THE PENNSYLVANIA INTERACTIVE GAMING ASSESSMENT:
ONLINE GAMBLING REPORT 2023

PREPARED BY:
THE PENNSYLVANIA STATE UNIVERSITY

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Report Highlights

This report represents the results of the third year (September 2022-June 2023) of the interactive gaming assessment in Pennsylvania. The focus of this report is to (1) establish the prevalence of online gambling in Pennsylvania, (2) examine the demographic characteristics of adult Pennsylvania online gamblers, and (3) identify the characteristics associated with experiencing problems with online gambling.

*Online gambling **participation increased** compared to the 2021 and 2022 reports, with **16.0% of Pennsylvania adults** reporting that they engaged in some form of **online gambling in the past year.***

Those that **gamble both online and offline** (dual-mode) gambled most often, gambling **about once a week. Online-exclusive gamblers** gambled 2-3 times per month and **offline-exclusive gamblers only gambled about once a month.**

On average, those that **gamble both online and offline** (dual-mode) **spent the most** on gambling per month at **$708. Online-exclusive gamblers spent $617** per month, and **offline-exclusive spent the least at $103.**

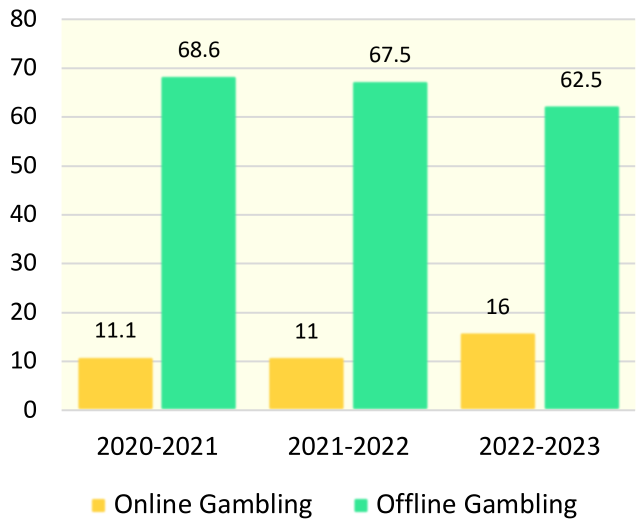
Comparing the proportion of individuals that gamble online exclusively, offline exclusively, and on both modes, data showed that **50.7% of dual-mode gamblers** that gamble at least once a month **presented with at least one possible problem gambling indicator** on the Brief Problem Gambling Screen (suggesting need for full assessment due to possible problem or at-risk gambling). In comparison, only **16.4% of offline-exclusive** monthly gamblers and **40.7% of online-exclusive** monthly gamblers, presented with at least one possible problem gambling indicator**. More frequent** gambling; **greater monthly spending, more time** spent gambling; **a greater number of formats;** gambling motivation is to **escape, relax, or relieve stress;** gambling **alone;** and **membership** in a gambling loyalty or rewards program were all associated with the presence of possible problem gambling indicators.

Executive Summary

Online gambling revenues continued to increase over the 2022/2023 fiscal year, bringing in over $2.1 billion in revenue to the state of Pennsylvania; a nearly **27% increase** from the 2021/2022 fiscal year.

Calls to the 1-800-GAMBLER helpline in reference to online gambling problems also increased, now representing approximately **34% of the total call volume**; up from approximately 20% of calls during the same 2021/2022 period.

Figure 1. The percentage of Pennsylvania adults that participated in online and offline gambling between 2020 and 2023.



The Interactive Gaming Assessment began in 2020 utilizing telephone surveys of adult residents of Pennsylvania. During the **first year of the assessment** (2020-2021), it was found that approximately **11.1%** of the population had engaged in some form of **online gambling** and **68.6%** had engaged in some form of **offline gambling**. The **second year of the assessment** (2021-2022) saw similar rates of engagement, with **11.0%** engaging in **online gambling** and **67.5%** engaging in **offline gambling**. In the current, **third annual report** (2022-2023) approximately **16.0%** had engaged **in online gambling** and **62.5%** had engaged in **offline gambling**

The ***Interactive Gaming Assessment*** is an annual assessment of the impacts of online gambling in Pennsylvania, mandated through **Act 42 of 2017**, which greatly expanded the provision of legal gambling in Pennsylvania.

KEY FINDINGS FROM 2022-2023

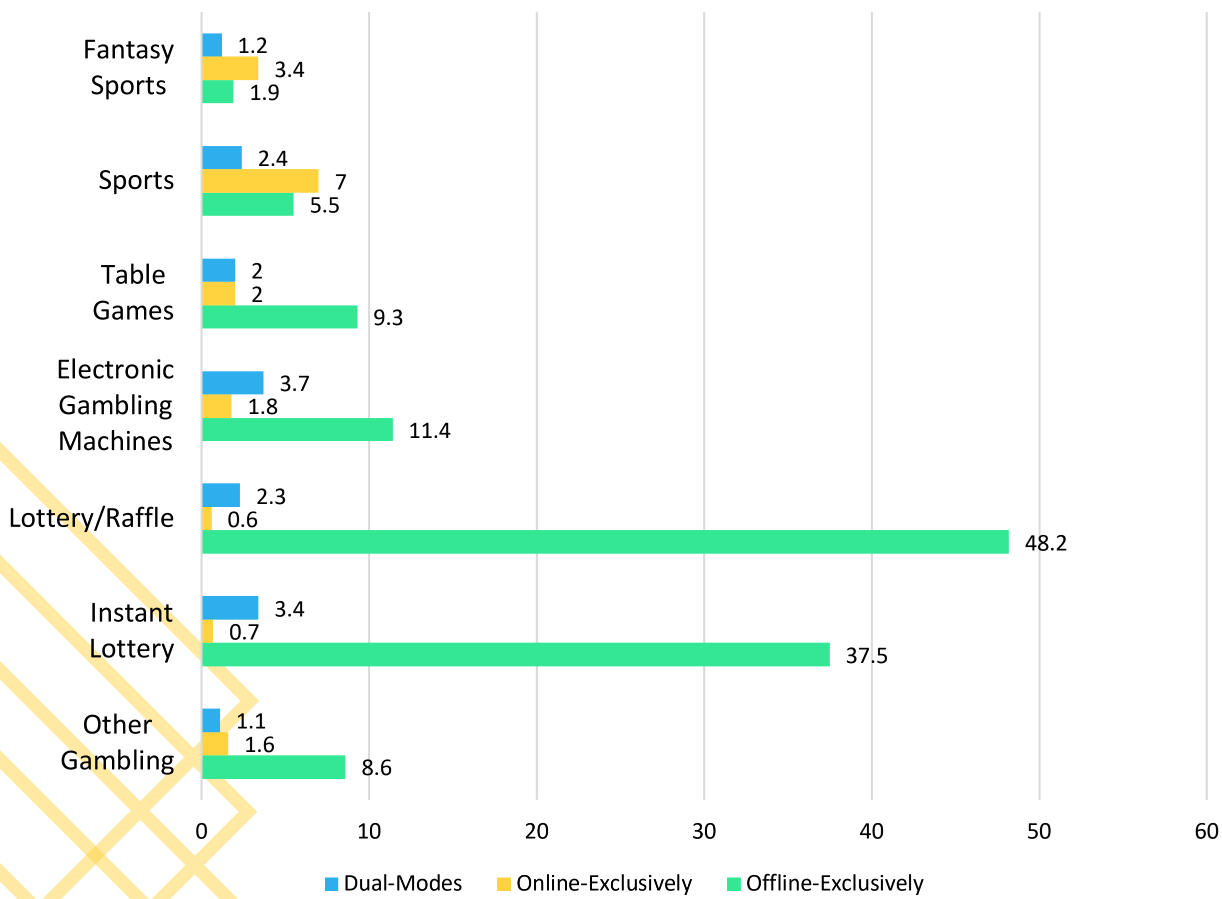
GAMBLING PREVALENCE

Over two-thirds of the adult population of Pennsylvania engaged in some form of gambling in the past 12 months (64.8%). **Offline gambling was the most popular mode** of gambling

with **62.5% having gambled offline**, and **16.0% having gambled online** in the past 12 months; 48.7% gambled exclusively offline, 2.3% gambled exclusively online, and 13.7% gambled both online and offline (dual-mode).
Sports betting was the most popular format to engage in online and **lottery** was the most popular format for individuals to engage in offline (Figure 2). Those that **gamble both online and offline** tended to have **gambled on more formats** than those that gamble online or offline exclusively. Approximately 3.2% engaged in some form of illegal online gambling in the past 12 months, and an additional 2.1% engaged in some form of unregulated online gambling.

Examining the frequency that people gamble, **dual-mode gamblers tended to gamble most often** (approximately once per week), followed by online-exclusive (approximately 2-3 times per month), and then offline exclusive gamblers (approximately once per month). The average number of **hours spent gambling per month were highest among dual-mode gamblers** (14.88) who indicated spending greater numbers of hours gambling per month, followed by online-exclusive (5.30), and then offline exclusive gamblers (1.47). Examining average monthly spending, **dual-mode gamblers tended to report the highest gambling expenditure** ($708.49), followed by online-exclusive ($616.74), and then offline exclusive gamblers ($103.45).

Figure 2. Percentage of Pennsylvania adults that engage in gambling formats by mode.



DEMOGRAPHIC FEATURES OF PENNSYLVANIA GAMBLERS

Online-Exclusive Gamblers:

- Average age: 33.06 (SD = 13.43)
- Majority are men (76.9%)
- Just over half are white (53.4%)
- 15.9% identified as being of Hispanic, Latino/a, or Spanish origin
- Over half were single and never married (65.7%)
- Nearly two-thirds (61.96%) were presently employed
- Nearly half (43.8%) received a bachelor's degree or higher
- Over one third (39.5%) had a household income of $50,000 or less per year

Offline-Exclusive Gamblers:

- Average age: 52.24 (SD = 17.68)
- Majority are women (52.9%)
- Majority are white (78.1%)
- 7.1% identified as being of Hispanic, Latino/a, or Spanish origin
- Nearly half were single and never married (49.0%)
- Over half were presently employed (57.4%)
- Over one third received a bachelor's degree or higher (39.0%)
- Nearly a third (30.6%) had a household income of $50,000 or less per year

Dual-Mode Gamblers:

- Average age 37.90 (SD = 12.71)
- Majority were men (59.8%)
- Majority were white (61.1%)
- 12.2% identified as being of Hispanic, Latino/a, or Spanish origin
- Over half were married (52.3%)
- Three quarters were presently employed (75.7%)
- Nearly half received a bachelor's degree or higher (47%)
- One quarter (25.2%) earned $50,000 or less per year

GAMBLING PROBLEMS

- Among those that gambled at least once a month on any gambling format, **dual-mode gamblers were the most likely** (50.7%) to **present with at least one problem gambling indicator** on the Brief Problem Gambling Screen (BPGS) followed by online-exclusive gamblers (40.7%), and then offline-exclusive gamblers (16.4%).
- There are several key characteristics that predict if an individual presents with at least one problem gambling indicator: **younger age**, gambling **more frequently**, higher than average **monthly spending** on gambling, indicating that the primary motivation to gamble is **to escape**, tending to prefer to **gamble alone**, and being a **member of a loyalty or rewards program**.

IMPLICATIONS OF THE REPORT

This report revealed that the prevalence rate of online gambling among Pennsylvania adults (16%) has increased – with the rate being 11.1% in 2021 and 11.0% in 2022. The results of this report suggest a hierarchy of risk with gambling – those that gamble both online and offline tend to gamble more and are more likely to present with problem gambling indicators, followed by online-exclusive gamblers, and then offline-exclusive gamblers. This indicates that those who are gambling both online and offline may need targeted education on the risks of gambling.

This report confirmed that gambling more frequently, spending higher numbers of hours gambling per month, having higher monthly spending on gambling, gambling on larger numbers of formats, gambling as a way to escape worries or problems/to relieve stress, and being of a younger age may contribute to the presence of problem gambling indicators and gamblers being classified as an at-risk or problem gambler. Messaging regarding responsible gambling, prevention, or treatment availability should consider these factors – in particular that that those that gamble online (exclusively or offline as well) tend to have more presence of problem gambling indicators so messaging via digital means would be able to target these individuals.

