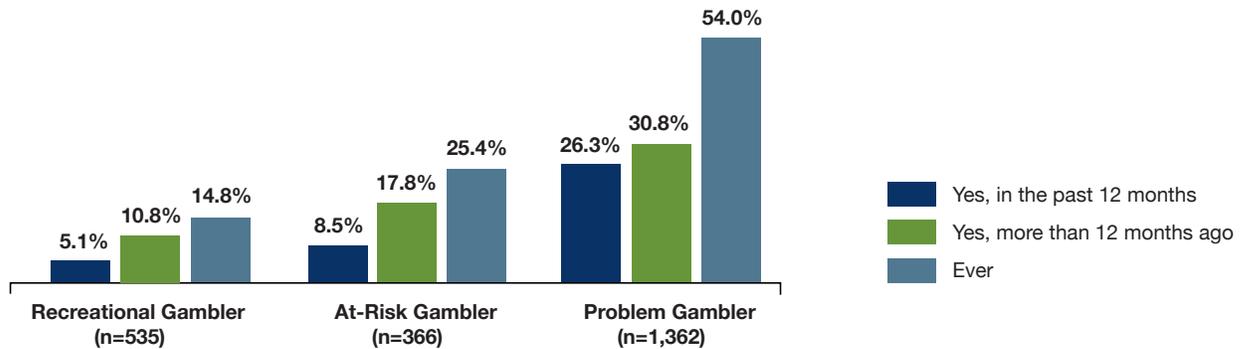


Data Source: IL Problem Gambling Assessment, Frequent Gambler Sample, 2021

Even though mental health concerns were quite prevalent among all categories of frequent gamblers, receiving a diagnosis of depression or anxiety from a health professional was much less common, highlighting a gap in treatment of mental health issues. Among frequent recreational gamblers, only 5.1%

had received a diagnosis in the past year and 14.8% reported receiving a diagnosis in their whole lives (Figure 19). People at risk for problem gambling fell in the middle, while between 26-54% of people with problem gambling had been diagnosed with depression or anxiety in the past year and/or their whole lives.

Figure 19. Diagnosis of Anxiety or Depression by a Health Professional, Among Frequent Gamblers, by PPGM, 2021 (n=2,263)



Data Source: IL Problem Gambling Assessment, Frequent Gambler Sample, 2021

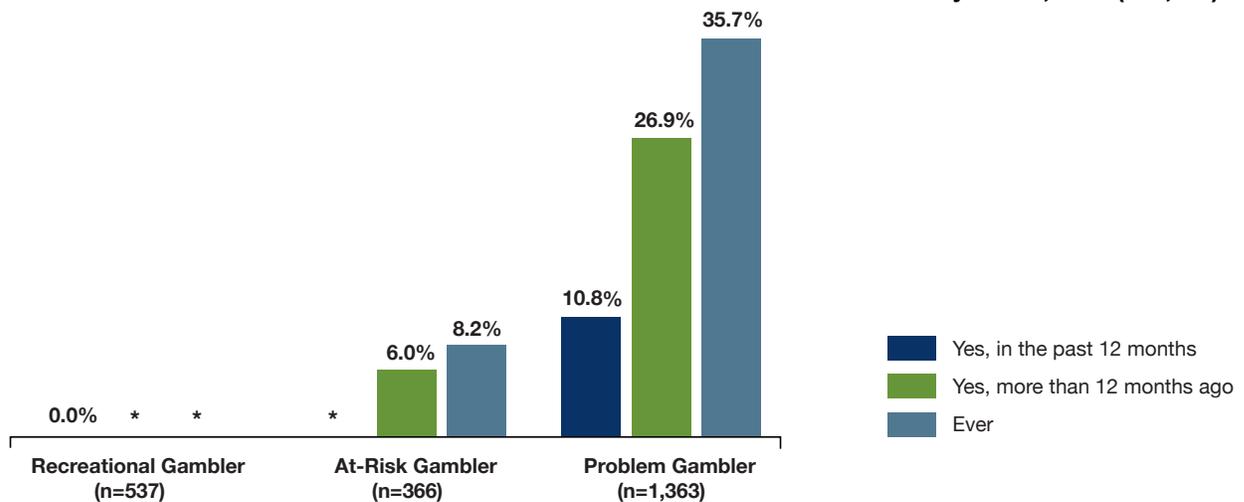
Note: This question in the survey allowed for multiple responses; therefore, percentages may not add up to 100%.

