MAGIC

MASSACHUSETTS GAMBLING IMPACT COHORT STUDY

UNIVERSITY OF MASSACHUSETTS SCHOOL OF PUBLIC HEALTH AND HEALTH SCIENCES

A Six-Year Longitudinal Study of Gambling and Problem Gambling in Massachusetts

Report to the Massachusetts Gaming Commission & the Massachusetts Department of Public Health

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EXECUTIVE SUMMARY

The **Ma**ssachusetts **G**ambling **I**mpact **C**ohort (MAGIC) is a prospective study of gambling and problem gambling conducted in Massachusetts from September 2013 to September 2019. Multi-modal recruitment was utilized to recruit a statewide sample of 3,139 adults, 18 and older, with the sample over-selected for individuals at higher risk of future problem gambling. The cohort was assessed five times over a six-year period with the vast majority of assessments being self-administered online. The assessment collected comprehensive information on gambling-related behavior, attitudes, motivations, context, fallacies; problem gambling; physical health; mental health; substance use and abuse; social functioning; personality; and demographics. A retention rate of 79.7% was achieved in Wave 5 (75.9% of the original 3139 Wave 2 respondents).

MAGIC had four primary research goals:
1. To monitor changes in gambling and problem gambling over time within the cohort that might identify impacts of Massachusetts casino introduction (Plainridge Park Casino in 2016; MGM Springfield in 2018; Encore Boston Harbor in 2019).
2. To determine the stability and course of problem, at-risk, and recreational gambling within the cohort.
3. To identify predictors of problem gambling onset, continuation, remission, and relapse.
4. To use the findings from the above research to provide recommendations to optimize the prevention and treatment of problem gambling in Massachusetts.

Potential Impacts of Massachusetts Casino Introduction

Changes in gambling participation rates within the cohort between 2013 – 2019 show the following:
- An increase in MA-casino participation beginning in 2016 (Wave 3) and again in 2019 (Wave 5), attributable to the 2015 opening of Plainridge Park Casino and the 2018 opening of MGM Springfield.
- A decrease in out-of-state casino participation beginning in 2016 (Wave 3) with this decline continuing to 2019 (Wave 5). This decrease is again almost certainly attributable to the openings of Plainridge Park Casino and MGM Springfield.
- No negative impacts on rates of lottery participation. This was a potential concern of casino introduction that does not appear to have materialized. There was a significant *increase* in traditional lottery participation in 2016 attributable to a particularly large Powerball jackpot that year.
- No obvious impact on participation rates for other types of gambling that cannot be potentially accounted for by normal year-to-year variation, pre-existing trends (e.g., decline in horse race betting), and/or the changes in survey question wording that occurred in Wave 3.

There was also significant variation over time within the cohort in the level of Non-Gambling, Recreational Gambling, At-Risk Gambling, and Problem Gambling. This reflected:
- An increase in the rate of Recreational Gambling in 2016 (Wave 3) and 2018 (Wave 4) along with a corresponding decrease in the rate of Non-Gambling. The 2016 increase is likely attributable to the significant increase in traditional lottery participation due to the large Powerball jackpot in 2016.
- A decrease in At-Risk Gambling in 2018 (Wave 4), but with a corresponding increase in Problem Gambling in 2018 (Wave 4) and 2019 (Wave 5) relative to Wave 1 in 2013/2014. The increase in problem gambling beginning in Wave 4 is potentially related to Massachusetts casino introduction. Most of this increase was driven by an increased rate of problem gambling relapse in remitted individuals. This, in turn, was potentially due to the increased publicity and media attention concerning casinos and gambling, as the increase occurred prior to the actual opening of MGM Springfield and Encore Boston Harbor. The SEIGMA Follow-Up General Population Survey in the Fall of 2021 will shed

more definitive light on whether there has been a statewide increase in problem gambling in recent years.

Stability of Gambler Categorizations across Waves

Non-Gambling was found to be a fairly stable category within the cohort, with the majority of Non-Gamblers also being Non-Gamblers in the next wave. However, only a minority of Non-Gamblers continued in this category throughout all five waves. Rather, it was common for Non-Gamblers to transition back and forth into Recreational Gambling, which is to be expected considering that the single purchase of a lottery or raffle ticket is sufficient to be designated as a Recreational Gambler. Non-Gamblers at Wave 1 had the lowest risk of ever becoming Problem Gamblers, occurring in 1.7% of cases.

Recreational Gambling was found to be the most stable category with the large majority of Recreational Gamblers also being Recreational Gamblers in the next wave and most continuing to be Recreational Gamblers throughout all five waves. A small percentage transitioned into either At-Risk Gambling or Non-Gambling. A total of 4.0% of Recreational Gamblers in Wave 1 became Problem Gamblers at some point in the subsequent four waves.

At-Risk Gambling had the most unstable pattern, with only a minority of people continuing to be in this category in the next wave and very few remaining in this category in all five waves. Although a significant percentage of At-Risk Gamblers subsequently become Problem Gamblers (19.5%), a much more common route was for At-Risk Gamblers to transition back to Recreational Gambling.

Problem Gambling was more stable than At-Risk Gambling, but still fairly unstable, with most Problem Gamblers transitioning to At-Risk or Recreational Gambling in the next wave. Indeed, one wave was the modal duration of Problem Gambling, occurring in 50.3% of individuals. A longer duration did occur for a small minority, with 6.0% being in this category in all five waves and many others being in this category for either two, three, or four consecutive waves. Risk of chronic problem gambling increased with each consecutive year of problem gambling status. The onset of Problem Gambling was preceded by being in the At-Risk category in the previous wave 68.9% of the time.

The relatively short episode duration for most problem gamblers also meant that remission rates tended to be high, with the majority having at least one year of remission over the five waves. However, relapse rates were also quite high, with 33.3% of those that had remitted in Wave 2 subsequently relapsing and 54.5% of those that had remitted in Wave 3 relapsing. The longer-term relapse rate is unknown, but is expected to be significantly higher. Of clinical relevance is the fact that the large majority of problem gamblers in both Wave 4 (60.8%) and Wave 5 (74.0%) were relapsed problem gamblers rather than new problem gamblers.

Concurrent and Prospective Prediction of Problem Gambling

There were 67 variables that had a significant bivariate relationship with both concurrent and future problem gambling, with 17 of these variables being significant in a multivariate model of both concurrent and future problem gambling. The latter result illustrates that problem gambling is caused by a large number of different risk factors from different domains, which is consistent with the biopsychosocial understanding of the etiology of addictions more generally.

While problem gambling is caused by a multitude of risk factors, these risk factors do tend to have an organizational and temporal sequence. Consistent with prior longitudinal studies, *gambling-related*

variables are most robustly predictive of concurrent and future problem gambling in the multivariate models. More specifically the strongest predictive variables in this category are:

- Greater intensity of gambling involvement (i.e., greater number of formats engaged in; higher total frequency of involvement; higher total monetary losses). While this is a very strong correlate of concurrent problem gambling, it is also the most common imminent precursor to future problem gambling.
- Having a large gambling loss in the past 12 months (which is related to intensity of involvement)
- Having a large gambling win in the past 12 months (which is related to intensity of involvement)
- Current gambling category (Non-Gambler, Recreational Gambler, At-Risk Gambler, Problem Gambler)
- Gambling being identified as an important or very important recreational activity
- Participation in daily lotteries
- Participation in traditional lotteries
- Participation in sports betting
- Having a higher number of gambling fallacies

Several non-gambling variables were also robustly predictive of concurrent and future problem gambling in the multivariate models. In order of importance, these were:

- Impulsivity
- Higher number of significant property/financial life events in the past 12 months
- Lower level of happiness
- Lower household income
- Male gender
- Problems with drugs or alcohol prior to past 12 months
- Higher levels of antisociality/psychopathy

Predictors of Problem Gambling Remission versus Continuation

Problem gamblers who remitted in the next wave had less prior history of problem gambling, less severe current manifestations of problem gambling (lower problem gambling scores, lower gambling expenditures), fewer comorbidities (lower impulsivity, absence of other behavioral addictions, absence of illegal activity, absence of mental health disorders, lower number of significant life or financial events) and fewer gambling fallacies. The four significant variables predictive of problem gambling remission in the multivariate model were: no lifetime history of problem gambling; lower impulsivity; smaller biggest win in single day past year; and fewer gambling fallacies.