Background

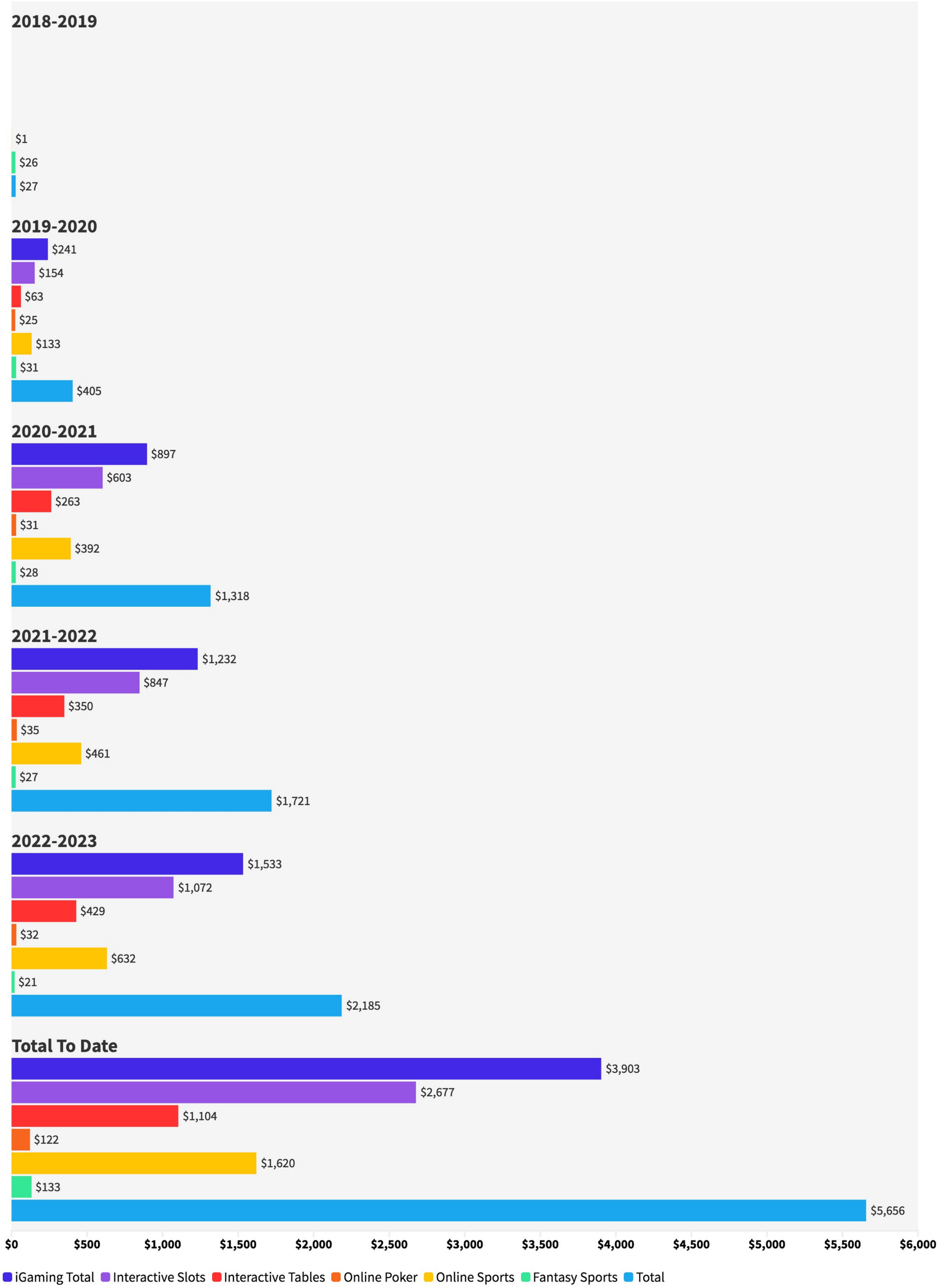
Online gambling, also referred to as Interactive Gaming or iGaming, was legalized in Pennsylvania through PA Act 42 of 2017. Through this legislation, it is stipulated that an annual study be conducted to understand the impacts of online gambling legalization within Pennsylvania, including the gambling prevalence rates, demographics of online gamblers, and gambling problems associated with online gambling. This report provides a representative sampling of adult Pennsylvania residents' online gambling behaviors.

During the 2022/2023 fiscal period, Pennsylvania online gambling operators brought in over $1.5 billion in revenue from iGaming (including interactive slots, interactive table games, and online poker), over $631 million in revenue from online sports betting, and over $20 million from fantasy sports (note that fantasy sports revenue is not separated between offline and online) (PGCB, 2019-2023; see Figure 1 for a breakdown of revenue since 2018); a nearly 27% increase in revenue compared to 2021/2022. The Pennsylvania Gaming Control Board (PGCB) provides individuals the option to self-exclude themselves from participation in gambling activities for a set period of time, and if they violate their self-exclusion they will have any winnings confiscated and may also be charged with criminal trespass from gambling venues. In this most recent fiscal period, there were 1,595 new enrollments in the iGaming self-exclusion program, bringing the total number of self-exclusions to 4,382 since the inception of this program (PGCB, personal communication, Sept. 7, 2023).

Pennsylvania 1-800-GAMBLER Helpline Use

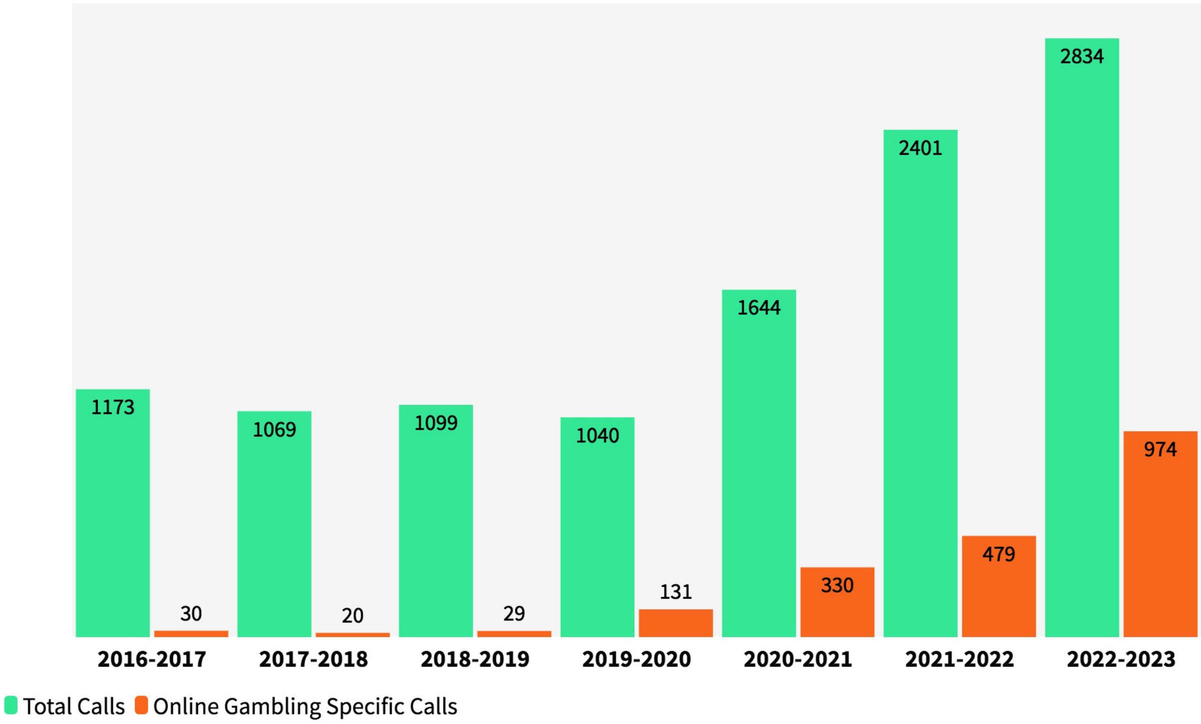
The non-profit group the Council on Compulsive Gambling of Pennsylvania, Inc. (CCGP) operates the 1-800-GAMBLER helpline that is available for free, 24 hours a day, 7 days a week, for gamblers and close contacts of those that may be experiencing a problem with gambling in Pennsylvania. The total number of intake calls to the hotline remained fairly stable from July 2016 until June 2020, when call volumes began to increase year over year (Figure 2; CCGP, 2017-2023). Calls that specifically mentioned online gambling as the most problematic gambling format for the individual began to increase during the 2019/2020 reporting period; approximately 2% of calls indicated online gambling between July 2016 and June 2019 and this increased to over 12% of total calls in the July 2019 to June 2020. Online gambling specific calls have continued to increase in the proportion of call volume and have come to represent at least 34% of calls in the recent 2022/2023 period; though it should be noted that reporting has become more detailed over time, now indicating different sub-types of online gambling, in addition to indicating whether those reporting sports betting were gambling online.

Figure 1. Annual revenue generated from online gambling sources in Pennsylvania 2018-2023, in millions.



Note: iGaming total reflects the total of interactive slots, interactive tables, and online poker. Total is the total revenue from iGaming, Sports, and Fantasy Sports.

Figure 2. Total intake calls and online gambling specific calls to 1-800-GAMBLER between June 2016 and June 2023.



Year One and Two Reports (2020 to 2022)

In the previous two annual reports, covering the years 2020-2021 and 2021-2022, a consistent trend emerged regarding online gambling participation in Pennsylvania. Notably, approximately 11% of the state's adult population engaged in some form of online gambling within the preceding 12 months. This stability in participation rates was a key finding observed across both reporting years.

The methodology for these reports employed random sampling of phone numbers, encompassing both landlines and cell phones, from the state's population. Demographically, the majority of online gamblers exhibited consistent characteristics over these two reporting years. They were primarily male individuals in their mid to late 30s, of Caucasian ethnicity, residing in metropolitan areas, possessing a bachelor's degree or higher educational attainment, being employed, and enjoying a household income exceeding $50,000. Online sports betting remained the dominant format of online gambling, emphasizing its popularity among Pennsylvania residents. Furthermore, a noteworthy trend indicated that the majority of online gamblers also participated in some form of offline gambling. Concerningly, around 1.5% of Pennsylvania's population engaged in illegal online gambling during both reporting periods. Additionally, more than a third of online gamblers scored 1 or higher on the Brief Problem Gambling Screen (indicating potential presence of problem gambling), underlining the importance of addressing potential gambling-related issues within the population.

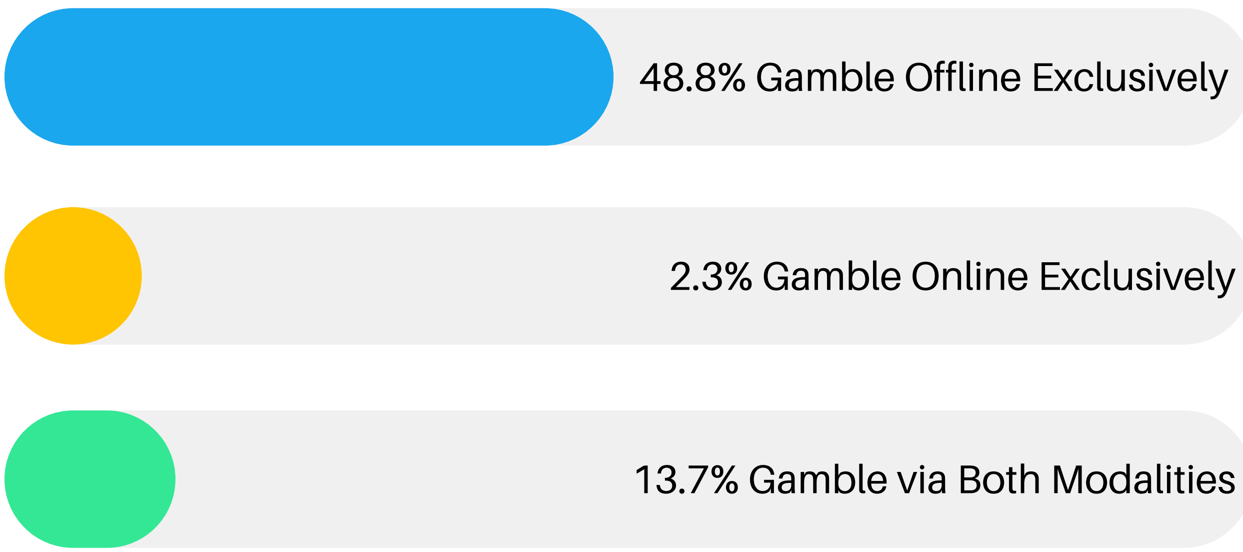
Year Three Assessment (2023)

For this year's assessment, year three, significant modifications were made to the survey methodology. Specifically, the assessment of gambling engagement was conducted using a modified version of the Gambling Participation Instrument (Williams et al., 2017). This alteration allowed for more effective comparisons to be made between online and offline gambling participation and improved the accuracy of determining the frequency of individual’s gambling activities. In addition, the Brief Problem Gambling Screen (BPGS; Volberg & Williams, 2011) was now administered to individuals that gamble at least once per month on any format. In the previous iterations, this was only provided to those that gamble online (regardless of frequency).

Furthermore, the option to complete the survey online was provided to select individuals. Specifically, those cellphone numbers where individuals did not answer or were not able to conduct the survey over the phone upon answering were given the option to participate online. Additionally, a small sub-sample received postcards advising them they would receive a call regarding the survey and gave the option to participate online by scanning a QR code. For more specific details on the methodology of the survey and its analysis for this report, please see Appendix B.

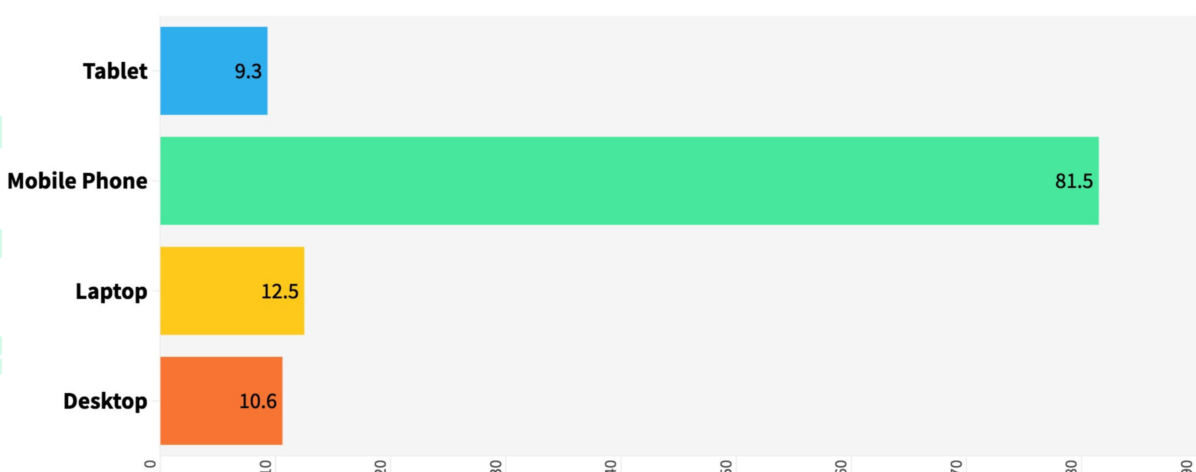
Gambling Prevalence

Approximately 64.8%, 95% CI [62.7, 67.0], of Pennsylvania residents aged 18 and older reported engaging in some form of gambling over the past 12 months. Offline gambling was the most popular, with 62.5% of adult residents, 95% CI [60.2, 64.6] engaging in offline gambling; approximately 48.7% [46.5, 51.0] reported gambling offline exclusively. Online gambling was less popular, with approximately 16.0%, 95% CI [14.4, 17.7], reporting engagement in online gambling, with 2.3%, 95% CI [1.6, 3.0] of those being exclusive online gamblers and 13.7%, 95% CI [12.2, 15.3] being dual-mode gamblers.