Problem gambling is a known risk factor for suicidal ideation, attempts, and dying by suicide [44, 45]. Unfortunately, this is also represented among Illinoisans. When asked about whether they had seriously thought about or attempted suicide specifically as a result of their gambling, one in every 10 frequent gambling survey respondents with problem gambling reported thinking about suicide or attempting suicide in the past year, and one in three reported thinking about suicide or attempting suicide ever in their lives. More than one-third of people with a gambling problem (35.7%), reported ever experiencing suicidality, and 8.2% of people at risk for problem gambling reported thinking about or attempting suicide (Figure 20).

These dramatically high prevalence estimates point to the urgent need for mental health care for people with gambling problems highlighting the potential importance of early intervention and mental health screening among frequent gamblers who do not currently meet criteria for having a gambling problem.

1 in 10 Illinoisans with problem gambling thought about or attempted suicide in the past year;
1 in 3 had done so in their lifetime.

Figure 20. Self-Reported Suicidality as a Result of Gambling, Among Frequent Gamblers, by PPGM, 2021 (n=2,266)



Data Source: IL Problem Gambling Assessment, Frequent Gambler Sample, 2021

Note: Respondents were asked if they have ever seriously thought about or attempted suicide. This question in the survey allowed for multiple responses; therefore, percentages may not add up to 100%.

*Values where n<10 are not presented.

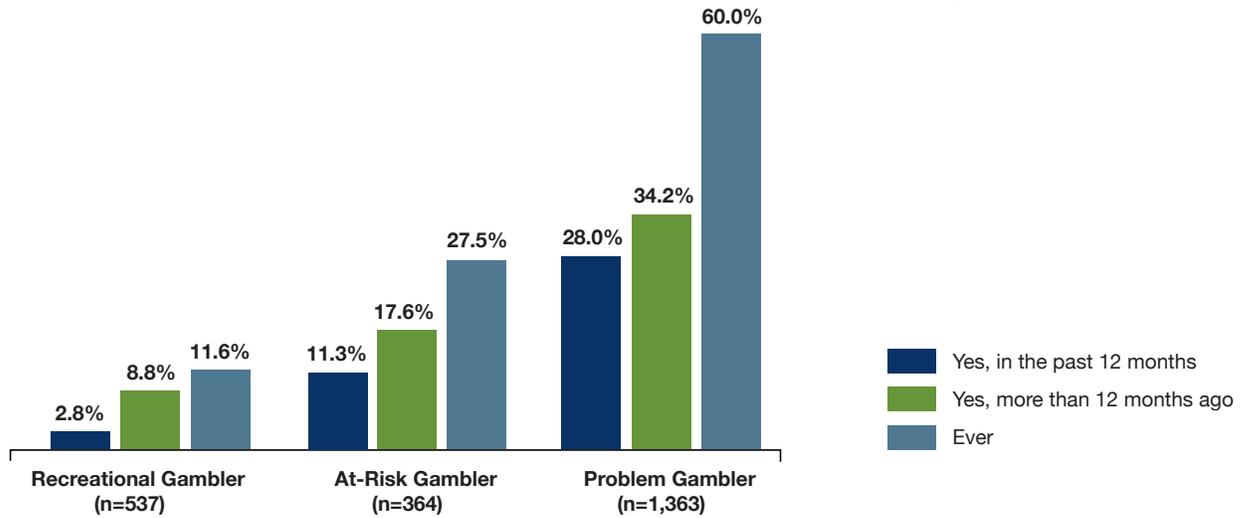
Substance Use and Disorders

Similar to psychiatric disorders, there is a strong connection between substance use disorders and problem gambling. Previous studies have identified that the prevalence of substance use disorders is greater among people with a gambling problem compared to the general population, with alcohol misuse being particularly problematic among people with a gambling problem [31, 46, 47]. The current literature shows that the risk of having problem gambling is 2.9 times higher among people with a history of substance use disorder, compared to those without [36]. Illinois assessment participants also acknowledged the co-occurrence of problem gambling and substance use disorder. For example, several participants suggested that problem gambling specific to video gambling tended to co-occur with alcohol use disorder because of the video gambling terminal placement in bars and restaurants.