Limitations

The primary limitation of this study is that the results *are for the cohort as a whole* (intended to be roughly representative of the Massachusetts adult population), and do not necessarily apply for any specific demographic subgroup. There probably are some differences in the impacts of casino introduction, stability of problem gambling, and predictors of problem gambling for specific age groups, gender, educational attainment, racial/ethnic groups, etc. However, it would require considerable additional work to determine these demographic-specific differences.

Prevention and Treatment Implications

1. The present findings confirm much of the previous longitudinal research concerning the main predictors of future problem gambling. Consequently, one of the main values is providing a more solid

scientific footing for prior recommendations concerning how to best prevent problem gambling (e.g., Williams, West & Simpson, 2012)

2. There is no 'silver bullet' to prevent problem gambling. Rather, a wide array of educational and policy initiatives is needed to address the multi-faceted biopsychosocial etiology.

3. Because of their etiological connection, effective treatment of substance abuse and/or mood disorders will also help reduce the future incidence of problem gambling. For similar reasons, it would be useful to screen for potential gambling problems among individuals presenting for mental health and/or substance use problems.

4. Limit the placement of gambling opportunities and the marketing of gambling in lower socioeconomic neighbourhoods.

5. Educational efforts are needed to promote knowledge, motivations, and attitudes conducive to responsible gambling.
   - *Demographically,* this needs to be provided to: all ages, all races/ethnicities, and all genders but with an extra focus on males and individuals with a lower household income (the latter of which will be particularly concentrated among African Americans and Hispanics).
   - In terms of *location and medium of communication* this should be provided via: media campaigns, school-based prevention programs, in mental health and substance abuse clinics and other health-care settings, in gambling venues, and on the gambling product.
   - The *content* of these educational efforts should focus on:
     - Countering gambling fallacies.
     - Other risk factors for problem gambling identified in the present research.
     - Lower Risk Gambling Guidelines (LRGG) that predict problem-free gambling (as well as normative amounts of gambling expenditure).
     - Symptoms of problem gambling and where to get help (both self-help and external help).

6. Restrict advertising as this is known to be a precipitator for relapse in other studies and may have also occurred in MAGIC. The other issue with commercial advertising is that it may counteract educational messaging.

7. Increase the availability of self-help materials, both online and in booklets as only a small minority of problem gamblers want or seek out formal treatment (only 7.8% wanted help in the present study and only 36.1% of these people sought help).

8. Encourage treatment-seeking nonetheless, as people who obtain formal treatment have better long-term outcomes compared to people who do not receive treatment. While all treatment approaches should eventually strive for abstinence to obtain the best long-term outcomes, having a low threshold for treatment access will encourage participation (i.e., promoting 'reduced gambling' or 'harm reduction' as an initial step).

9. Implement policies known to be effective in curtailing risky gambling practices that have been demonstrated in other research (see Williams et al., 2012 for a review).
   - Restrict or eliminate access to automatic teller machines (ATMs) in gambling venues.
   - Implement mandatory player pre-commitment on player reward cards.
   - Send automated alerts to players when their gambling behavior escalates.
   - Change the parameters of player reward cards to reward responsible gambling rather than just gambling consumption.
   - Limit or eliminate alcohol on the gambling floor.
   - Limit the general availability of gambling (continued age 21 restrictions for casinos; limit the number of casinos; continued prohibition of EGMs outside of dedicated gambling venues; limitations on online gambling).
   - Limit or constrain high-risk forms of gambling (EGMs, online gambling), as worldwide these continue to have the most robust association to problem gambling.

INTRODUCTION

Massachusetts Gaming Commission Research Agenda

In November 2011, the [Act Establishing Expanded Gaming in the Commonwealth](#) was passed by the Legislature and signed by Governor Deval Patrick (Chapter 194 of the Acts of 2011). This legislation permitted casinos and slot parlors to be introduced in Massachusetts under the regulatory auspices of the Massachusetts Gaming Commission (MGC). Section 71 of the Expanded Gaming Act requires the MGC to establish "an annual research agenda" and identifies three essential elements of this research agenda:

- Understanding the social and economic effects of expanded gambling.
- Implementing a baseline study of problem gambling and the existing prevention and treatment programs that address its harmful consequences.
- Obtaining scientific information relative to the neuroscience, psychology, sociology, epidemiology, and etiology of gambling.

In March 2013, the MGC selected a research team based at the University of Massachusetts Amherst School of Public Health and Health Sciences to carry out the first two elements of this research agenda through the **S**ocial and **E**conomic **I**mpacts of **G**ambling in **Ma**ssachusetts ([SEIGMA](#)) project. While robust in many regards, the SEIGMA methodology provides population-based 'snap shots' of the dynamic process of behavior change during a time of gambling expansion. The cross-sectional design of the SEIGMA project is in contrast to a longitudinal cohort design that follows a group of people with a shared experience (exposure to expanded gambling) at intervals over time. A cohort study can provide etiological information about how gambling and problem gambling develops, progresses, and remits, which in turn, has significant value for prevention and treatment.

In November of 2013, the MGC issued a Request for Proposals to conduct a multi-year cohort study to provide insight into the causes of problem gambling and variables influencing changes in gambling status. In April of 2014, the MGC selected the same University of Massachusetts Amherst School of Public Health and Health Sciences research team to conduct the cohort study. Due to uncertainties associated with possible repeal of the Expanded Gaming Act, the MGC directed that the study not begin until after the results of the referendum had been determined in November of 2014. The Massachusetts Gambling Impact Cohort (MAGIC) study was officially launched in December of 2014.

Prior Longitudinal Studies of Gambling and Problem Gambling

There have been many prior longitudinal cohort studies of gambling and problem gambling (for a detailed review see Dowling et al., 2017; Williams et al., 2015). These longitudinal studies have provided useful information about the stability of gambling and/or problem gambling and/or the identification of variables that predict the subsequent development of gambling and/or problem gambling. As such, they provide important etiological information beyond what could be obtained with correlational/cross-sectional studies. However, the large majority of these longitudinal studies have one or more of the following deficits that limit our ability to develop a comprehensive etiological model of problem gambling:

- Assessment of only a small subset of etiologically relevant variables.
- A very circumscribed demographic (e.g., youth, elderly, casino employees).
- A very small sample size and/or a very small number of people who became problem gamblers during the course of the study.
- A very short time span and/or a small number of assessment periods.

- A study of either gambling or problem gambling, but not both.
- Poor retention rates with differentially higher attrition for certain demographic groups (e.g., males, younger people) and people who are heavy gamblers and/or problem gamblers.

Partly in recognition of the limitations of these smaller and/or more circumscribed studies, five comprehensive large scale dedicated longitudinal studies of gambling have been undertaken in four different jurisdictions:

Large Scale Gambling Cohort Studies

The Leisure, Lifestyle, Lifecycle Project (LLLP) was funded by the Alberta Gambling Research Institute and conducted between 2006 – 2011. A cohort of 1,808 Albertans was recruited with representative sampling from the major regions of the province. Five age cohorts were established at baseline (13–15; 18–20; 23–25; 43–45; 63–65) with equal numbers in each group. The sample included a subset of 524 'high risk' individuals presumed to be at higher risk for developing gambling problems because of their greater expenditure and frequency of gambling. Recruitment response rate was 5.4%. All participants received comprehensive 2–3 hour assessments of all variables of etiological relevance to gambling and problem gambling. Problem gambling was assessed using the Problem Gambling Severity Index (5+) (Ferris & Wynne, 2001) for adults and the DSM-IV-MR-Junior (Fisher, 2000) for adolescents. The LLLP had four assessment periods with a 17-22 month inter-assessment interval and a 9-10 month assessment window. Assessment 1 consisted of a telephone interview followed by a face-to-face interview, whereas the subsequent assessments were self-administered, predominantly online, but with some mail-in surveys. The adult retention rate at Wave 4 was 76.1% and the adolescent retention rate at Wave 4 was 71.8%. A final report on the results of the LLLP and comparing these to the Quinte Longitudinal Study (QLS) (below) was published in 2015 (el-Guebaly et al., 2015). An additional wave of LLLP data collection occurred in 2013/2014 with there being one additional publication specific to this wave (Mutti-Packer et al., 2017).