The majority of online gamblers reported gambling using a single device (80.0%; see Figure 3). The most popular device that individuals reported using to gamble online was via mobile phones (81.5%).

Figure 3. The proportion of online gamblers using different devices.



Examining the popularity of different gambling formats, sports betting was once again the most popular online gambling format with 9.4%, 95% CI [8.1, 10.8], having bet on sports online in the past year. Lottery was once again the most popular format for individuals to engage in offline with 50.5%, 95% CI [48.3, 52.8], of adult PA residents having purchased a lottery or raffle ticket, and 40.9%, 95% CI [38.7,43.1] purchased an instant lottery ticket offline in the past year (see Figure 4). Examining differences between gamblers modalities, it was found that those that gamble exclusively offline on average gambled on 2.01 (*SD* = 1.02) formats, those that gambled exclusively online gambled on 1.80 (*SD* = 1.22) formats, while those that engaged in both modalities gambled on 5.15 (*SD* = 2.70) formats on average.

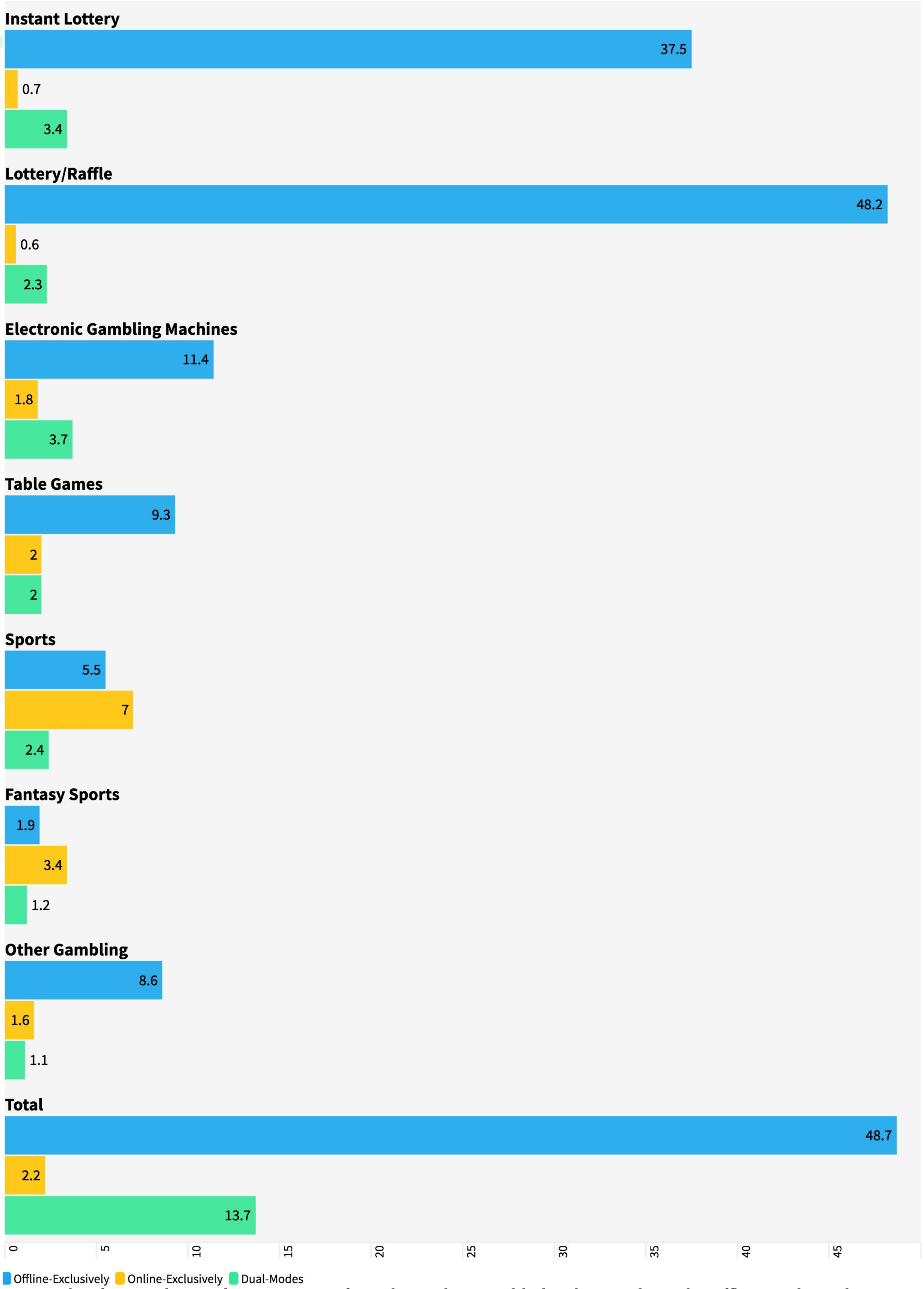
Breaking down engagement in online gambling, we assessed whether participation was through legally provided means, or alternatively through unregulated providers (that may not be currently recognized legally as gambling) or illegal means (often through offshore providers). The majority of online gamblers bet exclusively through legal providers, with 89.3% of online gamblers gambling only via legal providers (Figure 5). Altogether approximately 3.2%, 95% CI [2.3, 4.0] of PA adult residents gambled illegally online, and an additional 2.1%, 95% CI [0.14, 0.28] had gambled through unregulated means online.

Comparing how frequently individuals engage in gambling, offline-exclusive gamblers reported the least frequent gambling, on average participating once per month (M = 1.97; *SD* = 1.39; Figure 6). Online-exclusive gamblers engaged slightly more frequently, at approximately 2-3 times per month (M = 2.82; *SD* = 1.99). Finally, the most frequent gambling was found among those that gamble both online and offline, with these individuals gambling about once per week (M = 3.61; *SD* = 1.92).

Following a similar pattern, offline-exclusive gamblers spent the fewest number of hours gambling per month, at 1.47 (SD = 3.97) hours on average. Online-exclusive gamblers spent 5.30 (*SD* = 9.12) hours and dual-mode spent 14.88 (*SD* = 44.81) hours on average. Average monthly spending patterns also followed this pattern: offline-exclusive gamblers reported spending $103.45 (*SD* = 488.22), online-exclusive $616.74 (*SD* 1329.76), and dual-mode $708.49 (*SD* = 1640.34).

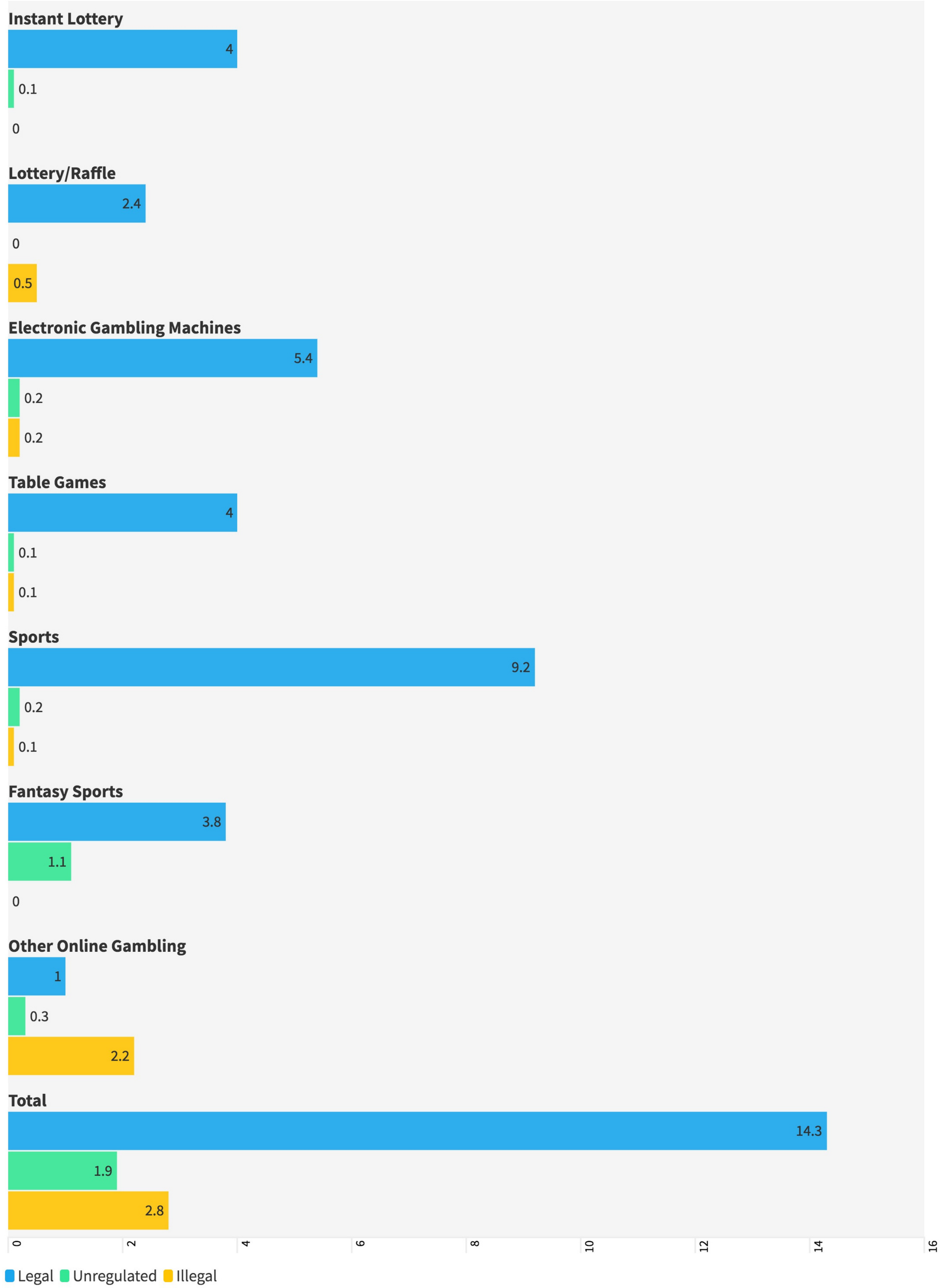
[1]Total format count includes online and offline engagement as separate formats; additionally if someone indicated engaging in a specific online format through both legal and illegal websites that would be treated as two separate formats.

Figure 4. Percentage of Pennsylvania adults that engage in gambling formats by mode.



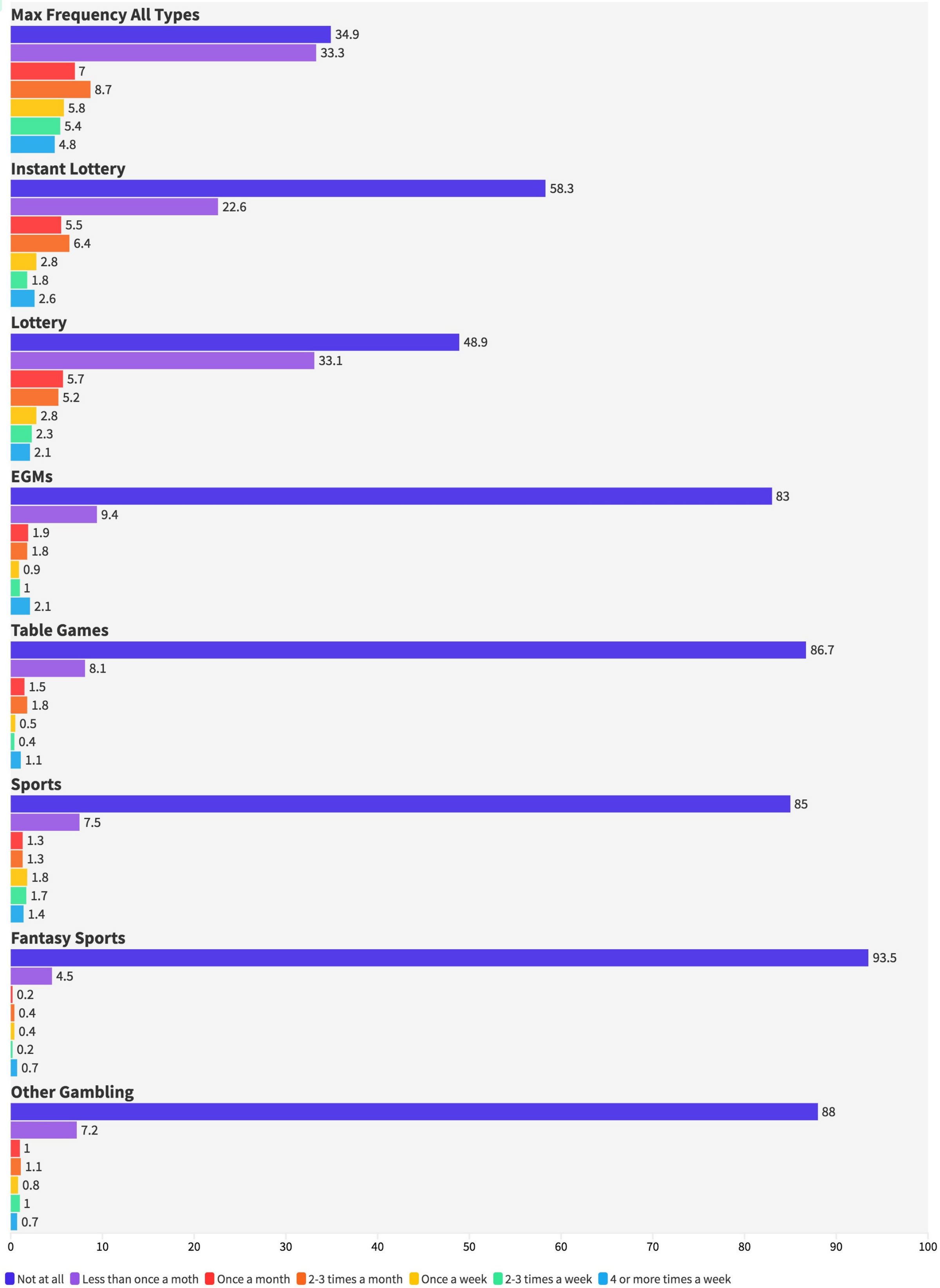
Note: Total refers to the total percentage of residents that gambled online exclusively, offline exclusively, or via dual modes across all gambling formats.