Unfortunately, there is no consistent practice of administering a screening for problem gambling among people seeking treatment for SUDs, so statistics from this population are not available, aside from the self-reporting by Illinois Gambling Survey respondents.

Among Illinoisans who are frequent gamblers, alcohol problems were most frequently reported by people with problem gambling followed by people at risk for problem gambling. For example, alcohol problems in the past year were reported by 2.8% of recreational gamblers, 11.3% of people at risk for problem gambling, and 27.9% of people with problem gambling (Figure 21). Patterns were similar, with a higher prevalence reported for alcohol problems more than a year ago and ever. Again, it is possible that these estimates of alcohol use in the past year are higher than would be expected due to the COVID-19 pandemic, as increases in alcohol consumption during the pandemic have been documented in the general public [48, 49].

Figure 21. Self-Reported Alcohol Problem in Lifetime, Among Frequent Gamblers, by PPGM, 2021 (n=2,264)

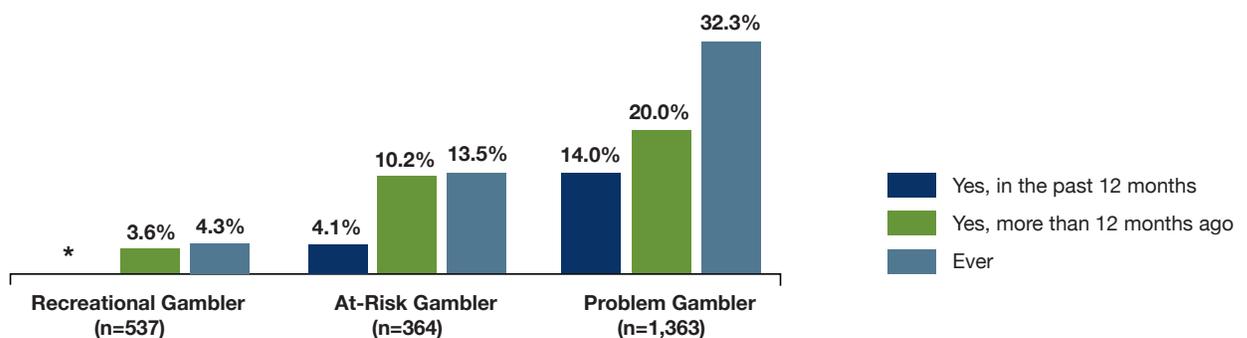


Data Source: IL Problem Gambling Assessment, Frequent Gambler Sample, 2021

Note: This question in the survey allowed for multiple responses; therefore, percentages may not add up to 100%.

Similar patterns were apparent for a history of drug problems, with 4.1% of people at risk for problem gambling, and 14.0% of people with problem gambling reporting having drug problems in the past year, with similar trends for drug problems prior to the past year and ever (Figure 22).

Figure 22. Self-Reported Drug Problem in Lifetime, Among Frequent Gamblers, by PPGM, 2021 (n=2,259)