The Quinte Longitudinal Study (QLS) was funded by the Ontario Problem Gambling Research Centre and also conducted between 2006 – 2011. A cohort of 4,123 Ontario adults aged 17–90 were recruited from the Quinte region in southeastern Ontario, Canada. This included a subset of 1,216 individuals at elevated risk for developing gambling problems by virtue of their greater expenditure on gambling, past-year gambling on slot machines or horse races, or an intention to gamble at a proposed slots-at-racetrack facility. Recruitment response rate was 21.3%. All participants received a comprehensive 1–2 hour self-administered assessment of all variables of etiological relevance to gambling and problem gambling at each wave of the study. Problem gambling was assessed using the Problem and Pathological Gambling Measure (PPGM) (Williams & Volberg, 2014). The QLS had five assessment periods with a 12-month inter-assessment interval and a five month assessment window. The retention rate at Wave 5 was 93.9%. A report summarizing the results of the QLS and comparing these with the LLLP was published in 2015 (Williams, Hann, Schopflocher et al., 2015).

The Swedish Longitudinal Gambling Study ([Swelogs](#)) is a multi-pronged cohort study funded by the Public Health Agency of Sweden and conducted between 2008 – 2018+. The main cohort *('epidemiological track')* consisted of 8,165 individuals aged 16-84 with over-selection of people at risk for problem gambling. Recruitment response rate was 55.0%. The assessment consisted of a 16-24 minute telephone interview (mail-in surveys for a minority) that covered gambling and problem gambling and a range of other social and economic variables. Subsequent telephone interviews (and mail-in surveys) occurred in 2009/10, 2012, and 2014. Problem gambling was assessed using the PGSI (8+). Thus, this cohort had four assessment periods with a 1-2 year inter-assessment interval. A total of 3,559 participants were interviewed in the final wave (3559/8165 = 43.6% retention). Within the cohort, all PGSI 3+ gamblers and a sample of PGSI 1-2 gamblers and non-problem gamblers were selected and matched on basic demographics with three other

cohort members to form a control group ('*in-depth track'; n* = 2,400). Members of the in-depth track received additional more comprehensive telephone interviews in 2011 and 2013, with 40 of these individuals also interviewed in 2016. A final feature of the Swelogs study was a 2008/2009 follow up of 578 people from the 1997/1998 Swedish gambling prevalence study (289 problem gamblers and a matched set of controls) *('follow-up track'*). Four articles have been published in English: (1) describing the study methodology (Romild, Volberg, & Abbott, 2014), (2) comparing the results of the 1997/1998 prevalence survey in Sweden with the Swelogs baseline epidemiological survey in 2009 (Abbott, Romild, & Volberg, 2014), (3) examining problem gambling prevalence and incidence in Sweden (Abbott, Romild, & Volberg, 2018), and (4) identifying the riskiness of different forms of gambling in Sweden (Binde, Romild, & Volberg, 2017).

In 2015 a new Swelogs cohort of 9,400 people age 16-84 were recruited (44.8% recruitment response rate). In 2018 a total of 5,081 of these individuals were reassessed along with a new sample of 4,000 teenagers aged 16 to 18.

The Victorian Gambling Study (VGS) was funded by the Victoria Department of Justice in Australia and conducted between 2008 - 2011. The study began with a general population survey of gambling and health among 15,000 adults in Victoria, with oversampling of local government areas having higher electronic gambling machine (EGM) expenditure. Response rate was 43.5%. The assessment consisted of a 15 - 25 minute telephone interview focusing on gambling behavior, health and well-being, important life events in the past 12 months, and demographics. Problem gambling was assessed using the Problem Gambling Severity Index (8+) (Ferris & Wynne, 2001). VGS had four assessment periods with a 12-month inter-assessment interval. The retention rate at the end of the study was 24.7%. Reports on the results of the VGS have been published by the Victoria Department of Justice (Victoria Department of Justice, 2009, 2011) and the Victorian Responsible Gambling Foundation (Billi, Stone, Marden, & Yeung, 2014; Victorian Responsible Gambling Foundation, 2012a, 2012b). Four technical reports with additional analyses of the VGS (Stone, Yeung, & Billi, 2016a, 2016b, 2016c, 2016d) are also available from the Victorian Responsible Gambling Foundation.

The New Zealand National Gambling Study ([NZ-NGS](NZ-NGS)) was funded by the New Zealand Ministry of Health and conducted between 2012 - 2018. The study started with a face-to-face prevalence survey of gambling and problem gambling among 6,251 people aged 18 years and older with an oversample of Māori, Pacific Islanders, and Asians. Response rate was 64%. The assessment consisted of a 45-60 minute structured interview focusing on gambling behavior, problem gambling, life events, mental health, substance use and misuse, health conditions, social connectedness, level of deprivation, and demographics. Problem gambling was assessed using the Problem Gambling Severity Index (8+) (Ferris & Wynne, 2001). The NZ-NGS has had four assessment periods, with a 12-month interval between the start of each period. A total of 5,266 were selected for follow-up in Wave 2 and a total of 2,770 completed Wave 4, which represents approximately a 46% retention rate (after excluding ineligibles). An additional cohort of 106 high risk gamblers (PGSI 3+) was recruited from gambling venues and via advertisements in 2014/15, and re-assessed in 2015/16, with the purpose of assessing their similarity to the NGS high risk gamblers for potential sample combination. In 2018, a sub-sample of 50 participants participated in in-depth qualitative interviews. Several reports have been published on the results of the NZ-NGS (Abbott, Bellringer & Garrett, 2018; Abbott, Bellringer, Garrett, & Kolandai-Matchett, 2017; Abbott, Bellringer, Garrett, & Mundy-McPherson, 2014a, 2014b, 2015a, 2015b, 2016, 2018; Bellringer et al., 2019).

Main Findings from Prior Gambling Cohort Studies

Some consistent findings have emerged from the full body of longitudinal studies of gambling and problem gambling (summarized in Williams et al., 2015). First, problem and at-risk gambling is unstable, with people moving into and out of problem or at-risk gambling status over time. Only about half of people with gambling problems tend to have a gambling problem in the next assessment period, and only a small minority of problem gamblers remain in this status over multiple consecutive assessments. In contrast, recreational gamblers and non-gamblers tend to be fairly stable, with most recreational gamblers continuing in this category for multiple assessments.

Another consistent finding from the longitudinal studies is that no single variable is overwhelmingly present in people who develop gambling problems and absent in those who do not. Instead, there are many different variables that increase the risk of future problem gambling, which is consistent with what has been found in other areas of addiction.

However, there are some factors that are much stronger predictors than others. In general, gambling-related variables most strongly predict future problem gambling. In particular, being a current problem gambler or an at-risk gambler strongly predicts being a future problem gambler. Other strong gambling-related predictors of future problem gambling include a big gambling win in the past year, intensity of overall gambling involvement, higher frequency of involvement in continuous forms of gambling (e.g., electronic gambling machines (EGMs)), rating gambling as an important leisure activity, having family members and/or close friends who gamble heavily, gambling to escape or distract oneself, higher levels of gambling fallacies, and shorter distance to the nearest EGM venue.

Personality is the next most important category of variables that predict future problem gambling. Particularly important traits include impulsivity, vulnerability to stress, lower agreeableness, and lower conscientiousness. These personality traits have not been assessed in all of the prospective cohort studies; still, this profile is consistent with the personality profile of people with gambling problems that seek treatment, as well as people with gambling problems drawn from community samples. These traits are also commonly found in people who abuse substances.

The third category of variables associated with future problem gambling includes mental health problems. Depression has long been known to be a strong correlate of problem gambling and it is the second most commonly identified predictor of problem gambling across the large prospective cohort studies. Having any mental health disorder has also been found to be a consistent predictor of future problem gambling, such as having behavioral addictions or substance abuse (including tobacco use).

An important finding from the longitudinal cohort studies is that different variables predict the first onset of problem gambling versus relapse and the continuation of problem gambling. Almost all of the gambling-related predictors tend to be first onset predictors. In contrast, non-gambling variables have a greater role in problem gambling continuation and relapse. In particular, the presence of certain personality traits as well as comorbid mental health disorders, a lifetime history of mental health or substance abuse problems, lower intellectual ability, and anti-sociality make it more difficult for people with gambling problems to recover and leave them more susceptible to relapse once they have remitted.

Massachusetts Gambling Impact Cohort (MAGIC)

The design of the Massachusetts longitudinal cohort study of gambling and problem gambling builds on prior longitudinal problem gambling research. As the preceding discussion illustrates, significant progress has been made in understanding the etiology and trajectory of problem gambling in other countries. However, there are several reasons why a Massachusetts longitudinal cohort study of gambling and problem gambling is warranted:

- First, there have been no longitudinal research studies of gambling and problem gambling in Massachusetts, and no major cohort studies of gambling in the United States. There are important differences between Massachusetts and other jurisdictions where longitudinal cohort studies have been conducted. These differences include demographic composition, the availability of casino gambling, the extent of efforts to prevent problem gambling, and the time period in which the cohort would be examined. It is possible that the nature, incidence, and etiology of problem gambling may be somewhat different in Massachusetts compared with other jurisdictions where similar studies have been carried out.