Figure 5. Percentage of Pennsylvania adults that engage in online gambling formats by legality.



Note: Total refers to the total percentage of residents that gambled online legally, unregulated, or illegally across all gambling formats.

Figure 6. The frequency of gambling participation across gambling formats among Pennsylvania adults (%).



[1]Note: Maximum frequency is a computed variable that represents the highest frequency of engagement across all gambling types; for example if someone engages in two gambling formats, one less than once a month and the other 2-3 times a week, their maximum frequency of gambling would be 2-3 times a week.

Demographic Features of Pennsylvania Gamblers

The average age of those engaging exclusively in online gambling was 33.06 (*SD* = 13.43). Most identified as men (76.9%); white only (53.4%); identified as not being of Hispanic, Latino/a, or Spanish origin (84.1%); over half were single (65.7%); and, nearly two-thirds (61.96%) were presently employed. Almost half of those who gambled online (43.8%) had achieved a bachelor's degree or higher, and 39.5% had a household income of $50,000 or less per year.

Comparatively, the average age of offline-exclusive gamblers was 52.24 (SD = 17.68). There was a slight majority of women engaging in offline gambling exclusively (52.9%); the large majority were white (78.1%); identified as not being of Hispanic, Latino/a, or Spanish origin (91.9%); nearly half were single and never married (49.0%); and, over half were currently employed (57.4%). Just over one third of offline exclusive gambler's had received a bachelor's degree or higher (39.0%), and 30.6% had a household income of $50,000 or less per year.

Finally, the average age of those that engaged in both modes of gambling was 37.90 (*SD* = 12.71). Men represented the majority (59.8%); the majority were white (61.1%); identified as not being of Hispanic, Latino/a, or Spanish origin (87.8%); approximately half were married (52.3%); and, three quarters were presently employed (75.7%). Nearly half of dual-mode gamblers received a bachelor's degree or higher (47%) and 25.2% earned $50,000 or less per year. Table 1 provides a detailed breakdown of the demographic characteristics of gamblers by modality.

Comparing these demographics there were several notable differences: both online-exclusive and dual-mode gamblers were younger than those that gambled offline exclusively. There was a gender difference with more men indicating they were online-exclusive and dual-mode gamblers. Race diversity was highest in the online-exclusive category, this category had the highest proportion of individuals that identified as Asian only (16.9%). Dual-mode gamblers had the lowest proportion of individuals that were single and never married. Offline-exclusive gamblers had the highest proportion of retired individuals (26.6%). Dual-mode gamblers had the highest reported incomes with 50.9% indicating a household income of $50,000 or more per year.

Table 1. Demographics of Pennsylvania adult gamblers by gambling mode.

	Mode		
	Online-Exclusive	**Offline-Exclusive**	**Dual-Mode**
Age			
18-20	5.9%	3.3%	2.7%
21-30	46.6%	10.3%	32.4%
31-40	23.0%	13.3%	27.0%
41-50	13.5%	14.9%	20.0%
51-60	5.3%	21.6%	11.2%
61-70	1.6%	19.9%	4.7%
71-80	1.0%	9.7%	0.8%
81+	1.1%	4.7%	0.2%
Missing/Refused to Answer	2.3%	2.4%	1.2%
Gender			
Man	76.9%	46.4%	59.8%
Woman	23.1%	52.9%	38.3
Other	0%	0.7%	1.9%
Missing/Refused to Answer	0%	0.1%	0%
Race			
2 or more races	0%	6.1%	12.1%
White Only	53.4%	78.1%	61.1%
Black/African American Only	20.0%	7.4%	18.4%
Asian Only	16.9%	2.9%	0.9%
American Indian/Alaska Native Only	0%	0.2%	0.2%
Other Only	7.3%	3.6%	6.9%
Missing/Refused to Answer	2.3%	1.7%	0.4%
Ethnicity - Are you of Hispanic, Latino/a, or Spanish Origin			
Yes	15.9%	7.1%	12.2%
No	84.1%	91.9%	87.8%
Missing/Refused to Answer	0%	1.0%	0%
Marital Status			
Married or living with a partner	17.1%	41.2%	52.3%
Divorced	3.8%	2.9%	8.3%
Separated	3.2%	0.8%	1.6%
Widowed	0%	0.6%	7.1%
Single (never married)	65.7%	49.0%	26.4%
Missing/Refused to Answer	10.2%	5.6%	2.9%

Table 1 cont'd. Demographics by gambling mode.

	Mode		
	Online-Exclusive	Offline-Exclusive	Dual-Mode
Education			
Less than high school	0%	3.7%	3.0%
High school diploma or GED	17.2%	26.7%	15.7%
Some college	21.5%	15.0%	16.4%
Trade/Technical School	0%	3.7%	3.0%
Associate's Degree	7.3%	8.1%	8.9%
Bachelor's Degree	30.7%	25.8%	35.1%
Master's Degree	5.7%	9.9%	9.9%
Professional degree beyond Bachelor's	7.4%	1.1%	1.0%
Doctorate	0%	2.2%	1.0%
Missing/Refused to Answer	10.2%	3.8%	6.1%
Employment			
Employed	61.9%	57.4%	75.7%
Homemaker	3.3%	3.1%	5.1%
Student	19.7%	4.4%	2.6%
Retired	1.1%	26.6%	6.5%
Out of Work	0%	1.6%	1.5%
Unable to Work	3.8%	3.2%	2.1%
Missing/Refused to Answer	10.2%	3.7%	6.5%
Income			
Less than $10,000	10.1%	5.7%	5.5%
$10,000-$14,999	5.9%	3.4%	3.9%
$15,000-$24,999	10.2%	4.4%	4.3%
$25,000-$34,999	4.1%	6.0%	2.3%
$35,000-$49,999	9.2%	11.1%	9.2%
$50,000-$74,999	2.4%	14.5%	20.5%
$75,000-$99,999	4.9%	10.5%	13.2%
$100,000-$149,999	7.9%	8.3%	14.0%
$150,000-$199,999	10.2%	2.8%	1.4%
$200,000-$249,999	0%	1.2%	1.3%
$250,000 or more	0%	1.7%	0.5%
Missing/Refused to Answer	35.2%	30.5%	23.5%

Motivations, Beliefs, and Related Behavior

When asked about their primary motivation for engaging in gambling, the most common motivation for both online-exclusive (31.7%) and offline-exclusive (36.8%) gamblers was to win money (see Figure 7). For dual-mode gamblers, the most common motive for gambling was for enjoyment/excitement/fun/entertainment (42.4%). Motivations to escape, relax, or relieve stress were highest among those that gamble online, with 6.5% of online-exclusive and 5.6% of dual-mode gamblers indicating this to be their primary motivation for gambling, while only 1.9% of offline-exclusive gamblers indicated the same.

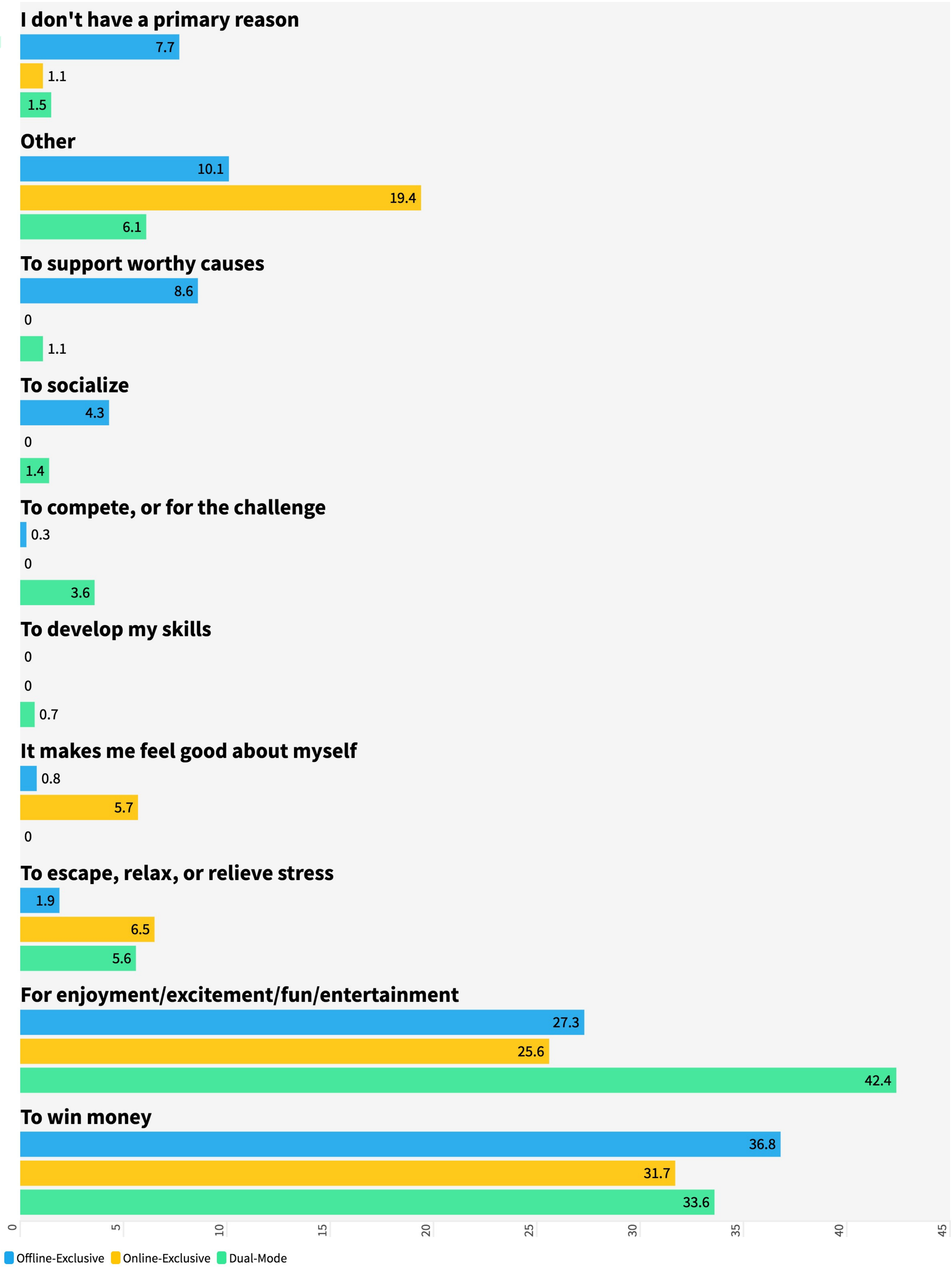
Regarding the social context of gambling, there was a fair mix of gambling alone and with friends. Among both online- and offline-exclusive gamblers, 41.7% indicated they typically gamble alone, while only 31.8% of dual-mode gamblers typically gambled alone (Figure 8). On the other hand, 44.8% of offline-exclusive gamblers, 39.3% of dual-mode gamblers, and 29.8% of online-exclusive gamblers typically gamble with friends/family.

Concerning beliefs about the relative harms and benefits of online gambling, 54.3% of online-exclusive gamblers and 61.2% of offline-exclusive gamblers believed that the harms of online gambling outweighed the benefits (see Figure 9). Dual-mode gamblers took a more neutral stance, with 37.5% of these individuals believing that the benefits and harms are about the same. In terms of beliefs about whether all forms of gambling should be legal, gamblers of all modalities tended to believe that some should be legal and some should be illegal (offline-exclusive = 45.0%; online-exclusive = 65.0%; dual-modality = 47.5%; see Figure 10).

When asked about how easy individuals believed access to gambling was, online-exclusive gamblers perceived access to gambling to be the easiest, with 85.6% of them believing it was extremely easy to access gambling, and none believing it to be difficult (Figure 11). Those that engaged in any form of offline gambling perceived access to be slightly less easy, with 1.5% offline-exclusive gamblers and 7.3% of dual-mode gamblers believing access to at least slightly difficult.

Examining the importance of gambling as a leisure activity to gamblers, approximately two-thirds (62.8%) of online-exclusive gamblers and the overwhelming majority of offline-exclusive gamblers believed that gambling was not at all important to them (80.4%) also indicated this (Figure 12). While less than half of dual-mode gamblers (49.9%) believed that it was not at all important, dual-mode gamblers were the most likely to report that gambling was important to them as a leisure activity (17.1%).

Figure 7. Primary motivation to engage in gambling by gambling mode.



When comparing enrollment in gambling loyalty and rewards programs, dual-mode gamblers were most likely to report being enrolled in one of these programs (30.3%). Only 10.3% of online-exclusive gamblers were part of one of these programs, and only 12.4% of offline-exclusive gamblers were.

The purchase and selling of cryptocurrencies and Non-Fungible Tokens (NFTs) were popular in 2022 and moving into 2023. Among online-exclusive gamblers, 15.3% reported having purchased cryptocurrency in the past year, though none reported purchasing NFTs. Among offline-exclusive gamblers, 8.3% had purchased crypto currencies and 0.4% had purchase NFTs. While among dual-mode gamblers, 13.5% had purchased cryptocurrencies and 3% had purchase NFTs.

Figure 8. The social context for gamblers.