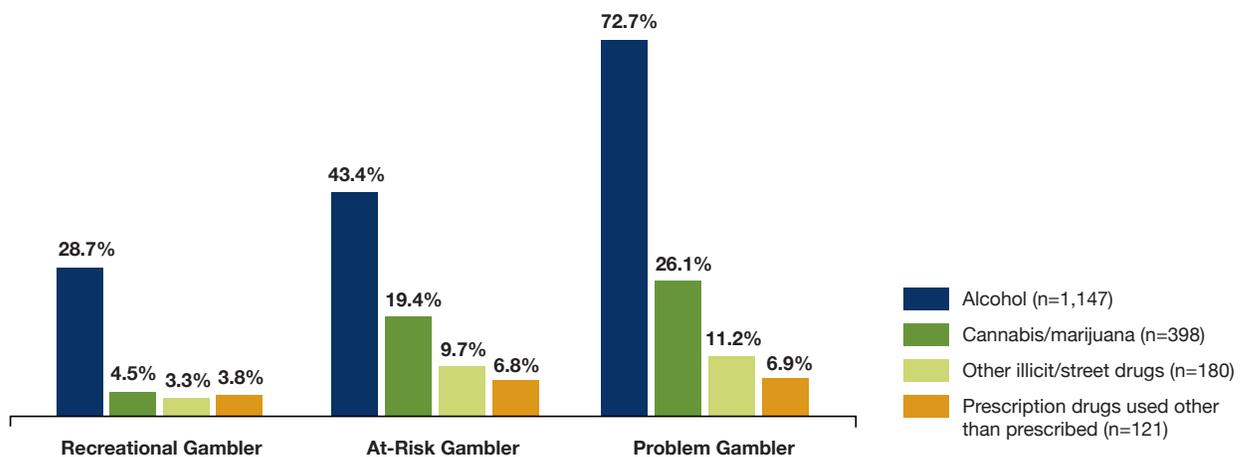
Data Source: IL Problem Gambling Assessment, Frequent Gambler Sample, 2021

Note: This question in the survey allowed for multiple responses; therefore, percentages may not add up to 100%. * Values where n < 10 are not presented.

Frequent gamblers were also asked if they had ever used any substances to a degree that made them feel out of control or that created problems with work, family, or other responsibilities. Across types of substances, the prevalence of substance use was highest among people with a gambling problem, followed by people at risk for problem gambling (Figure 23). For example, 72.7% of people with

problem gambling reported ever feeling out of control from alcohol, compared to 43.4% of people at risk for problem gambling, and 28.7% of frequent recreational gamblers. Similarly, 11.2% of people with problem gambling reported ever feeling out of control from illicit drugs, compared to 9.7% of people at risk for problem gambling, and 3.3% of frequent recreational gamblers.

Figure 23. Gamblers who Reported Ever Using Substances to a Degree that Made them Feel Out of Control or Created Problems Related to Work, Family, or Other Responsibilities, by Substance and PPGM, 2021



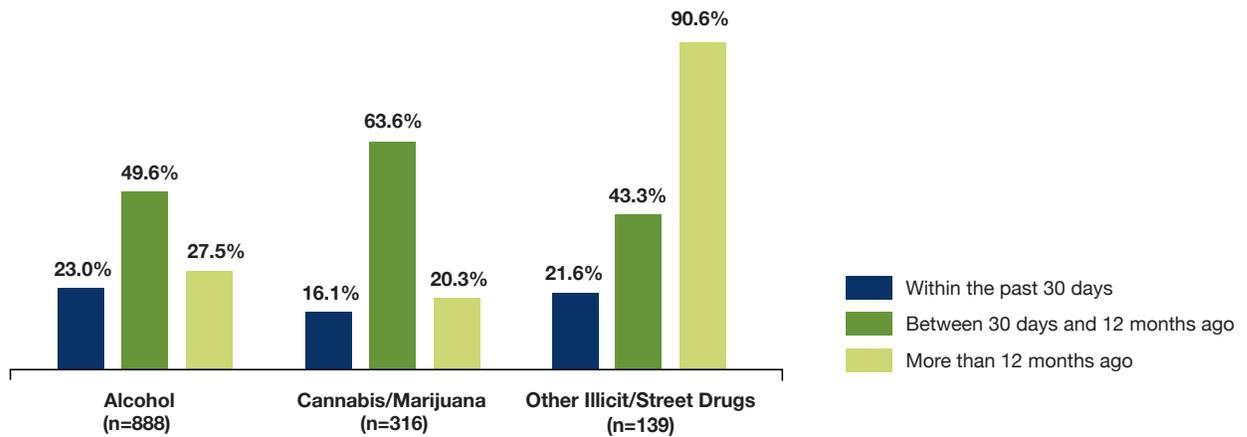
Data Source: IL Problem Gambling Assessment, Frequent Gambler Sample, 2021

Note: This question in the survey allowed for multiple responses; therefore, percentages may not add up to 100%.