- Second, the change in gambling availability in Massachusetts during the course of this study (due to the introduction of three major casinos) is greater than the fairly stable availability of gambling that occurred in the Canadian, Swedish, New Zealand, and Australian studies. Thus, Massachusetts presents a much better opportunity to understand the role of increased gambling availability, and casino gambling specifically, in the development of problem gambling.

- MAGIC builds upon prior research by including *all variables* found to be significantly related to problem gambling in all prior longitudinal and cross-sectional research and excludes variables that have never been found to have a significant association.

- Finally, the findings from the MAGIC study are synergistic with those of the SEIGMA study, producing results much richer than either study on its own. While the emphasis in the MAGIC study is on the etiology of problem gambling, and the emphasis in the SEIGMA study is on the prevalence of problem gambling—in addition to a broader focus on the social and economic impacts—both studies will produce considerable evidence pertaining to the other study's focus. The impacts identified in SEIGMA can be explored in greater depth in MAGIC and the factors contributing to onset and relapse can be explored in greater depth in SEIGMA.

Research Goals

MAGIC had four research goals:

1. **To monitor changes in gambling and problem gambling over time within the cohort as they relate to the introduction of Massachusetts casinos.**

   Following their legalization in 2011, two casino applications and one slot parlor application were approved, and all three venues opened between June 2015 and June 2019. The details of these three venues are contained in Table 1 and their geographic locations shown in Figure 1. Figure 1 also shows the 'host' community where the casino is located and the 'surrounding communities', which are defined as municipalities proximate to a host community which the Massachusetts Gaming Commission deems most likely to experience direct impacts from the new venues. As mentioned, a comprehensive determination of the socioeconomic impacts of these venues is the mandate of the ongoing SEIGMA study. Data from MAGIC provides information for SEIGMA specific to the *self-reported behavioral changes over time in the types of gambling Massachusetts residents engage in, their frequency of involvement, gambling expenditure, and problem gambling status.* These changes are then examined in

relationship to when the new casinos were opened to ascertain whether the presence of these new venues has potentially altered gambling behavior.[1]

<p style="text-align:center;color:red;">Table 1. Details of the Three Massachusetts Casinos</p>

	Plainridge Park Casino	MGM Springfield	Encore Boston Harbor
Host Community	Town of Plainville	City of Springfield	City of Everett
Surrounding Communities	Attleboro; Foxborough; Mansfield; North Attleborough Wrentham	Agawam; Chicopee; East Longmeadow; Holyoke; Longmeadow; Ludlow; Wilbraham; West Springfield	Boston; Cambridge; Lynn; Malden; Medford; Melrose; Somerville
Opening Date	June 24, 2015	August 24, 2018	June 23, 2019
Gambling Availability	• 1,249 slot machines and electronic table games • Several instant and traditional lottery ticket self-service terminals • 5/8-mile live harness racing track + simulcast betting	• 2,555 slot machines • 93 live table games • Poker room (23 tables) • Several instant and traditional lottery ticket self-service terminals	• 3,100+ slot machines • 144 live table games • Poker room (88 tables) • Several instant and traditional lottery ticket self-service terminals
Amenities	• Several restaurants, bars, and food court eateries, with nightly entertainment available • 1,620 parking spaces • 55,000 sq ft clubhouse for simulcast operations and live race viewing	• Hotel with 250 rooms, meeting and convention space • Spa, movie theatre, bowling alley, retail outlets, several restaurants and bars • 3,400 parking spaces	• Hotel with 671 rooms, meeting and convention space • Spa, retail outlets, 15 bars and restaurants • 3,731 parking spaces (2,931 on-site)
Owners	• Owned and operated by Penn National Gaming. Corporate headquarters in Pennsylvania • Penn National owns 28 other gambling venues in 16 states and one Canadian province	• Owned and operated by MGM Resorts International with headquarters in Las Vegas • MGM owns several casino resorts in Las Vegas, as well as venues in four other states and China	• Owned and operated by Wynn Resorts with corporate headquarters in Las Vegas • Wynn Resorts owns two destination resorts in Las Vegas and three in Macau.
Notes	• Casino expansion cost $150.2 million • 196,000 sq ft area for casino operations • Opened in 1999 as a seasonal harness racing track with additional simulcast betting	• Cost $960 million • 850,000 square feet	• Cost $2.6 billion • 3,100,391 square feet • Name change from 'Wynn Boston Harbor'

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[1] This information is triangulated with changes in self-reported gambling behavior derived from the periodic cross-sectional 'Targeted Population Surveys' of the host and surrounding communities as well as 'General Population Surveys' of the entire state that occur in SEIGMA.

Figure 1. Location of the Three Casinos in Massachusetts
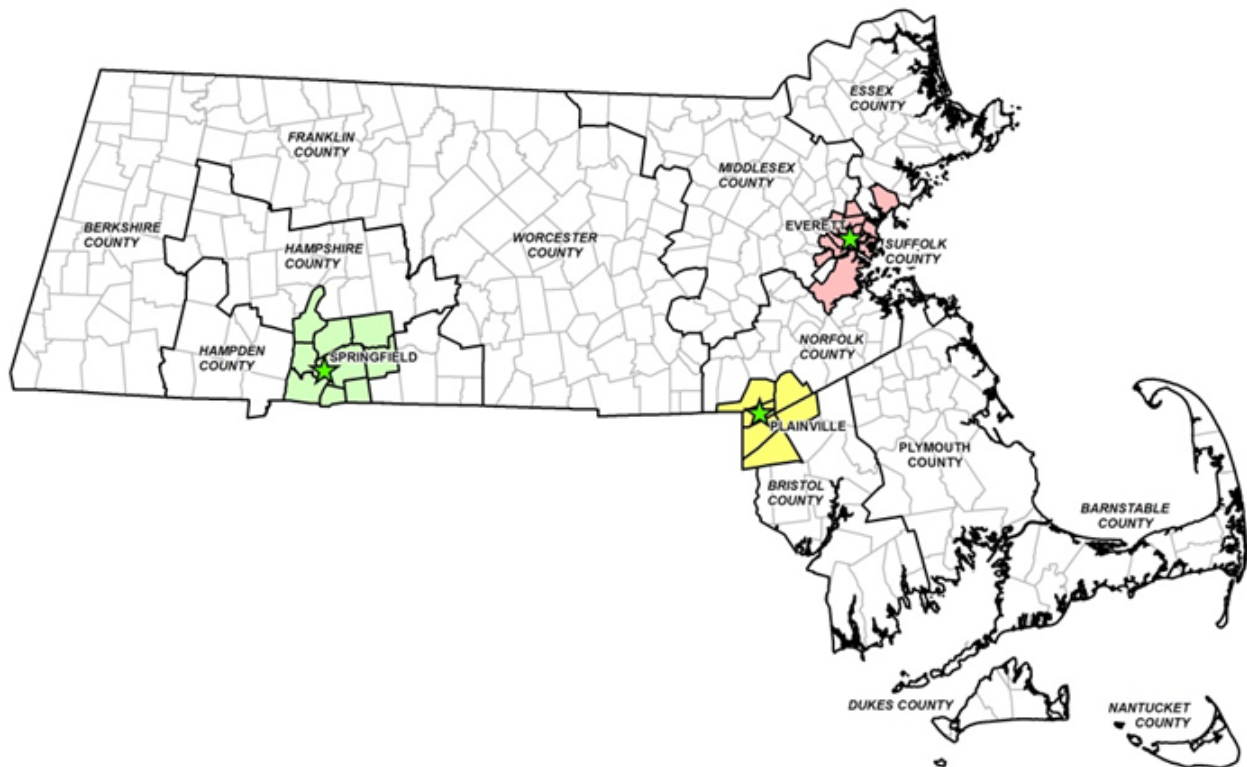
2. **To understand the stability and course of problem, at-risk, and recreational gambling.**

The second research goal of MAGIC is to better understand the natural course of gambling behavior. Periodic cross-sectional assessments of the population provide snapshots of prevalence rates but provide no information on individual trajectories or the inherent stability of the entity being assessed. A stable prevalence rate across time can either reflect continuity in the same group of individuals, the rate of new cases being equivalent to the rate of remission, or something in between. These scenarios have quite different implications for prevention and treatment, and which one is actually occurring can only be determined with a cohort study that tracks individual trajectories.