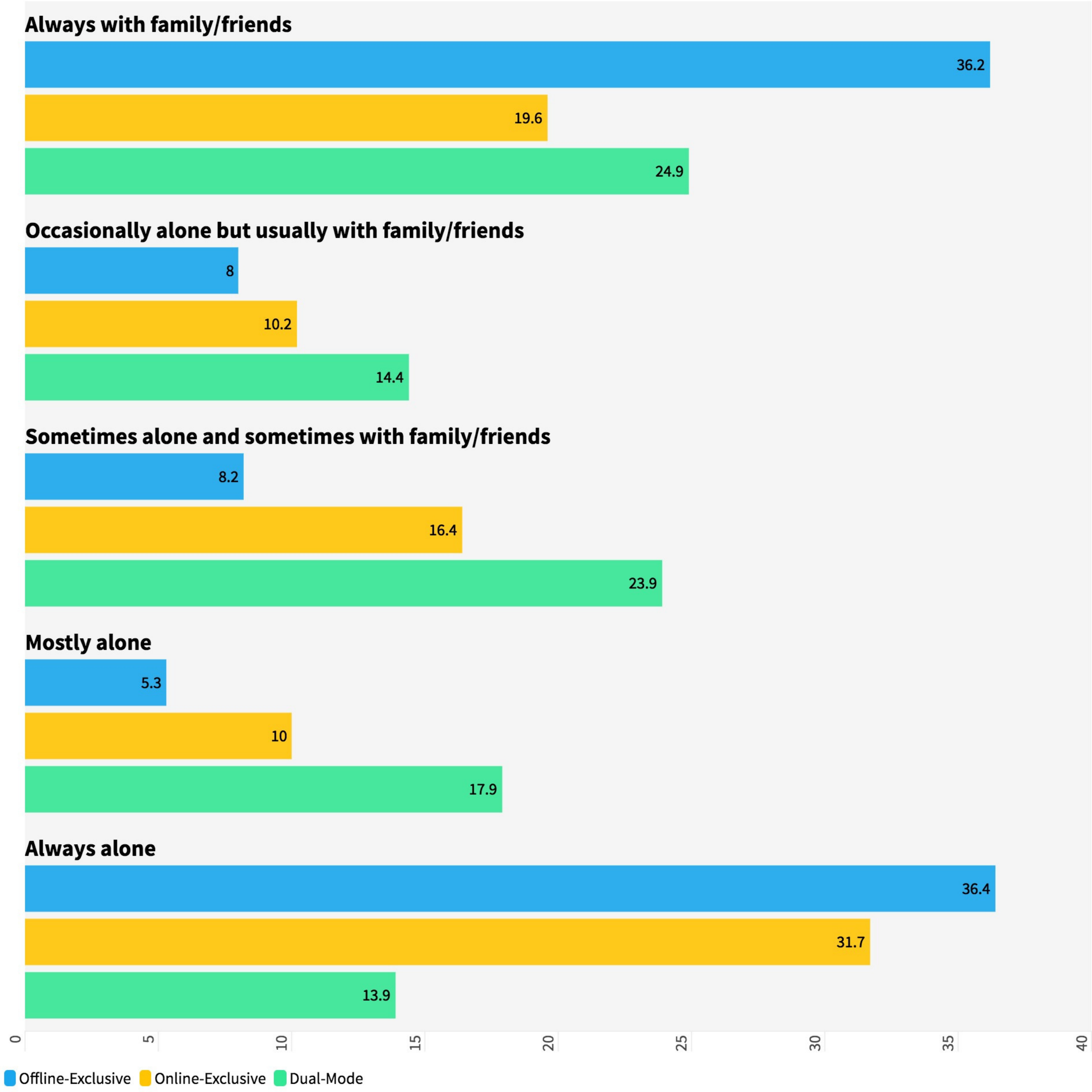


Figure 9. Perceived harms and benefits of online gambling.

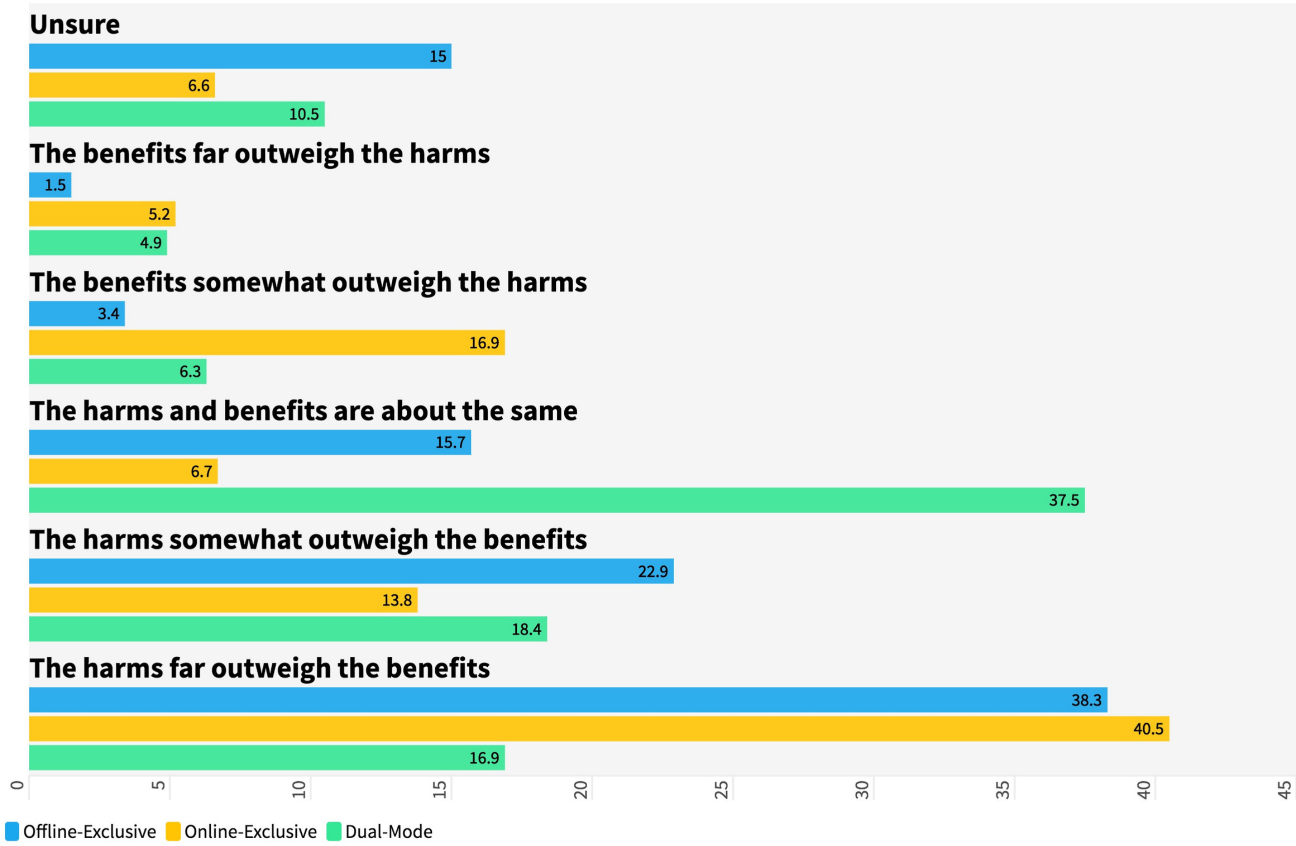


Figure 10. Beliefs regarding whether gambling should be legal.

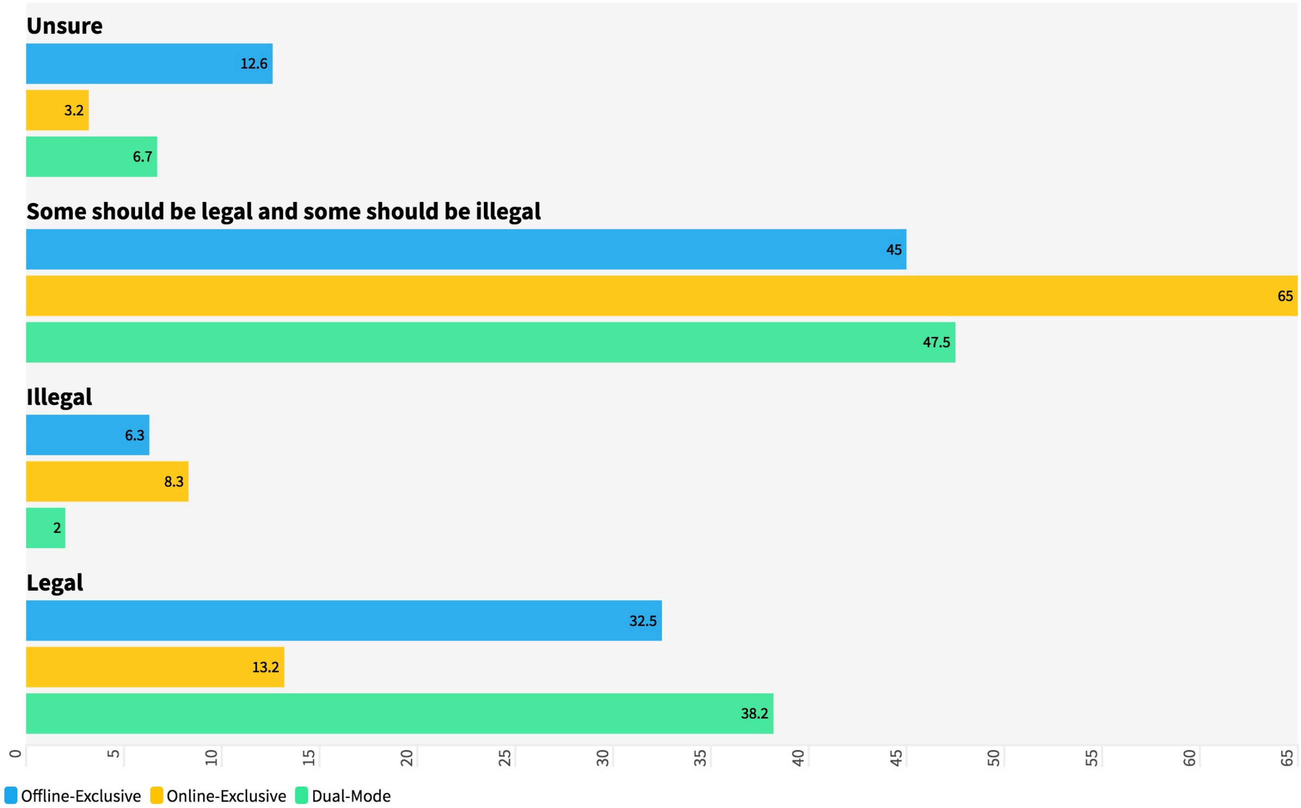


Figure 11. Perceived ease to access gambling.