Survey respondents who reported substance use to the extent that they ever felt out of control or that it created problems were asked about the last time when this happened. Among respondents with problem gambling, 23.0% reported feeling out of control from alcohol in the

past 30 days, 16.1% from cannabis, and 21.6% from illicit drugs (Figure 24). Prevalence estimates for people at risk for problem gambling and frequent recreational gamblers, and for prescription drugs used other than as prescribed are not shown due to small sample sizes.

Figure 24. Last Engagement in Substance Use that Resulted in a Lack of Control or Created Problems Among Problem Gamblers, by Substance, 2021



Data Source: IL Problem Gambling Assessment, Frequent Gambler Sample, Problem Gamblers Only, 2021
Note: This question in the survey allowed for multiple responses; therefore, percentages may not add up to 100%.
 Data for Recreational and At-Risk Gamblers not shown due to small sample size.

Other Addictions

Non-substance use related addictions have become a rising concern in modern society. Outside of problem gambling, addictions such as food addiction, internet addiction, and mobile phone addiction have become problems that are receiving more attention. For example, it is estimated that about 6% of the world has an internet addiction which is troubling because only about 39% of the world has internet access [50]. Moreover, these other forms of addiction share similar comorbidities and consequences. Common to each of these forms of addiction are the interrelated factors of depression, anxiety, and other social and psychological trauma [51]. In Illinois, Frequent Gambler Survey respondents were asked if they had ever participated in other behaviors “to a degree that made you feel out of control or that it created problems related to excessive work, family, or other responsibilities?” For people with

problem gambling, the most prevalent behaviors were work (39.6%), food (32.0%), pornography (29.7%), and video gaming (26.7%), highlighting the common co-occurrence of different types of addictive behaviors (Figure 25).

Other addictive behaviors were most prevalent for people with problem gambling, followed by people at risk for problem gambling, and frequent recreational gamblers (Figure 25). Among frequent recreational gamblers, work addiction was the most prevalent addictive behavior. Other addictive behaviors that were commonly cited across PPGM groups include food addiction, pornography, video gaming addiction, and shopping.

Figure 25. Percent Survey Respondents Indicating Ever Engaging in Addictive Behaviors That Resulted in a Lack of Control or Created Problems, Among Frequent Gamblers, by PPGM, 2021

	Recreational Gambler (n=442)	At-Risk Gambler (n=307)	Problem Gambler (n=1,302)
1	Work (18.1%)	Work (28.3%)	Work (39.6%)
2	Food (10.2%)	Pornography (19.2%)	Food (32.0%)
3	Internet Use (10.2%)	Food (18.9%)	Pornography (29.7%)
4	Shopping (7.5%)	Sex (16.6%)	Video Gaming (26.7%)
5	Video Gaming (6.1%)	Shopping (15.6%)	Exercise (20.7%)