3. **To Identify predictors of problem gambling onset, continuation, remission, and relapse.**

This is also related to the question of stability and course, but the purpose here is to more comprehensively identify the specific risk factors that lead to problem gambling onset, recovery, and relapse, with a particular interest in the role of casino availability. Internationally, considerable effort has gone into the development of strategies to prevent problem gambling. Unfortunately, the majority of these initiatives appear to be fairly ineffectual (Williams, West, & Simpson, 2012). This is partly due to the fact that most of these educational and policy initiatives have been put in place because they "seemed like good ideas" and/or were being used in other jurisdictions, rather than having demonstrated scientific efficacy or being derived from a clear understanding of effective prevention practices. However, it is also due to the fact that there is no comprehensive and well-established etiological model of problem gambling to guide these efforts.

While there are many well established correlates of problem gambling (e.g., gambling fallacies, mental health problems, etc.), their association with problem gambling may occur either because they *caused* problem gambling, developed *concurrently* with problem gambling, or developed as a *consequence* of problem gambling. From a prevention standpoint, knowing how and where to effectively intervene hinges on having research that clearly identifies the variables that are etiologically involved in problem gambling, their temporal sequence, and their causal connections. Similarly, knowing the factors implicated in sustained remittance from problem gambling is very important for the purposes of treatment. Longitudinal research is the best way of disentangling these complex relationships and understanding the chronology and causal directions, potentially allowing for the creation of a detailed etiological model of how gambling and problem gambling develops, continues, and remits. Longitudinal research has been applied successfully many times in the fields of health, mental health, and addiction to elucidate these connections. To date, however, comprehensive longitudinal studies are relatively uncommon in the area of gambling and problem gambling.

4. **The fourth and final goal of MAGIC is to operationalize the above findings to optimize the preventon and treatment of problem gambling in Massachusetts.**

The ultimate purpose of all of this research is to achieve a better understanding of gambling and problem gambling so as to minimize its harm and maximize its benefits.

METHODS

Recruitment

BGPS/Wave 1

Wave 1 of MAGIC was derived from a Baseline General Population Survey (BGPS) of 9,578 Massachusetts adults (18+) that was conducted as part of the SEIGMA project (Volberg, Williams, Stanek, Houpt, Zorn & Rodriguez-Monguio, 2017). Survey administration began in September 2013 and was undertaken by NORC at the University of Chicago on behalf of the University of Massachusetts Amherst. Address-based sampling was employed followed by multi-modal recruitment. The specific steps were as follows:

1. A random sample of 33,368 residential mail delivery locations in Massachusetts were selected from the universe of 2,731,168 known residential locations as compiled by the U.S. Postal Service (with a degree of oversampling for western Massachusetts).
2. An attempt was made to match these addresses with landline telephone numbers, which was successfully achieved for 78% of addresses. (No attempt was made to create a match for cell phone numbers).
3. Regardless of whether a landline match was made, all addresses were mailed an invitation to participate in a 10-15 minute online survey of "health and recreation behavior in Massachusetts", with the website identified in the letter. [Note: a 'health and recreation' description was utilized to prevent biasing the sample toward gamblers, which tends to occur when the survey is described as a 'gambling survey' (Williams & Volberg, 2009, 2010)]. The letter also indicated the adult (18+) in the household having the next birthday should be the person completing the survey. A $1 incentive was enclosed and participants were informed they would receive a $10 Amazon gift-code if they completed the survey within 14 days.
4. Postcards reminding participants of the survey and thanking them for completion if they had already completed it were sent one and two weeks after the initial invitation letter.
5. Participants who had not completed the online survey within four weeks were mailed a package that contained a paper version of the questionnaire, a postage-paid return envelope, a $5 incentive and a letter that invited them to fill out either the online or paper versions of the questionnaire.
6. Two weeks later a reminder postcard was mailed out.
7. Two weeks later a second invitation letter was sent out along with a second paper copy of the questionnaire.
8. Addresses that did not complete either the paper or online survey and whose household had been matched to a landline were then contacted by phone and given the opportunity to complete the survey over the phone (via a computer-assisted telephone interview (CATI)) as well as reminded of the paper and online options. All three of the BGPS data collection modalities (online, paper, phone) were available in both Spanish and English, with 1.5% (n = 73) of respondents completing the survey in Spanish.
9. People who could be contacted but did not wish to participate were contacted by phone at a later date by an experienced refusal converter as long as the initial refusal was not adamant.
10. People who could not be contacted via any of the three modes were sent to NORC's Locating personnel, who checked for alternate phone numbers and additional contacts listed on the BGPS, as well as conducting Internet and reverse telephone number searches.
11. The final obtained sample was 9,578 completed surveys, with 44% of these done online, 50% on paper, and 6% by telephone interview. The first survey was completed on September 13, 2013 and the last survey on July 1, 2014, with 95% completed by April 2, 2014. Overall response rate was 36.6% (AAPOR-RR3, 2015).

Wave 2

1. To formally establish the MAGIC cohort, a subsample of 4,860 from the BGPS was identified for recruitment into 'Wave 2'. The sample size of 4,860 was chosen to ensure it resulted in an ultimate cohort size of at least 2,600 individuals. The sample composition was chosen to ensure it contained a high portion of the individuals thought to be at most risk for future problem gambling. This included a) everyone identified as a problem gambler; b) everyone identified as an at-risk gambler; c) everyone who reported spending at least $1200 on gambling in the past 12 months; d) everyone who reported gambling at least once a week or more often in the past 12 months; e) everyone who had provided military service after September 2001. A random selection of all other individuals constituted the remainder of the cohort. For further details see *Analysis of MAGIC Wave 2: Incidence and Transitions* (Volberg, Williams, Stanek, Zorn & Mazar, 2017).

2. Wave 2 began in March 2015.[2] The same multimodal recruitment procedure utilized in Wave 1 was utilized in Wave 2 with the exception being that the Spanish language option was eliminated. [Nonetheless, among the 73/4,860 individuals who completed Wave 1 in Spanish, 29 participated in Wave 2, 11 in Wave 3, 14 in Wave 4, and 14 in Wave 5]. The 4,860 selected individuals were first mailed an invitation letter explaining that the University of Massachusetts Amherst was conducting a 'longitudinal study about gambling'[3] and would like to have the individual who completed the Wave 1 questionnaire to participate in an online Wave 2 survey. The letter contained a $5 incentive, a PIN, and offered a $20 Amazon gift code if they completed the survey within 14 days. To better ensure that the individual who completed Wave 1 was also the individual who completed Wave 2, respondent demographic information (name, age, and gender) collected during Wave 1 was preloaded into the screener question[4] for the Wave 2 online questionnaire and telephone interviews.

3. In the end, of the 4,860 individuals selected for recruitment, 3,139 completed the Wave 2 questionnaire, which is a response rate of 65.1% (AAPOR-RR3, 2015). A total of 58% completed the survey online, 36% by paper, and 5% by phone. The first survey was completed on March 20, 2015 and the last on October 13, 2015, with 95% completed by June 23, 2015. [Note that Plainridge Park Casino opened on June 24, 2015]. Response rate by strata is detailed in Table 2.

Table 2. MAGIC Wave 2 Sampling Strategy and Achieved Response Rate

Strata from the BGPS	Sampling Fraction	Eligible *n*	Achieved Sample	Response Rate by Strata
Problem Gamblers	100%	133	81	61.4%
At-Risk Gamblers	100%	450	295	65.7%
Spent $1200+ on gambling in past 12 months	100%	1088	726	67.2%
Gambled weekly or more in past 12 months	100%	792	534	67.6%
Military Service (Sept 2001 or later)	100%	49	37	78.7%
All Others	33%	7066	1466	63.1%
TOTAL		9578	3139	65.1%

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[2] The start of Wave 2 was delayed until after the November 2014 election which included a ballot question regarding repeal of the Expanded Gaming Act permitting the introduction of casinos.

[3] The more explicit description of the study as a 'gambling study' was necessitated by the fact that Wave 1 participants would now have been aware that the focus of the questionnaire was on gambling, which was made even more evident by the project name "Massachusetts Gambling Impact Cohort".