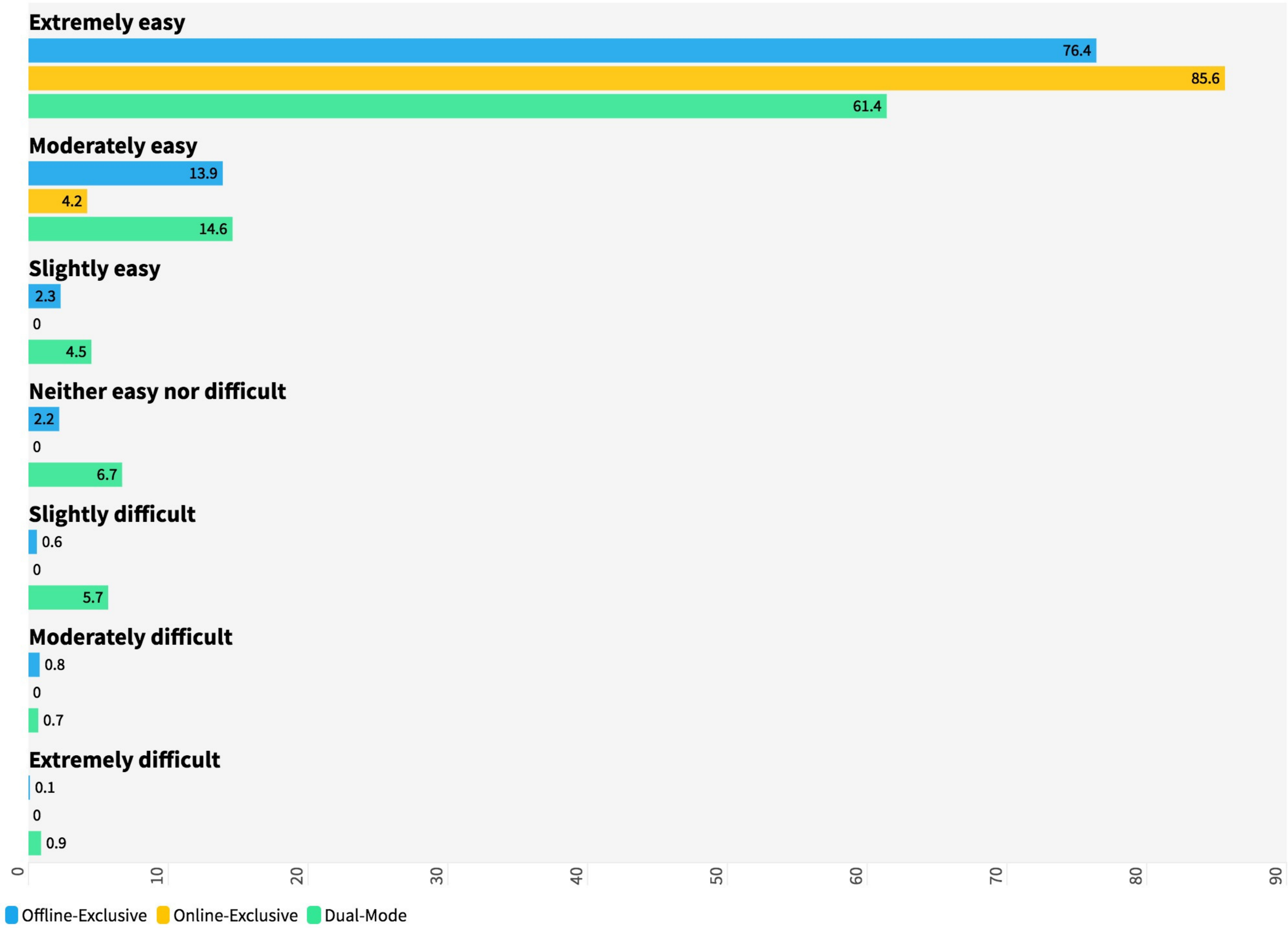
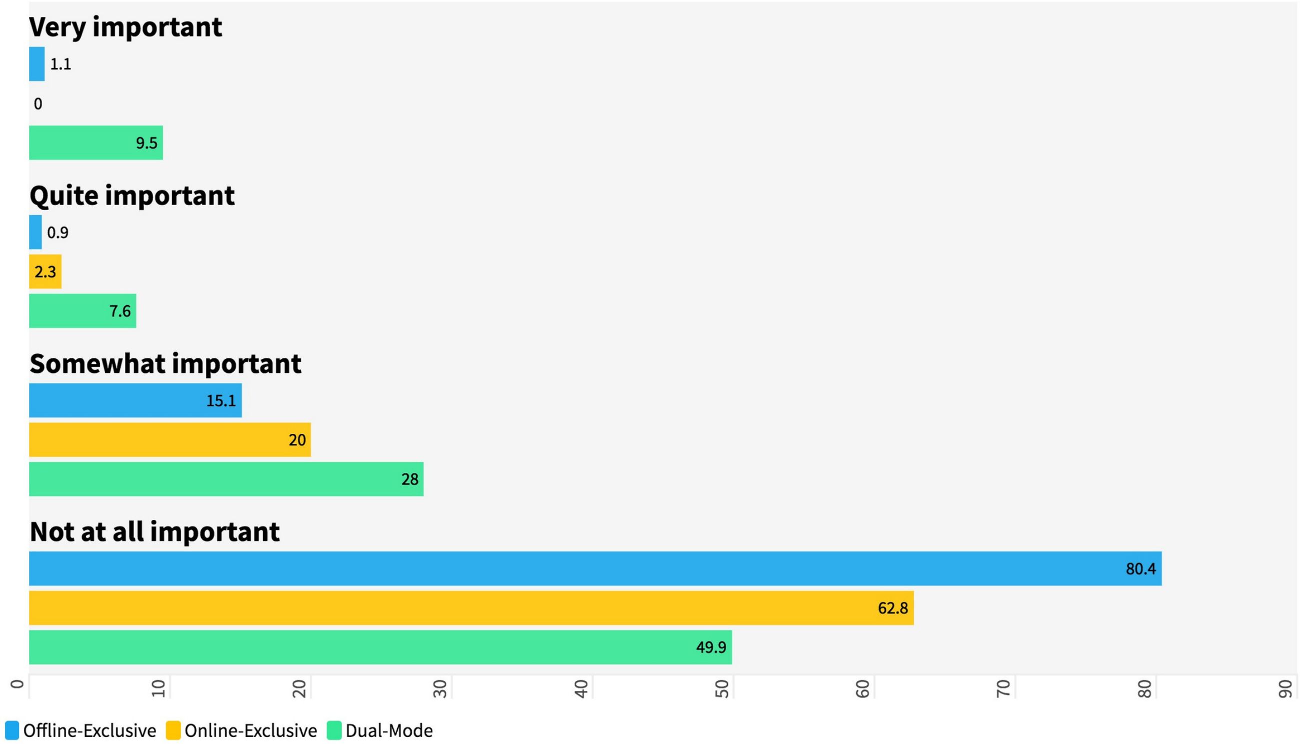
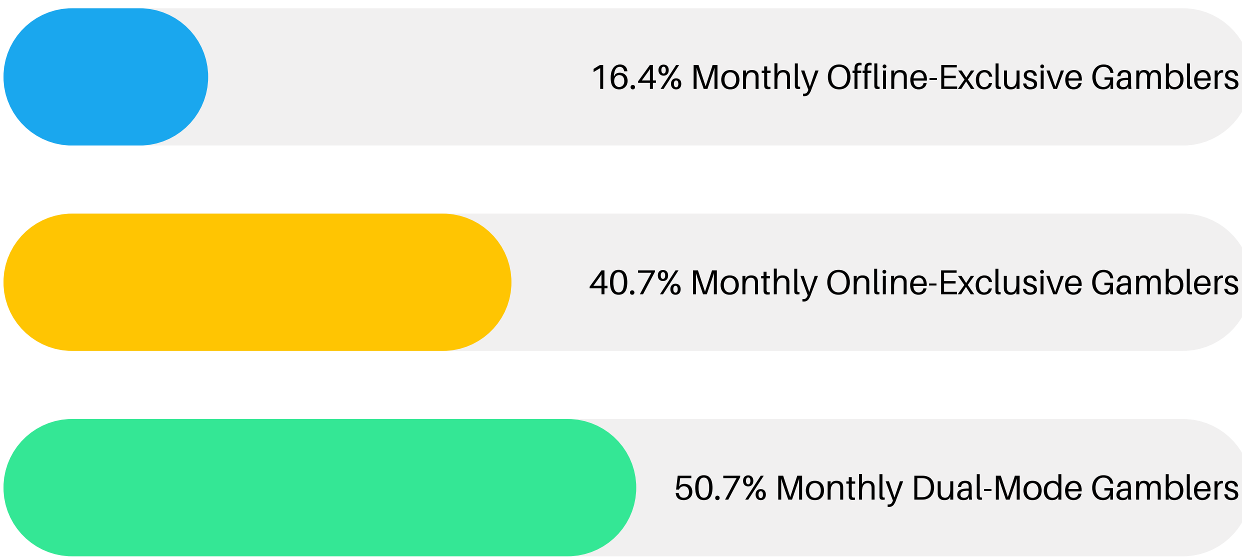


Figure 12. Importance of gambling as a leisure or recreational activity.



Gambling Problems

All those that indicated gambling at least once per month on any gambling format were tasked with completing the Brief Problem Gambling Screen (BPGS; Volberg & Williams, 2011); this measure screens for potential problem gambling and those that present with the presence of one problem gambling indicator or higher should receive a full problem gambling assessment to determine whether the individual may be a problem gambler. Among those that gambled exclusively online over the past 12 months, at least once per month (N=23), 40.7%, 95% CI [18.7, 62.6], presented with at least one potential problem gambling indicator on the BPGS. Among those that had gambled exclusively offline (N=376), at least once per month, 16.4%, 95% CI [12.7, 20.2], presented with at least one potential problem gambling indicator on the BPGS. Finally, among those that gambled via both modes, at least once per month, over the past 12 months (N=195), 50.7%, 95% [43.6, 57.8], presented with at least one potential problem gambling indicator on the BPGS.



Examining responses to the BPGS, the most commonly endorsed question was making attempts to cut down, control, or stop gambling for all gambling modalities (Table 2). Examining success in these attempts, 75.0% of online-exclusive gamblers that indicated they had made an attempt were successful in their attempts. Offline-exclusive gamblers were the most successful in their attempts, with 81.4% of those that had attempted, indicating they had been successful. Dual-mode gamblers were the least successful with only 57.8% of those that had made an attempt being successful. Comparing scores on the BPGS, among those that those that presented with one ore more problem gambling indicators on the BPGS, the average score of those that gambled exclusively online was 3.18 (*SD* = 1.61), for those that gambled exclusively offline it was 1.50 (*SD* = 1.00), and for those that engaged in both modes of gambling it was 2.48 (*SD* = 1.45); suggesting involvement in online gambling, in isolation or on its own may contribute to enhanced gambling problems.

Table 2. Response rates to the BPGS among those that had gambled at least once per month; response rates reflect the proportion that answered yes.

Question:	Offline-Exclusive	Online-Exclusive	Dual-Mode
In the past 12 months, would you say you have been preoccupied with gaming or gambling?	3.2%	23.1%	22.8%
In the past 12 months, would you say that you needed to gamble with larger amounts of money to get the same feeling of excitement?	2.8%	23.1%	23.7%
In the past 12 months, have you often gambled longer, with more money, or more frequently than you intended to?	7.6%	23.1%	23.7%
In the past 12 months, have you made attempts to either cut down, control, or stop gambling?	10.2%	30.8%	28.9%
Were you successful?	8.3%	23.1%	16.7%
In the past 12 months, have you borrowed money, or sold anything, to get money to gamble?	0.3%	13.1%	7.7%

Examining self-reported calls to 1-800-GAMBLER, online-exclusive gamblers were most likely to have reported ever making a call to 1-800-GAMBLER (14.4%), followed by dual-mode gamblers (9.3%), and then offline-exclusive gamblers (1.3%). The majority of these individuals made these calls over the past year: online-exclusive 54.7%, offline-exclusive 61.0%, and dual-mode gamblers 54.0%.

Six characteristics were identified as reliable predictors of someone presenting at least one problem gambling indicator on the BPGS (See Appendix C). In particular, younger gamblers, those that gamble more often, those that have higher spending on gambling, those who have the primary motivation for gambling to escape, those that tended to gamble alone, and those that are a member of a gambling loyalty or rewards program are more likely to exhibit at least one or more problem gambling behavior. These factors may contribute to gamblers being classified as an at-risk or problem gambler.

Implications of the Results

This report detailed the results of the third year of the interactive gaming assessment, undertaken to best understand the impacts of the legalization of online gambling in the state of Pennsylvania. In both the first year of the study (Russell, et al., 2023; Sterner, et al., 2021) and the second year (Russell et al., Under Review; Sterner et al., 2022) it was determined that approximately 11% of adult Pennsylvanians had engaged in online gambling in the previous 12 months. During this year, the third year of the assessment, online gambling participation rose to approximately 16.0% of the adult population of Pennsylvania.

Through this iteration of the assessment, we were able to compare those that gamble offline exclusively to those that gamble online exclusively or via dual-modes of gambling. Through these comparisons there were a number of key differences found between those that engage in each modality:

Online-exclusive gamblers

- These individuals represented the minority of gamblers. Online sports gambling was the most common type of gambling these individuals engaged in.
- These individuals on average were the youngest, with an average age in their early 30s and they were more likely to be men.
- These individuals were largely middle of the pack in their gambling: they gambled on the fewest formats, but their frequency, hours gambled, and spending were all in the middle.
- The primary motive for these individuals was to win money; though motives to escape, relax, or relieve stress were fairly common at 6.5%. These individuals were the least likely to gamble with friends or family on average.

Offline-exclusive gamblers

- These individuals represented the majority of gamblers. Lottery and raffles were the most common type of gambling engaged in offline.
- These individuals on average were the oldest, with an average age in the 50s. Men and women tended to gamble equally offline.
- These individuals gambled the least frequently, engaged in a similar number of formats to online-exclusive gamblers, gambled the fewest number of hours per month, and spent the least amount of money on gambling.
- The primary motivation for these individuals was to win money. These individuals were the most social in their gambling, being the most likely to gamble with friends or family on average. These individuals were most likely to report that the harms of online gambling outweigh the benefits.

Dual-mode gamblers

- These individuals on average were in their late 30s, and were slightly more likely to be men.
- These individuals gambled the most frequently, on the highest number of formats, engaged in the highest number of hours per month gambling, and spent the most on average per month on gambling. Online sports betting was the most common form of gambling these individuals engage in.
- The primary motive for these individuals to gamble was for enjoyment/excitement/fun/entertainment, though motives to escape, relax, or relieve stress were fairly common at 5.6%.
- These individuals took a more neutral stance on the relative harms and benefits of online gambling.

Illegal and Unregulated Gambling

Despite the widespread expansion of legalized online gambling in Pennsylvania, illegal online gambling has persisted. One potential contributor to this issue may be the ambiguity surrounding which online gambling websites are legal for betting and which forms of gambling are permitted. Research conducted by the American Gaming Association (2020) revealed that 52% of sports bettors engaged in the illegal market, primarily due to confusion caused by online operators. Moreover, 55% of those placing illegal bets believed they were participating in legal gambling activities. This work suggests it can sometimes be confusing to know if a site is legal or illegal to gamble on. In Pennsylvania, various forms of gambling are regulated by different government bodies (for example, online horse racing versus online poker, regulated by the Department of Agriculture versus the PGCB). This complexity makes it challenging to obtain accurate information about the legality of specific gambling forms, further compounded by deceptive web searches that may erroneously suggest certain websites are legal for gambling when they are not.

Problem Gambling

While we did not assess whether individuals were problem gamblers, we included a problem gambling screening tool, the BPGS; a measure that identifies indicators of possible problem gambling. Scores on the BPGS revealed significant differences between individuals who exclusively gamble offline, exclusively gamble online, and those who use both modes. Importantly, individuals who engage in both online and offline gambling were were more likely to present with one or more problem gambling indicator. Several factors were predictive of of presenting with one or more possible problem gambling indicators, including (1) younger age; (2) more frequent gambling (higher frequency associated with a higher score); (3) greater monthly gambling expenditures; (4) primary motivation for gambling as a means to escape, relax, or relieve stress; (5) solitary gambling; and, (6) membership in a gambling loyalty or rewards program. Additionally, the number of different gambling formats individuals engage in and the amount of time spent gambling were found to be associated with presenting with the number of problem gambling indicators.

Applications to Practice

With problematic gambling indicators seemingly highest among those that gamble online (whether exclusively or also offline) and among younger individuals, messaging regarding responsible gambling, prevention, or treatment availability should consider these factors. Messaging should be provided through multiple media formats including traditional (print, radio, and television), to connect with older, offline-exclusive gamblers, but also utilize digital messaging to specifically reach those that gamble in online formats. In particular, using social media (including a diverse number of platforms such as TikTok, Instagram, Twitter, or Reddit) or streaming services (including live streaming video and music) will assist in reaching these individuals.

To provide protections for gamblers, legally recognized online gambling websites and applications should have obvious labeling, and there should be greater transparency regarding which gambling forms are legal for consumers to engage in. This would help to further reduce potential harms to those that do engage in online gambling, as many non-legal forms may include additional levels of risk (such as sites not paying out winnings to players or sites allowing underaged individuals to engage in online gambling)

This survey further confirmed that engaging in dual-modes of gambling is associated with increased presentation of problematic gambling indicators. In addition, increased gambling involvement (as demonstrated through more frequent gambling, more hours spent gambling, gambling on a greater number of formats, and higher spending on gambling) was associated with gambling problems. This should be addressed through prevention and treatment practices, by making the public, and specifically gamblers, aware of the dangers of more intense gambling.