Data Source: IL Problem Gambling Assessment, Frequent Gambler Sample, 2021

Chapter 4: References

1. Raylu, N., & Oei, T. P. (2004). Role of culture in gambling and problem gambling. *Clinical Psychology Review*, 23(8), 1087–1114.
2. Welte, J. W., Barnes, G. M., Wieczorek, W. F., Tidwell, M. C. O., & Parker, J. C. (2004). Risk factors for pathological gambling. *Addictive Behaviors*, 29(2), 323–335.
3. Welte, J. W., Barnes, G. M., Tidwell, M. C. O., Hoffman, J. H., & Wieczorek, W. F. (2015). Gambling and problem gambling in the United States: Changes between 1999 and 2013. *Journal of Gambling Studies*, 31(3), 695–715.
4. Currie, C. L., Wild, T. C., Schopflocher, D. P., Laing, L., Veugelers, P., & Parlee, B. (2013). Racial discrimination, post traumatic stress, and gambling problems among urban Aboriginal adults in Canada. *Journal of Gambling Studies*, 29(3), 393–415.
5. Chee, T. T., & Lui, Y. S. (2021). Pathological gambling, gambling disorder, and problem gambling among the Chinese ethnic population living in western countries: Is culture a sufficient explanation for the reported excess rates? *Journal of Gambling Studies*, 37(3), 927–945.
6. Meyer, C., Bischof, A., Westram, A., Jeske, C., de Brito, S., Glorius, S., ... Rumpf, H.-J. (2015). The “Pathological Gambling and Epidemiology” (PAGE) study program: design and fieldwork. *International Journal of Methods in Psychiatric Research*, 24(1), 11–31.
7. Chen, R., & Dong, X. (2015). The prevalence and correlates of gambling participation among community-dwelling Chinese older adults in the U.S. *AIMS Medical Science*, 2(2), 90–103.
8. Keovisai, M., & Kim, W. (2019). “It’s not officially gambling”: Gambling perceptions and behaviors among older Chinese immigrants. *Journal of Gambling Studies*, 35(4), 1317–1330.
9. Tse, S., Wong, J., & Kim, H. (2004). A public health approach for Asian people with problem gambling in foreign countries. *Journal of Gambling Issues*, (12).
10. Wong, C., & Li, G. (2020). Talking about casino gambling: Community voices from Boston Chinatown. *Institute for Asian American Studies Publications*, 45.
11. Wu, A. M. S., & Lau, J. T. F. (2015). Gambling in China: Socio-historical evolution and current challenges. *Addiction*, 110(2), 210–216.
12. Blaszczynski, A., Huynh, S., Dumlao, V. J., & Farrell, E. (1998). Problem gambling within a Chinese speaking community. *Journal of Gambling Studies*, 14(4), 359–380.
13. Wardle, H., Bramley, S., Norrie, C., & Manthorpe, J. (2019). What do we know about gambling-related harm affecting migrants and migrant communities? A rapid review. *Addictive Behaviors*, 93, 180–193.
14. Williams, B. M., Browne, M., Rockloff, M., Stuart, G., & Smith, B. P. (2021). Protective Action and Risky Beliefs: The Relationship Between Religion and Gambling Fallacies. *Journal of Gambling Studies*.
15. Dowling, N. A., Merkouris, S. S., Greenwood, C. J., Oldenhof, E., Toumbourou, J. W., & Youssef, G. J. (2017). Early risk and protective factors for problem gambling: A systematic review and meta-analysis of longitudinal studies. *Clinical Psychology Review*, 51, 109–124.
16. Black, D. W., Shaw, M., Coryell, W., Crowe, R., McCormick, B., & Allen, J. (2015). Age at onset of DSM-IV pathological gambling in a non-treatment sample: Early- versus later-onset. *Comprehensive Psychiatry*, 60, 40–46.
17. Livazović, G., & Bojčić, K. (2019). Problem gambling in adolescents: What are the psychological, social and financial consequences? *BMC Psychiatry*, 19(1), 1–15.
18. Calado, F., Alexandre, J., & Griffiths, M. D. (2017). Prevalence of adolescent problem gambling: A systematic review of recent research. *Journal of Gambling Studies*, 33(2), 397–424.
19. Welte, J. W., Barnes, G. M., Tidwell, M. C. O., & Hoffman, J. H. (2008). The prevalence of problem gambling among U.S. adolescents and young adults: Results from a national survey. *Journal of Gambling Studies*, 24(2), 119–133.
20. Lussier, I. D., Derevensky, J., Gupta, R., & Vitaro, F. (2014). Risk, compensatory, protective, and vulnerability factors related to youth gambling problems. *Psychology of Addictive Behaviors*, 28(2), 404–413.
21. Shead, N. W., Derevensky, J. L., & Gupta, R. (2010). Risk and protective factors associated with youth problem gambling. *International Journal of Adolescent Medicine and Health*, 22(1), 39–58.
22. Martins, S. S., Wall, M. M., Eisenberg, R., Blanco, C., Santaella, J., Ramos-Olazagasti, M. Duarte, C. S. (2015). Trajectories of sensation seeking among Puerto-Rican children and youth. *Journal of the American Academy of Child and Adolescent Psychiatry*, 54(12), 1042.
23. Rider, G. N., McMorris, B. J., Gower, A. L., Coleman, E., & Eisenberg, M. E. (2019). Gambling behaviors and problem gambling: A population-based comparison of transgender/gender diverse and cisgender adolescents. *Journal of Gambling Studies*, 35(1), 79–92.