[4] Online: "Please confirm that you are [NAME], the individual who completed the Massachusetts Survey of Health and Recreation in [INTERVIEW MONTH AND YEAR]". Telephone: "We would like to speak with [NAME]. In [INTERVIEW MONTH AND YEAR], (he/she) participated in a survey on health and recreation in Massachusetts. Is [NAME} available?"

Table 3 compares key demographic characteristics of the obtained Wave 2 cohort with the Massachusetts adult population in 2015 from the American Community Survey. As seen, the cohort is reasonably representative, albeit with a) proportionally fewer people <35 years old and proportionally more >55 years old; b) proportionally fewer racial/ethnic minorities; and proportionally fewer individuals with lower educational attainment and proportionally more with higher educational attainment. [Note that the low number of individuals aged 18-20 is to be expected given that Wave 2 began 16.8 months after the baseline data collection in Wave 1].

Table 3. Demographic Profile of the MAGIC Wave 2 Cohort relative to the MA Adult (18+) Population

		MAGIC Wave 2		MA 2015[1]
		n	%	%
GENDER	Male	1,458	46.5	47.9
	Female	1,678	53.5	52.1
AGE	18-20	*8*	*0.3*	5.6
	21-24	37	1.2	7.3
	25-34	260	8.5	17.4
	35-54	887	29.1	33.6
	55-64	751	24.6	16.8
	65-79	846	27.7	13.9
	80+	264	8.6	5.3
RACE/ETHNICITY	Hispanic	131	4.3	9.6
	White	2,653	87.0	75.5
	Black	84	2.8	6.4
	Asian	95	3.1	6.4
	Some other race	24	0.8	0.8
	Two or more races	61	2.0	1.3
EDUCATIONAL ATTAINMENT	Less than high school	97	3.1	9.7
	High School diploma or GED	473	15.3	25.5
	Some college below Bachelor's	911	29.4	26.2
	Bachelor's Degree	758	24.5	22.4
	Graduate or professional degree	690	22.3	13.7
	Doctoral degree	166	5.4	2.4
HOUSEHOLD INCOME	Less than $15,000	176	6.7	6.9
	$15,000-<$30,000	300	11.4	8.7
	$30,000-<$50,000	427	16.2	12.6
	$50,000-<$100,000	842	32.0	27.9
	$100,000-<$150,000	474	18.0	20.6
	$150,000 and more	409	15.6	23.2

1. U.S. Census Bureau (2015). *2015 American Community Survey 1-year Public Use Microdata Samples.*
Note: italics indicates estimates are unreliable, with relative standard error >30%.

Wave 3

1. Wave 3 recruitment began in April 2016.
2. The same multimodal recruitment procedure utilized in Wave 2 was utilized again in Wave 3 with the exceptions being that a) telephone interviewing was eliminated and was replaced by telephone prompting, that encouraged people to complete the survey either online or by paper; b) participants were offered a $50 check for completing the survey as well as an additional $20 if they completed it within 14 days; and c) there was no attempt at 'refusal conversion'. There was also a significant expansion of the questionnaire, as explained in the next section.
4. In the end, of the 3,139 eligible individuals, 2,450 completed the Wave 3 questionnaire, which is a retention rate of 78.1%. A total of 76% completed the survey online and 24% by paper. The first survey was completed on April 8, 2016 and the last on August 18, 2016, with 95% completing by July 8, 2016. For further details see the *MA Gambling Impact Cohort: Analyses Across Three Waves* (Mazar, Volberg, Williams, Stanek & Zorn, 2019).

Wave 4

1. Wave 4 was planned for April 2017 but was delayed a year due to budgetary constraints. Thus, Wave 4 recruitment began in April 2018. The same multimodal recruitment procedure utilized in Wave 3 was utilized in Wave 4.
2. In the end, of the 3,015 eligible individuals, 2,444 completed the Wave 4 questionnaire, which is a retention rate of 81.1%. A total of 84% completed the survey online and 16% by paper. The first survey was completed on April 12, 2018 and the last on November 12, 2018, with 95% completed by June 27, 2018. [Note that MGM Springfield opened on August 24, 2018]. For further details, see *MA Gambling Impact Cohort (MAGIC): Transitions Across Four Waves* (Williams, Zorn, Stanek, Evans & Volberg, 2020).

Wave 5

1. Wave 5 recruitment began in March 2019. The same multimodal recruitment procedure utilized in Wave 3 and 4 was utilized again in Wave 5.
2. In the end, of the 2,989 eligible individuals, 2,382 completed the Wave 5 questionnaire, which is a retention rate of 79.7%. A total of 88% completed the survey online and 12% by paper. The first survey was completed on March 28, 2019 and the last on September 13, 2019, with 95% completed by June 11, 2019. [Note that Encore Boston Harbor opened on June 23, 2019].

The table below provides basic details about each of the five waves of MAGIC.

Table 4. Details of the 5 Waves of MAGIC

Wave	Beginning and End Dates	95% Assessment Window	Inter-Assessment Interval	Eligible Sample	Completed Surveys	Questionnaire Length	Survey Administration Modality	Response Rate	Retention Rate
1	Sep 13, 2013 – Jul 1, 2014	6.75 months (Apr 2, 2014)	Not applicable	Not applicable	Not applicable[a]	Short	44% online, 50% paper, 6% phone	36.6%	Not applicable
2	Mar 20, 2015 – Oct 13, 2015 (95.2% prior to PPC opening)	3.0 months (Jun 23, 2015)	16.8 months	4860	3139	Short	58% online, 36% paper, 5% phone	65.1%	Not applicable
June 24, 2015					Opening of Plainridge Park Casino (PPC)				
3	Apr 8, 2016 – Aug 18, 2016	3.0 months (Jul 8, 2016)	12.0 months	3139	2450	Comprehensive	76% online, 24% paper	Not applicable	78.1%
4	*Apr 2017 – Jul 2017*			*Postponed due to budgetary constraints*					
4	Apr 12, 2018 – Nov 12, 2018 (99.7% prior to MGM opening)	2.5 months (Jun 27, 2018)	24.0 months	3015	2444	Comprehensive	84% online, 16% paper	Not applicable	81.1%
August 24, 2018					Opening of MGM Springfield				
5	Mar 28, 2019 – Sep 13, 2019 (96.3% prior to Encore opening)	2.5 months (Jun 11, 2019)	11.5 months	2989	2382	Comprehensive	88% online, 12% paper	Not applicable	79.7%
June 23, 2019					Opening of Encore Boston Harbor				

[a] Of the 3139 participants in Wave 2, 2096 could be matched to the same survey participant and his/her survey in Wave 1.

Beginning and End Dates: date of the first completed assessment to the last completed assessment

95% Assessment Window: number of months from the first completed assessment to the last completed assessment for 95% of respondents

Inter-Assessment Interval: length of time between the median completion in previous wave to the median completion in current wave

Eligible Sample: members of the designated cohort (i.e., people who completed Wave 2) minus individuals unable to participate due to death or permanent medical incapacitation

Completed Surveys: total number of surveys from the eligible sample deemed complete, defined as having completed at least 7 of the 10 primary questions on gambling participation

Questionnaire Length: refers to whether it was a relatively short survey focused on gambling or a more comprehensive survey that included potential etiological predictors of problem gambling

Survey Administration Modality: percent of surveys self-administered online; self-administered via a mailed paper survey; and administered via a telephone interview

Response Rate: completed surveys as a percentage of the sample eligible for recruitment

Retention Rate: completed surveys as a percentage of the eligible cohort membership

Questionnaire

Wave 1

The purpose of the BGPS (Wave 1) was more circumscribed than the purpose of MAGIC in that the focus of the BGPS was to establish base rates of gambling and problem gambling prior to casino introduction, whereas MAGIC intended to also broadly examine the range of potential etiological contributors to problem gambling. The BGPS survey had three main sections, Comorbidities, Gambling, and Demographics. The content of each of these sections is outlined in Table 5 below.