Future Directions

Through future assessments, we will continue to monitor the prevalence of online gambling in the state of Pennsylvania as well as associated gambling problems. With future assessments, we plan to continue to adapt the questionnaire to better evaluate the full spectrum of gambling behaviors, in particular newly emerging gambling trends and formats. We also plan to continue to refine our methods of assessing whether people are gambling online via legally recognized websites/applications. We also plan to integrate a full assessment of problem gambling into the surveyt, to better determine the population prevalence of problem gambling in the state of Pennsylvania and better determine whether there are differences between offline-exclusive, online-exclusive, and dual-mode gamblers. Finally, in response to declining response rates on the DRFDD survey, we plan to utilize experimental methods to enhance our sampling.

Appendix A: Glossary

Brief Problem Gambling Screen (BPGS) - A screening measure for problem gambling developed by Volberg and Williams (2011).

Cryptocurrencies - These are a form of currency that exist digitally and do not rely on banks or any other centralized system to verify and maintain transactions, instead utilizing decentralized, peer-to-peer systems to send and receive payments.

Dual-Mode Gambler - Those that indicate having gambled on at least one gambling format online over the past year and at least one format offline over the past year.

Electronic Gambling Machines (EGMs) - A form of gambling otherwise known as slot machines or video lottery terminals, and also includes video gaming terminals, and includes traditional table games played alone or against a computer opponent.

Fantasy Sports - A form of sports betting that does not rely on the outcome of a single contest, rather it relies on payment of an entry fee and the development of a "fantasy team" to compete against opponents' "fantasy teams" to earn additional money or prizes of material value.

Illegal Online Gambling - Gambling on websites/applications that are not legally recognized by their respective regulatory body (e.g., Commonwealth of Pennsylvania, Pennsylvania Gaming Control Board, Pennsylvania Lottery, Pennsylvania State Horse Racing Commission, and Pennsylvania Department of Revenue), to which that site would apply. For example this includes gambling on online casino websites, for real money, that are not licensed by the Pennsylvania Gaming Control Board.

Instant Lottery - A form of gambling that includes scratch-off tickets, break open tickets, or pull-tabs, or playing online instant games.

Legal Online Gambling - Gambling on websites/applications that are legally recognized by their respective regulatory bodies (e.g., Commonwealth of Pennsylvania, Pennsylvania Gaming Control Board, Pennsylvania Lottery, Pennsylvania State Horse Racing Commission, and Pennsylvania Department of Revenue).

Lottery - A form of gambling that includes raffles, national lotteries, state run lotteries, and private lotteries.

Non-Fungible Tokens (NFTs) - Assets that are stored in a blockchain-based token; typically these assets are unique pieces of digital content, art, or media. These tokens may be considered as a digital certificate of ownership and authenticity for the specific asset.

Offline-Exclusive Gambler - Those individuals that have gambled over the past year only on offline gambling formats.

Online-Exclusive Gambler - Those individuals that have gambled over the past year only on online gambling formats.

Other Gambling - This category includes gambling types not included within other gambling formats such as bingo, betting on non-casino dice and card games, keno, betting on animal fighting, betting on video games, and betting on television events.

Sports Betting - Betting money or something of material value on a sporting event such as football, baseball, horse racing, dog racing, and sports the person may engage in themselves; does not include fantasy sports or e-sports.

Table Games - Gambling on casino-style table games such as poker, blackjack, baccarat, roulette, craps, or other traditional gambling games played with real players (online or in-person); includes private games such as poker played in a private residence for money.

Unregulated Online Gambling - Includes forms of gambling online that exist outside current regulations. For example, using online platforms to run fantasy sports pools and betting privately outside of the platform (such as through private electronic funds transfers).

Appendix B: Methodology

This section presents an overview of the methods used in selecting and recruiting the sample for the third year of the study, as well as analyzing the data for this report.

Sampling Strategy

Dual Frame Random Digit Dial (DFRDD) method was used that involved a sampling of 50% landline and 50% cellular phone numbers. This method aimed to create a representative sample of adults aged 18 and above in Pennsylvania who have access to either a landline or a cell phone.

RDD Landline Sampling Methodology. The landline of the sample was generated using a directory-list assisted database of “active” or “working” blocks in which each block is a set of 100 contiguous numbers identified by the first two digits of the last four digits of a telephone number (i.e., for the telephone number 814-777-2333, “23” is the 2-digit block). A block (area code + exchange + 2-digit block number) is termed to be working if three or more listed telephone numbers are found in that block. Numbers for the landline sample were drawn with equal probabilities from working blocks. Non-working or unassigned numbers, as well as modem and fax numbers are screened, with more than half of these numbers identified and removed from the sample. All remaining numbers were presumed to be households with someone aged 18 years or older qualified to complete the interview. The anticipated response rate was 10%.

A total of 44,900 landline numbers were sampled with 29,102 remaining following screening. Samples were drawn seven times over the course of data collection. Table 3 details the landline samples drawn.

Table 3. Landline Numbers Selected, Screened, and Included in the Sample

	Landline		
	Draw	Disconnected	Included
September	4,800	1,269	3,531
October	5,600	1,958	3,642
November	12,000	3,890	8,110
December	10,000	3,310	6,690
March	5,000	2,899	2,101
May	5,000	2,052	2,948
June	2,500	420	2,080

RDD Cell Phone Sampling Methodology. The cell phone half of the sample was drawn through systematic sampling from dedicated wireless blocks. Like the landline sample, numbers for the cell phone sample were drawn with equal probabilities from working blocks. The RDD cell sample then had the activity code appended to denote numbers that have been used in the last 10 months. All remaining numbers require individuals under 18 years of age and those that have moved out of the state and kept their number to be screened out of the sample. It was approximated that 30% would be screened out based on age (i.e., assigned to someone under 18 years old) and that 10% would be screened out based on non-Pennsylvania residency. The anticipated response rate was 10%.

A total of 44,900 cell phone numbers were sampled with 31,400 remaining after activity code appending. Samples were drawn 7 times over the course of data collection. Table 4 details the samples drawn.

Table 4. Cell Phone Numbers Selected, Screened, and Included in the Sample

	Cell Phone		
	Draw	**Disconnected**	**Included**
September	5,600	1.702	3,898
October	5,600	1,757	3,843
November	11,200	3,455	7,745
December	10,000	3,213	6,787
March	5,000	936	4,064
May	5,000	1,630	3,370
June	2,500	807	1,693

Contact Procedures

Calls were staggered over days of the week and times of day to maximize the chance of contact with potential respondents. Apart from numbers that were confirmed to be disconnected, fax machines, or businesses on the first call attempt, all numbers were attempted a minimum of three times, once during each calling period (i.e., weekday, weekday evening, weekend) with maximum call attempts capped at 15 calls. Call attempts with no answer or that were not diverted to an answering device were allowed to ring between 7 and 10 times. A message was left on answering devices providing the name of the interviewer calling, the reason for the call, and a number for the participant to call back. If potential participants called back or texted and indicated that they did not wish to be contacted, calls to their number were ended.

Landline Sampling Frame And Selection. Calls to sampled landline numbers were scheduled for 80% of the numbers to be called on weeknights between 5:00 pm and 9:00 pm or weekends and 20% to be called on weekdays between 9:00 am and 5:00 pm. One respondent (aged 18 or over) from the household was randomly selected per household to be interviewed using the most recent birthday method.

Cell Phone Sampling Frame and Selection. Calls to sampled cell phone numbers were scheduled for approximately 30% of the numbers to be called on each call occasion (i.e., weeknights between 5:00 pm and 9:00 pm, weekends, and weekdays between 9:00 am and 5:00 pm) with maximum call attempts capped at 8 calls. When individuals answered cell phone numbers, two screening questions were asked to ensure that they were over 18 years old and that they were residents of Pennsylvania.

Data Collection and Sample

Data collection began in September 2022 and continued through June 2023 with 213,035 calls made to 60,502 numbers (Landline = 29,102; Cell Phone = 31,400). An average of 3.70 (SD = 2.76) calls were made to landline numbers and 3.41 (SD = 1.81) calls were made to cell phone numbers.

Call Dispositions and Response Rates. Each number in the sample was assigned a final disposition code to indicate the result of calling the number. Dispositions, consistent with American Association for Public Opinion Research (AAPOR) and the categories identified by Ezzati-Rice (Ezzati-Rice et al., 2000), were assigned after each call attempt. Dispositions and callback guidelines are detailed in Table 5.

The resolution rate (percentage of numbers in the total sample for which eligibility has been determined) was calculated for landline and cell phones separately using the following equation: ((ELIG + INELIG) / (ELIG+INELIG+UNKELIG))*100. Resolution rates were 10.99% and 15.03% for landlines and cell phones respectively. Response rates (i.e., contact, cooperation, refusal, and response rate) were calculated using the AAPOR survey rate calculator 4.1 (2020) for DFRDD. Summary dispositions and response rates are detailed in Table 6. In comparison, other DFRDD studies conducted in Pennsylvania since 2020, reported response rates of less than 1% (Catt & Hroncich, 2020) and 1-4% (Collins et al., 2020). Similarly, a recent national study reported a response rate of 6% (Ferguson et al., 2022).

Research by the Pew Research Center indicates that response rates for all telephone-based surveys have declined, and response rates are generally lower for telephone surveys than for surveys conducted in person (Pew Research Center, 2012). Federal surveys have similarly experienced declining response rates (CDC, 2021). According to Lindemann (2021), industry averages for response rates by for in-person, mail, email, online, and telephone surveys average 57%, 50%, 30%, 29%, and 18% respectively.

Questionnaire

The questionnaire underwent several changes between second third years of the study. The survey now utilizes the following measures:

Gambling Participation Instrument (GPI). The Gambling Participation Instrument (GPI; Williams et al., 2017) was designed to assess the frequency of gambling engagement, gambling spending, and the amount of time spent gambling across various formats. Frequency is assessed over the past 12 months, asking for each format (including instant lottery, lottery/raffle tickets, electronic gambling including things like video poker and slot machines, table games, sports betting, fantasy sports, and other forms of gambling). In addition, purchasing of cryptocurrency and Non-Fungible Tokens (NFTs) were included as a gambling-like behavior. Frequency options ranged from 0 = not at all, to 6 = 4 or more times per week. For each format that individuals engaged in, they were asked which mode they had gambled on that format through: online only, offline only, or via both modalities. For those that gambled online, they were asked which websites they had gambled on for each respective format. Individuals that gambled at all over the past 12 months were also asked to report how many hours they believed they spent gambling in a typical month and how much they believe they had spent gambling in a typical month, taking into account how much they had won as well. For those that had gambled online, they were also asked which devices they had used to gamble online.

Table 5. Final Disposition Assignments

Summary Disposition			Final Disposition Code	Final Disposition Assignment
Non-working			4.330	Assigned after 3 consecutive temporarily disconnected call attempts
			4.300	Assigned upon known disconnection
			4.310	Assigned after 3 consecutive non-working call attempts
Non-residential			4.510	Assigned upon identification
			4.200	
Non-contact			3.130	Assigned after maximum call attempts
			3.120	
			3.150	
			3.160	Assigned after 3 consecutive technical problem attempts
Unknown Household Status			3.100	Assigned after maximum call attempts
			3.140	
Known Household	Screener incomplete		3.200	Assigned after maximum call attempts
			3.211	
	Screener complete	Eligible	1.00,1.100	Assigned upon survey completion
			1.200	Assigned after maximum call attempts
			2.300	Assigned after maximum call attempts
			2.110	Assigned after 2 refusals with refusal conversion trained interviewers
		Non-eligible	4.100	Assigned upon know residential status/age
			2.320	Assigned upon known inability to participate
			2.330	Assigned upon known language barrier

Table 6. Final Disposition Assignments

Disposition	Landline	Cell Phone	Combined
Non-Working	13111	5828	18939
Non-Residential	2324	587	2911
Non-Contact	4475	2879	7354
Unknown Household Status			
Household Status Unknown	2921	8198	11119
Likely Household	4	0	4
Known Household			
Screener Incomplete	4387	10147	14534
Non-Eligible	130	1306	1436
Eligible			
Not Complete	118	485	603
Refusal	395	787	1182
Partial Complete	50	104	154
Partial Complete via Web	0	3	3
Complete	760	1007	1767
Complete via Web	3	61	64
AAPOR Contact Rate 2	16.8%	14.0%	15.2%
AAPOR Cooperation Rate 2	67.3%	59.9%	63.0%
AAPOR Refusal Rate 2	5.5%	5.6%	5.6%
AAPOR Response Rate 3	10.6%	7.6%	8.9%

Motivation. Those that had gambled in the past 12 months were asked what their primary motivation for gambling was: to win money, for enjoyment/fun, to develop my skills, to compete or for the challenge, to socialize, to support worthy causes, to escape/relax/relieve stress, it makes them feel good about themselves, or other reasons. In addition, participants were asked how important of a leisure activity they believed gambling to be to them (ranging from not at all to very important).

Gambling Context. Individuals were asked whether they preferred to gamble alone or with friends/family, ranging from 1 = always alone to 5 = always with friends/family.

Gambling Loyalty Program Membership. Individuals were asked if they are currently a member of any gambling rewards or loyalty programs.

1-800-GAMBLER Contact. Individuals were asked whether they had ever called the 1-800-GAMBLER hotline themselves or someone else. Follow up questions for those that had asked who they had called for (self or someone else) and whether this call(s) was in the past 12 months.

Brief Problem Gambling Screen (BPGS). Gambling problems were assessed for participants who had engaged in gambling at least once per month in the previous 12 months using the Brief Problem Gambling Screen (BPGS, Volberg & Williams, 2011). The BPGS is a five-item screen for problem gambling with both high sensitivity and specificity, and a classification accuracy of 95.9%. The measure assesses preoccupation with gambling, needing to gamble with larger amounts of money to achieve same level of excitement, gambling longer/more money than intended, and borrowing and/or selling possessions to get money to gamble, as well as attempts to reduce or cease one's involvement in gambling. The measure was modified slightly to include a follow-up question (as is used in the PPGM; Williams and Volberg, 2010, 2014), to assess whether individuals were successful in their attempts to reduce their gambling or quit gambling.