Chapter 4: References

24. Cook, S., Turner, N. E., Ballon, B., Paglia-Boak, A., Murray, R., Adlaf, E. M., Mann, R. E. (2014). Problem gambling among Ontario students: Associations with substance abuse, mental health problems, suicide attempts, and delinquent behaviours. *Journal of Gambling Studies* 2014 31:4, 31(4), 1121–1134.
25. Calado, F., Alexandre, J., & Griffiths, M. D. (2017). Prevalence of adolescent problem gambling: A systematic review of recent research. *Journal of Gambling Studies*, 33(2), 397–424.
26. Shead, N. W., Derevensky, J. L., & Gupta, R. (2011). Youth problem gambling: Our current knowledge of risk and protective factors. In J. L. Derevensky, D. T. L. Shek, & J. Merrick (Eds.), *Youth Gambling: The Hidden Addiction* (pp. 59–78). Berlin, Boston: De Gruyter.
27. Storr, C. L., Lee, G. P., Derevensky, J. L., Ialongo, N. S., & Martins, S. S. (2012). Gambling and adverse life events among urban adolescents. *Journal of Gambling Studies*, 28(2), 325.
28. Welte, J. W., Wieczorek, W. F., Barnes, G. M., Tidwell, M.-C., & Hoffman, J. H. (2004). The relationship of ecological and geographic factors to gambling behavior and pathology. *Journal of Gambling Studies*, 20(4), 405–423.
29. McMillen, J., & Doran, B. (2006). Problem gambling and gaming machine density: socio-spatial analysis of three Victorian localities. *International Gambling Studies*, 6(1), 5–29.
30. Dowling, N. A., Merkouris, S. S., Greenwood, C. J., Oldenhof, E., Toumbourou, J. W., & Youssef, G. J. (2017). Early risk and protective factors for problem gambling: A systematic review and meta-analysis of longitudinal studies. *Clinical Psychology Review*. Elsevier Inc.
31. Barnes, G. M., Welte, J. W., Tidwell, M. C. O., & Hoffman, J. H. (2015). Gambling and substance use: co-occurrence among adults in a recent general population study in the United States. *International Gambling Studies*, 15(1), 55–71.
32. Browne, M., Hing, N., Rockloff, M., Russell, A. M. T., Greer, N., Nicoll, F., & Smith, G. (2019). A multivariate evaluation of 25 proximal and distal risk-factors for gambling-related harm. *Journal of Clinical Medicine*, 8(4), 509.
33. Welte, J. W., Barnes, G. M., Wieczorek, W. F., & Tidwell, M. C. O., (2004). Simultaneous drinking and gambling: A risk factor for pathological gambling. *Substance Use & Misuse*, 39(9), 1405–1422.
34. Bischof, A., Meyer, C., Bischof, G., Kastirke, N., John, U., & Rumpf, H. J. (2013). Comorbid Axis I-disorders among subjects with pathological, problem, or at-risk gambling recruited from the general population in Germany: Results of the PAGE study. *Psychiatry Research*, 210(3), 1065–1070.
35. Petry, N. M., Stinson, F. S., & Grant, B. F. (2005). Comorbidity of DSM-IV pathological gambling and other psychiatric disorders: Results from the national epidemiologic survey on alcohol and related conditions. *Journal of Clinical Psychiatry*, 66(5), 564–574.
36. El-Guebaly, N., Patten, S. B., Currie, S., Williams, J. V. A., Beck, C. A., Maxwell, C. J., & Wang, J. L. (2006). Epidemiological associations between gambling behavior, substance use & mood and anxiety disorders. *Journal of Gambling Studies*, 22(3), 275–287.
37. Dowling, N. A., Cowlshaw, S., Jackson, A. C., Merkouris, S. S., Francis, K. L., & Christensen, D. R. (2015). Prevalence of psychiatric co-morbidity in treatment-seeking problem gamblers: A systematic review and meta-analysis. *Australian & New Zealand Journal of Psychiatry*, 49(6), 519–539.
38. Quigley, L., Yakovenko, I., Hodgins, D. C., Dobson, K. S., El-Guebaly, N., Casey, D. M., Schopflocher, D. P. (2015). Comorbid problem gambling and major depression in a community sample. *Journal of Gambling Studies*, 31(4), 1135–1152.
39. Ronzitti, S., Kraus, S. W., Hoff, R. A., & Potenza, M. N. (2018). Stress moderates the relationships between problem-gambling severity and specific psychopathologies. *Psychiatry Research*, 259, 254–261.
40. Felsher, J. R., Derevensky, J. L., & Gupta, R. (2010). Young adults with gambling problems: The impact of childhood maltreatment. *International Journal of Mental Health and Addiction*, 8(4), 545–556.
41. Clarke, D. (2006). Impulsivity as a mediator in the relationship between depression and problem gambling. *Personality and Individual Differences*, 40(1), 5–15.
42. Welte, J. W., Barnes, G. M., Tidwell, M. C. O., & Wieczorek, W. F. (2017). Predictors of problem gambling in the U.S. *Journal of Gambling Studies*, 33(2), 327–342.
43. Terlizzi, E., & Schiller, J. (2021). *Estimates of Mental Health Symptomatology, By Month of Interview: United States, 2019*.
44. Newman, S. C., & Thompson, A. H. (2007). The association between pathological gambling and attempted suicide: Findings from a national survey in Canada. *The Canadian Journal of Psychiatry*, 52(9).
45. Moghaddam, J. F., Yoon, G., Dickerson, D. L., Kim, S. W., & Westermeyer, J. (2015). Suicidal ideation and suicide attempts in five groups with different severities of gambling: Findings from the national epidemiologic survey on alcohol and related conditions. *American Journal on Addictions*, 24(4), 292–298.