<div align="center">Table 5. Wave 1 Questionnaire Content</div>

COMORBIDITIES (C)	
RECREATION	Two questions on 'preferred recreational activity' and whether the person 'participated in extreme sports such as hang gliding or sky diving'. The purpose of these introductory questions was to provide legitimacy to the "health and recreation" description of the survey.
PHYSICAL HEALTH	Two questions on 'general rating of health in past 12 months' and whether the person had 'any health problem that requires special equipment', which is a question utilized in the Behavioral Risk Factor Surveillance System (BRFSS). Part of the purpose of these questions was to establish legitimacy to the health and recreation survey description and part of the purpose was to provide a broad assessment of the potential correlates of gambling and problem gambling.
STRESS	One question on 'rating of level of stress in past 12 months'.
SUBSTANCE USE & ADDICTIONS	Four questions on tobacco use and four questions on alcohol use with these questions being the same as used in the BRFSS. Additional questions about illicit drug use, problems with drugs or alcohol, help-seeking for alcohol or drug problems, and the presence of any behavioral addiction(s). All questions utilized a time frame of either past 12 months or past 30 days.
MENTAL HEALTH	One question on 'rating of happiness in past 12 months', three questions related to 'serious problems with depression, anxiety or other mental health problems', and two questions on suicidal ideation and attempts. Question wordings again aligned to those used in the BRFSS. A time frame of past 12 months and past 30 days.
LIFETIME COMORBIDITIES	A single question on rating of level of childhood happiness.
GAMBLING (G)	
GAMBLING ATTITUDES (GA)	Questions about perceived benefit versus harm of gambling, the morality of gambling, whether gambling should be legal, and their opinion about the availability of gambling opportunities in Massachusetts and in their own communities. Additional questions assessed views about the anticipated positive and negative impacts of casino introduction to Massachusetts.
PAST YEAR GAMBLING BEHAVIOR (GY)	Frequency of participation and expenditure for each of 11 types of gambling in the past 12 months, with optimal wording for obtaining this information (Wood & Williams, 2007): traditional lotteries, instant lottery tickets, daily lottery games, raffle tickets, sports betting, bingo, casino gambling, horse race betting, private wagering, high risk stocks, and online gambling.
GAMBLING MOTIVATION (GM)	Past year gamblers were asked a single question about their primary motivation for gambling.
GAMBLING RECREATION (GR)	Past year gamblers were asked about the importance of gambling as a recreational activity and whether gambling had replaced other recreational activities.
LIFETIME GAMBLING (GL)	A single question concerning whether the person had any problems with gambling in their lifetime *prior to* the past 12 months.

GAMBLING PREVENTION & AWARENESS	Questions concerning awareness of media campaigns and programs to prevent problem gambling, participation in any prevention programs, and whether media campaigns or program participation had changed their gambling behavior. Twelve-month time frame.
GAMBLING PROBLEMS – OTHERS	Questions about the portion of their friends and family who are regular gamblers, whether there is any person in their life who gambles too much, and, if so, the impact this person's gambling has had on them.
GAMBLING PROBLEMS – SELF	Questions in this section were asked of a) everyone who gambled once a month or more on some type of gambling in the past 12 months; or b) indicated that gambling was an important recreational activity; or c) indicated that gambling had replaced other recreational activities in the past five years. The primary problem gambling instrument was the 14 item *Problem and Pathological Gambling Measure* (PPGM) (Williams & Volberg, 2010, 2014). The PPGM was employed as it has superior construct validity (Christensen et al., 2019), as well as better sensitivity, positive predictive power, diagnostic efficiency, and overall classification accuracy in the *population assessment* of problem gambling compared to the Problem Gambling Severity Index (Ferris & Wynne, 2001) and the DSM criteria for pathological or disordered gambling (APA, 2013) (the two other main problem gambling assessment instruments in use worldwide). The PPGM has three classifications: Recreational Gambler, At-Risk Gambler, and Problem Gambler. Severe Problem Gamblers receive the designation of Pathological Gambler. The PPGM is also the primary problem gambling measure in SEIGMA. For comparison purposes, although not utilized in the present study, the 9 questions from the Problem Gambling Severity Index (Ferris & Wynne, 2001) were also included. Several branching questions were added to many of the problem questions if the person answered the "stem" question in the affirmative. These supplemental questions provide an important quantification of the social and economic impacts of gambling in Massachusetts by assessing the number of bankruptcies, health care visits, suicide attempts, incidents of domestic violence, divorces, cases of child welfare involvement, illegal acts, arrests, incarcerations, and lost work/school days attributable to problem gambling. These questions are utilized in SEIGMA, but not MAGIC. Other questions in this section assessed wanting and seeking help for problem gambling; the types of gambling causing the problems; the type of treatment received; and the perceived helpfulness of the treatment.
DEMOGRAPHICS (D)	
Questions about gender, age, marital status, number of children in the household, highest level of education, employment status, military service, healthcare coverage, whether they rent or own their residence, household income, household debt, immigrant status, Massachusetts residency status, and race/ethnicity.	

Wave 2

The Wave 2 survey questionnaire was the same as the Wave 1 questionnaire with the exception of a few new questions listed below. A complete copy of the paper version of the Wave 2 questionnaire is included in Appendix A.

Table 6. Changes to the Wave 2 Questionnaire

GAMBLING (G)
• Added question about whether the person had gambled at any "underground" casino or slot parlor in Massachusetts in the past 12 months (GY8g) • Added question about whether the person had gambled at the newly opened Plainridge Park Casino (GY8h); If so, how many times (GY8i)
DEMOGRAPHICS (D)
Added questions about whether person has internet connection at home or work (C2a) and how often they used the internet (C2b). These questions were moved to the Demographic section in Wave 3.

Wave 3

As mentioned, a significant expansion and reworking of the questionnaire occurred in Wave 3 for the purposes of more comprehensively assessing the etiological predictors of problem gambling. Thus, the Comorbidity Section was significantly expanded, the Gambling Section was significantly expanded, and a Social Functioning Section was added. With the expansion of the questionnaire there was also a need to remove or reduce questions that were less essential and/or pertained more to the socioeconomic impact of casinos.

The detailed changes to the Wave 3 questionnaire are reported in Table 7. A complete copy of the paper version of the Wave 3 questionnaire is included in Appendix B.

<p style="text-align:center; color:red;">Table 7. Changes to the Wave 3 Questionnaire</p>

COMORBIDITIES (C)	
RECREATION	Removed this section altogether.
PHYSICAL HEALTH	Replaced 'needing special equipment for a health problem' (C12) question with more generic question about 'presence of physical disability or chronic health problem' (C3a).
STRESS	• Added a list of 50 Significant Past Year Life Events (C4a) grouped into work/school; family and friends; property and finances; legal matters/crime; and health. A total life event score was calculated. This list is an adaptation of the *Life Events Questionnaire* (LEQ; Vuchinich, Tucker & Harllee, 1986) which has good agreement with collateral reports (Tucker et al., 1994) and excellent 2-week retest reliability (Vuchinich et al., 1986). • Added DSM-5 criteria for Post-Traumatic Stress Disorder (APA, 2013) (C4b)
SUBSTANCE USE & ADDICTIONS	• Combined the 3 separate tobacco questions into a single generic question about any tobacco or e-cigarettes use in past 12 months (C6a) with follow-up questions asking about type of tobacco product (C6b) and use in the past 30 days (C6c) • Replaced the 4 questions about alcohol use with a single question about frequency of alcohol use in past 12 months (C7) • Changed question about 'illicit drug use in past 12 months (Y/N)' (C8) to *frequency* of illicit drug use in past 12 months' (C8) • Changed question about 'problems with drugs or alcohol' (C9a) to DSM-5 criteria for Substance Use Disorder (C9a)
MENTAL HEALTH	• Replaced 3 questions asking about 'serious problems with depression, anxiety or other mental health problems' (C11a,b,c) with DSM-5 criteria for Major Depression (C11a,b), Generalized Anxiety (C12a,b,c), Panic Attacks (C13a,b), and question about 'any other significant mental health problem that has not been mentioned (e.g., bipolar, schizophrenia, bulimia, obsessive-compulsive, etc.) (C14) • Removed questions about suicidal Ideation and behavior (C11d, C11e)
LIFETIME COMORBIDITIES	• Replaced question about rating of childhood happiness (C13) with question about history of child abuse (C17) • Added question about 'significant problems with overuse of drugs or alcohol *prior to* past 12 months' (C9c) • Added question about 'significant problems with behavioral addictions *prior to* past 12 months' (C10c) • Added question about 'significant history of mental health problems *prior to* the past 12 months' (C15) • Added question about 'significant family history of drug or alcohol addiction, behavioral addiction, or mental health problems' (C16)
GAMBLING (G)	
GAMBLING ATTITUDES (GA)	Removed questions about identifying which types of gambling should be illegal (GA3b), perceived beneficial/harmful impact of new casinos (GA5), specifying most positive and negative impact of new casinos (GA6a,a1,b,c), and perceived impact of casino on own community (GA7)
PAST YEAR GAMBLING BEHAVIOR (PY)	• Changed lottery question (GY1a) to also specify that this excludes daily lottery games such as Mass Cash, Numbers Game, Keno, and Jackpot Poker; changed daily lottery question (GY3a) to provide more comprehensive list of games (added Mass Cash and Numbers Game); changed sports betting question (GY4a) to indicate it also included fantasy sports betting and online betting; changed bingo question (GY5a) to indicate it included online bingo; expanded horse race betting question (GY9a) to include dog race betting and online betting; expanded the options for the horse race betting location(s) (GY9c). • Added question about subtype of sports betting (GY4c). If person participated in 'online fantasy sports' they were asked whether this was traditional or daily fantasy sports (DFS) betting (GY4d). If daily, asked about which DFS site they used (GY4e); hours playing (GY4f); account balance (GY4g); deposits (GY4h); cash out (GY4i); and DFS as a % of all gambling time (GY4j).