Gambling Attitudes. Gambling attitudes were assessed using part of the Gambling Attitudes Measure (GAM; Williams, 2003) a measure that is also part of the Gambling Participation Instrument. This assessment included questions regarding beliefs about the legality of gambling, beliefs about the harms and benefits of gambling, and beliefs about access to gambling opportunities.

Demographics. Participants were asked to indicate the following demographics: age, gender, race, ethnicity, county of residence, marital status, highest level of education, employment status, and personal income.

Data Weighting

The final weighted sample is representative of adults ages 18 and older living in Pennsylvania. Data raking procedures were conducted and weights were calculated on the following factors: Age, Race, Ethnicity, Gender, and County. Weights (Spread = 0.17-9.30) were calculated in 100 iterations with 58.33% efficiency. Individuals with data missing on any of the selected variables had their weight replaced with the series mean (1.00). Table's 7-11 demonstrates the weighting schema achieved targets based on Pennsylvania populations estimates from the 2021 American Community Survey (U.S. Census Bureau, 2023).

Table 7. Actual, Target, and Weighted Proportions for Gender Identity

Gender Identity	Unweighted Proportions	Target Proportions	Weighted Proportions
Man	46.20%	49.40%	48.50%
Woman	52.90%	50.60%	50.60%
Other gender identity	0.70%		0.70%
Prefer not to answer	0.20%		0.20%
Total	**100.00%**	**100.00%**	**100.00%**

Table 8. Actual, Target, and Weighted Proportions for Race

Race	Unweighted Proportions	Target Proportions	Weighted Proportions
Race 2 or more	1.30%	7.00%	6.40%
White Only	85.50%	74.90%	73.90%
Black or African American Only	7.10%	10.40%	10.20%
Asian Only	0.90%	3.60%	3.40%
American Indian or Native Alaskan Only	0.40%	0.20%	0.20%
Native Hawaiian or Pacific Islander Only	0.00%	0.00%	0.00%
Other Only	3.20%	3.90%	4.20%
None provided	1.70%		1.70%
Total	**100.00%**	**100.00%**	**100.00%**

Table 9. Actual, Target, and Weighted Proportions for Ethnicity

Ethnicity	Unweighted Proportions	Target Proportions	Weighted Proportions
Not of Hispanic, Latino, or Spanish origin	95.10%	91.60%	91.10%
Hispanic, Latino, or Spanish origin	4.00%	8.40%	8.00%
Prefer not to answer	0.90%		0.90%
Total	**100.00%**	**100.00%**	**100.00%**

Table 10. Actual, Target, and Weighted Proportions for Age

Age Range	Unweighted Proportions	Target Proportions	Weighted Proportions
18-19	2.20%	3.41%	3.20%
20-29	8.00%	16.11%	15.50%
30-39	8.60%	16.12%	15.40%
40-49	9.80%	15.07%	14.40%
50-59	14.70%	17.38%	16.80%
60-69	20.00%	16.47%	15.90%
70-79	20.70%	9.70%	9.70%
80+	12.80%	5.75%	6.00%
Prefer not to answer	3.00%		3.00%
Total	**100.00%**	**100.00%**	**100.00%**

Table 11. Actual, Target, and Weighted Proportions for County of Residence

County	Unweighted Proportions	Target Proportions	Weighted Proportions
Adams County	1.00%	0.82%	0.90%
Allegheny County	9.30%	9.51%	9.20%
Armstrong County	0.50%	0.50%	0.50%
Beaver County	1.50%	1.28%	1.30%
Bedford County	0.40%	0.37%	0.30%
Berks County	3.30%	3.32%	3.10%
Blair County	1.60%	0.93%	0.90%
Bradford County	1.00%	0.46%	0.50%
Bucks County	4.70%	4.97%	4.90%
Butler County	1.90%	1.52%	1.50%
Cambria County	1.40%	1.01%	1.00%
Cameron County	0.10%	0.03%	0.10%
Carbon County	0.60%	0.50%	0.50%
Centre County	1.50%	1.22%	1.20%
Chester County	2.80%	4.21%	4.20%
Clarion County	0.70%	0.29%	0.30%
Clearfield County	1.10%	0.61%	0.60%
Clinton County	0.40%	0.29%	0.30%

Table 11 cont'd. Actual, Target, and Weighted Proportions for County of Residence

County	Unweighted Proportions	Target Proportions	Weighted Proportions
Columbia County	0.80%	0.50%	0.50%
Crawford County	0.80%	0.64%	0.70%
Cumberland County	3.00%	2.07%	2.00%
Dauphin County	2.50%	2.23%	2.20%
Delaware County	3.40%	4.43%	4.40%
Elk County	0.50%	0.23%	0.30%
Erie County	1.90%	2.06%	2.00%
Fayette County	1.20%	0.97%	1.00%
Forest County	0.00%	0.05%	0.00%
Franklin County	1.00%	1.21%	1.10%
Fulton County	0.20%	0.11%	0.10%
Greene County	0.30%	0.27%	0.30%
Huntingdon County	0.40%	0.33%	0.30%
Indiana County	1.10%	0.64%	0.70%
Jefferson County	0.30%	0.34%	0.30%
Juniata County	0.20%	0.18%	0.20%
Lackawanna County	1.30%	1.66%	1.60%
Lancaster County	3.90%	4.29%	4.10%

Table 11 cont'd. Actual, Target, and Weighted Proportions for County of Residence

County	Unweighted Proportions	Target Proportions	Weighted Proportions
Lawrence County	0.50%	0.65%	0.70%
Lebanon County	1.30%	1.11%	1.10%
Lehigh County	1.90%	2.90%	3.00%
Luzerne County	2.50%	2.52%	2.40%
Lycoming County	1.20%	0.87%	0.90%
McKean County	0.50%	0.31%	0.30%
Mercer County	1.00%	0.84%	0.80%
Mifflin County	0.60%	0.35%	0.30%
Monroe County	0.70%	1.29%	1.40%
Montgomery County	6.10%	6.67%	6.50%
Montour County	0.10%	0.14%	0.10%
Northampton County	2.80%	2.46%	2.40%
Northumberland County	0.90%	0.69%	0.60%
Perry County	0.70%	0.36%	0.40%
Philadelphia County	8.10%	12.08%	11.70%
Pike County	0.40%	0.47%	0.50%
Potter County	0.20%	0.13%	0.10%
Schuylkill County	0.80%	1.10%	1.00%

Table 11 cont'd. Actual, Target, and Weighted Proportions for County of Residence

County	Unweighted Proportions	Target Proportions	Weighted Proportions
Snyder County	0.40%	0.31%	0.30%
Somerset County	0.80%	0.56%	0.50%
Sullivan County	0.10%	0.05%	0.00%
Susquehanna County	0.40%	0.29%	0.30%
Tioga County	0.50%	0.32%	0.30%
Union County	0.40%	0.33%	0.40%
Venango County	0.40%	0.38%	0.40%
Warren County	0.50%	0.29%	0.30%
Washington County	1.40%	1.62%	1.60%
Wayne County	0.20%	0.39%	0.40%
Westmoreland County	3.00%	2.71%	2.60%
Wyoming County	0.20%	0.20%	0.20%
York County	3.20%	3.55%	3.60%
PA Resident, Prefer not to answer	1.60%		1.60%
Total	100.00%	100.00%	100.00%

Data Coding

The websites that individuals indicated they gambled on were categorized by a trained research assistant into one of three categories: legally regulated online gambling, unregulated online gambling, and illegal online gambling.

Legally regulated online gambling included websites that are recognized and licensed by their respective authorities (i.e., PGCB, Pennsylvania Lottery, Horse Racing, etc.). For responses that were uncertain, a conservative approach was used; that is, in instances where individuals left the response blank, could not remember where they had gambled, or were generic (i.e., "casino website"), these responses were coded as legally regulated. The exception to this was formats that are not currently legally available online in Pennsylvania (e.g., private fundraising raffles online or online bingo), these responses were coded as illegal online gambling.

Unregulated online gambling included forms of gambling that exist in a legal grey area, not falling under recognized forms of online gambling in Pennsylvania currently. For instance, this category includes individuals who engage in online fantasy sports gambling using platforms like ESPN to facilitate peer-to-peer betting; though these platforms do not directly allow betting through the platform, other online payment tools are often used in conjunction with them to allow for the transfer of funds (such as Venmo or Cash App). For participants that indicated they had gambled on social gambling websites that allow users to deposit real money for more plays, but offer prizes (such as discounts on hotels, slot play on real money machines, or other prizes of monetary value), these were coded as unregulated online gambling; this selection is based on the games existing with the ability to play for free and earn prizes, but with this ability accelerated for those that pay. Cases where sites were listed where there is no ability to stake anything (money or something of monetary value) or to receive prizes (of cash or something of monetary value), were re-coded appropriately to reflect this (i.e., if they indicated only betting on EGMs online, and the only website they listed was non-gambling, their frequency response was re-coded to "not in the past year". This category also included those that indicated financial indices under other online gambling.

Illegal online gambling included websites that are not currently licensed in Pennsylvania, typically operating offshore (i.e., outside of US borders).

Limitations

This survey was not without limitations. Unfortunately, the survey captured below the target proportions for the youngest age ranges. While we did weigh the data, this is likely to have impacted the data, in particular as online gambling has consistently been linked to younger demographics (Jiménez-Murcia et al., 2011; McCormack et al., 2013; Russell et al., 2023). Second, the assessment only included a problem gambling screen (BPGS; Volberg and Williams, 2011), rather than a full assessment of problem gambling. This limited the ability to draw conclusions surrounding the association between online gambling and problem gambling. Third, the data in this survey is cross-sectional which restricts the ability to follow individuals year over year to examine individual trends in online gambling and problem gambling, also, whether changes to the survey instrument impacted the prevalence rate or there was changing behaviors. Finally, the data for this report consists of self-reported responses, memory or social desirability may have impacted responses.

Appendix C: Additional Analyses

This section provides the results of supplementary analyses of the Brief Problem Gambling Screen (BPGS). We conducted Kendall's tau b analyses to assess the association between scores on the BPGS and gambling engagement measures; this allowed us to assess whether higher scores (reflecting higher numbers of problem gambling indicators) were associated with gambling frequency, hours spent gambling, the number of formats gambled on, and the amount spent on gambling.

Table 12. Kendall's tau b correlations between BPGS score and gambling behaviors among gamblers with a score of at least one on the BPGS.

	Correlations				
Measure	**1.**	**2.**	**3.**	**4.**	**5.**
1. BPGS Score	-				
2. Maximum Frequency	0.176**	-			
3. Average Hours	0.338**	0.334**	-		
4. Total Formats	0.257**	0.287**	0.425**	-	
5. Spending	0.360**	0.221**	0.245**	0.256**	-

**$p < 0.01$

Associations between BPGS score and gambling behaviors were found to be significant (Table 4). Spending (0.360, $p < 0.01$) and average hours per month (0.338, $p < 0.01$) had moderate associations with BPGS score, while maximum frequency of gambling (0.176, $p < 0.01$) and total number of formats engaged in (0.257, $p < 0.01$) had a small association with BPGS score. This suggests that as spending, the number of hours spent gambling, the frequency of gambling, and the number of formats increase, so too does BPGS score; higher engagement in gambling as indicated by any of these metrics may be an indicator of a potential gambling problem.

A simultaneous binary logistic regression was conducted to determine which variables were able to distinguish between those that presented with a score of at least one on the BPGS versus those that did not (that is those more likely to be a problem or at-risk gambler versus those who are not). The full model with all 13 predictors against a constant-only model was statistically significant, $\chi 2$ (12, N = 1166) = 393.81, $p < .001$, indicating that all 12 predictors as a set reliably distinguished between those that scored a 0 on the BPGS and those scored a 1 or higher. Overall, the amount of variance accounted for by the Nagelkerke

R squared was 49.7%. The classification accuracy was good at 88.9%, with excellent classification accuracy at identifying of those that scored a 0 on the BPGS (96.4%), however it faired less successfully among those that scored a 1 or higher and only correctly classified 43.6% of these individuals. The regression coefficients, Wald statistics, and odds ratios for each of the 12 predictors are detailed in Table 5. Based on the Wald criteria, age, frequency of gambling, average monthly spending, having the primary motivation for gambling being to escape, tending to gamble alone, and being a member of a gambling loyalty or rewards program reliably predicted whether someone would have a score of one or higher on the BPGS.

Table 13. Simultaneous logistic regression of the factors associated with scoring one or higher on the BPGS versus scoring zero.

	Regression Coefficients (*B*)	Wald Statistics	Odds Ratios	95% C.I. for Exp. (B)	
				Lower	Upper
Man gender	-.06	0.07	0.94	0.60	1.48
Age	-0.02**	7.19	0.98	0.97	1.00
Frequency	0.70***	92.40	1.97	1.72	2.26
Formats	0.13	2.92	1.14	0.98	1.32
Average monthly spending[a]	0.21**	16.09	1.24	1.12	1.37
Motive to escape	1.38**	6.45	3.97	1.37	11.49
Typically gamble alone	0.63**	7.79	1.88	1.21	2.94
Member of loyalty/rewards program	0.62*	5.76	1.86	1.12	3.08
Any online gambling	0.27	0.79	1.31	0.73	2.35
EGM play	0.27	0.98	1.31	0.76	2.26
Any illegal online gambling	0.54	0.63	1.71	0.45	6.45
Purchasing cryptocurrency or NFTS	-0.38	1.15	0.68	0.34	1.37
Constant	-4.43***	88.72	0.01		

*$p > 0.05$; **$p > 0.01$; ***$p > 0.001$

[a] spending was re-coded into categories: 0=$0; 1=$0.01-100; 2=$101-250; 3=$251-500; 4=$501-750; 5=$751-1000; 6=$1001-1500; 7=$1501-2000; 8=$2001-2500; 9=$2501-3000; 10=$3001-3500; 11=$3501+

Appendix D: References