Chapter 4: References

46. French, M. T., Maclean, J. C., & Ettner, S. L. (2008). Drinkers and bettors: Investigating the complementarity of alcohol consumption and problem gambling. *Drug and Alcohol Dependence*, 96(1–2), 155–164.
47. Rash, C., Weinstock, J., & Van Patten, R. (2016). A review of gambling disorder and substance use disorders. *Substance Abuse and Rehabilitation*, 7, 3.
48. Pollard, M. S., Tucker, J. S., & Green, H. D. (2020). Changes in adult alcohol use and consequences during the COVID-19 pandemic in the US. *JAMA Network Open*, 3(9), e2022942.
49. Jacob, L., Smith, L., Armstrong, N. C., Yakkundi, A., Barnett, Y., Butler, L., Tully, M. A. (2021). Alcohol use and mental health during COVID-19 lockdown: A cross-sectional study in a sample of UK adults. *Drug and Alcohol Dependence*, 219, 108488.
50. Zou, Z., Wang, H., d'Oleire Uquillas, F., Wang, X., Ding, J., & Chen, H. (2017). Definition of substance and non-substance addiction. *Advances in experimental medicine and biology*, 1010, 21–41.
51. Cheng, C., & Li, A. Y. L. (2014). Internet addiction prevalence and quality of (real) life: A meta-analysis of 31 nations across seven world regions. *Cyberpsychology, Behavior, and Social Networking*, 17(12), 755–760.