	• Added question about how (in person or online) and where (MA or non-MA) person plays bingo (GY5c) • Added questions about frequency and spending on Electronic Gambling Machines (GY8a, GY8b); where played (including underground casinos and the new Plainridge Park Casino) (GY8e); and % of spending at each location (GY8f). • Added questions about frequency and spending on casino table games (GY8c, GY8d); where played (including underground casinos and the new Plainridge Park Casino) (GY8e); % of spending at each location (GY8f). • Added questions about having a player rewards card (GY8k); having reward card for MA casino (GY8l); whether they used the PlayMyWay pre-commitment system on the card (GY8m); and whether PlayMyWay was useful in managing their gambling (GY8n). • Changed 'horse race betting' to 'horse or dog race betting' for G9a, G9b, G9c. • Changed 'social gambling against other people' question (GY10a, GY10b) to a more generic question about 'other types of gambling' (GY10a, GY10b). Added questions about what the other types were (GY10b), and whether engaged in person or online (GY10c). • Changed high risk stock question (GY11a) into question about whether person manages most of their own stock market investments (GY11a), and if so, which particular things they engaged in (including penny stocks, options, future, derivatives, day trading) (GY11b) • Removed the single question about gambling online (GY12a), as online engagement is now asked about for most of the format-specific questions. • Added question about 'frequency of ATM use in gambling venues' (GY12) • Added questions about 'biggest win & biggest loss in single day in past year' (GY13a, GY13b)
GAMBLING MOTIVATION (GM)	Added question about whether person agreed with the statement that 'wealth is a good measure of success in life' (GM0)
GAMBLING RECREATION (GR)	No changes.
GAMBLING CONTEXT & AVAILABILITY (GC)	New Section • Added question concerning whether the person typically gambles alone or with friends (GC1) • Added question on the availability of opportunities to gamble at the person's workplace or school (GC2) • Added question on self-reported driving distance to nearest casino (GC3)
LIFETIME GAMBLING (GL)	• Removed question about whether person had any problem with gambling in lifetime (GP24) (as this only needs to be asked once) • Added question about the age the person remembers first gambling for money (GL1) • Added question about whether any family members were regular gamblers when growing up (GL2a); and, if so, whether any of them were problem gamblers (GL2b)
GAMBLING FALLACIES (GF)	New Section. Added 10 item *Gambling Fallacies Measure* (Leonard, Williams & Vokey, 2015; Leonard & Williams, 2016). GFM comprehensively assesses all of the identified gambling fallacies. Consists of two factors: failure to understand random and uncontrollable nature of most gambling and a failure to take statistical probabilities into account. Hierarchical coefficient omega shows adequate (.61) internal consistency. Overall one-month test-retest reliability is good (.70). GFM successfully employed in multiple samples comprising over 17,000 people, with these samples spanning ages 13 - 89, dozens of different countries, and including over 1,000 problem gamblers. Depending on the dataset, GFM scores have been found to be consistently and significantly associated with intelligence, educational attainment, paranormal beliefs, and gambling 'to win money' as a primary motivation. The GFM has also usually (but not always) been significantly associated with problem gambling and various measures of gambling involvement.
GAMBLING PREVENTION AWARENESS (GPA)	No changes.

GAMBLING PROBLEMS – OTHERS (GPO)	Removed questions about how someone else's excessive gambling has impacted you (GPO4); and rating on scale from 1-10 (GPO5).
GAMBLING PROBLEMS – SELF (GP)	• Removed follow-up questions about discrete socioeconomic impacts of excessive gambling (e.g., bankruptcy, divorce, etc.) to reduce questionnaire length and because this issue is more the purview of SEIGMA (GP5b,6b,7b,10b,10c,11b,11c,12b,13b,13c,13d,13e,14b, 14c,14d,14e,14g,14h) • Added open-ended question about perceived causes of gambling problems (GP24) • Added question about recovery from problem gambling (when PGSI was 5+ in previous assessment and below this in current assessment) (GP25a); and supplemental open-ended question about how they recovered (GP25b)
SOCIAL FUNCTIONING (SF)	
SOCIAL FUNCTIONING	New Section • Added question on rating of family relationships (SF1) • Added question on rating of marital relationship (SF2) • Added question on current level of social support (SF3) • Added question on importance of religion (SF4)
ANTISOCIALITY	New Section • Added question on past year engagement in illegal activities (SF5) • Added question on having a criminal record (SF6) • Added *Levenson's Primary Psychopathy Scale* (SF6-SF22) (Levenson, Kiehl, & Fitzpatrick, 1995; Miller, Gaughan & Pryor, 2008; Sellbom, 2011). This scale was developed to measure primary psychopathy (selfish, uncaring, manipulative posture towards others) and secondary psychopathy (Impulsivity and a self-defeating lifestyle) in the general population.
DEMOGRAPHICS (D)	
DEMOGRAPHICS	Removed question about period served in the military (D7c) and nature of health care coverage (D8)

Wave 4

The Wave 4 questionnaire was the same as the Wave 3 questionnaire, with the exception of the following changes detailed in Table 8 (a copy of the online version of the Wave 4 Questionnaire is contained in Appendix C).

Table 8. Changes to the Wave 4 Questionnaire

COMORBIDITIES (C)
• Added amphetamines and fentanyl as additional examples of nonmedical use of drugs (C8). Also added a follow-up question (C8a) asking to specify which specific drug(s) the person has used in past 12 months. • Removed questions about lifetime history of mental health problems (C15); family history of mental health problems, drug or alcohol problems, and/or behavioral addictions (C16); and history of child abuse (C17)

GAMBLING (G)
• Added new Section on Associations (A). The person was asked to write down the first word or phrase that comes to mind for a list of words (streak, ticket, win, game, money, loss) and the first behavior that comes to mind for certain phrases (feeling bored, have fun, feeling lonely, pass the time, do something thrilling, make money) (A1a to A12b). The purpose of these questions is to establish whether people who report gambling-related associations have greater concurrent and future involvement in gambling and/or problem gambling. • Added question about online purchase of lottery tickets (GY1c) • Added question about online purchase of instant tickets (GY2bb) • Added 'All or Nothing' as another example of a daily lottery (GY3a); added esports as an additional subtype of sports betting (GY4a,b,c); added Rivers Casino & Resort and Tiverton Casino as additional venue options (GY8j)

PERSONALITY
Added the *NEO Personality Inventory Short Form* (NEO-FFI) for assessing the major personality domains of Neuroticism-Emotional Stability, Agreeableness-Disagreeableness, and Conscientiousness-Nonconscientiousness and the *NEO-Personality Inventory - Revised* (NEO PI-R) for assessing the subdomains of vulnerability to stress, impulsivity, and excitement-seeking. The NEO-FFI is a 60-question short form of the 240 question NEO PI-R (Costa & McCrae, 1992). The NEO is currently the dominant instrument in the assessment of personality. Internal reliability of the NEO-PI-R domain scores are high, ranging from .86 to .92, and the internal reliabilities of the subdomains range from .58 to .82 (Costa & McCrae, 1992). The concurrent and discriminant validity of the NEO has been well established in both normal and clinical populations (Costa & McCrae, 1992).

SOCIAL FUNCTIONING (SF)
Removed the *Levenson's Primary Psychopathy Scale*, as this is thought to be a stable trait.

Wave 5

The Wave 5 questionnaire was the same as the Wave 4 questionnaire, with the exception of the following changes detailed in Table 9:

Table 9. Changes to the Wave 5 Questionnaire

COMORBIDITIES (C)
• Added question on past 12 month cannabis use (C7a); purpose of use (C7b); and where they obtained it (C7c). • Removed marijuana as an example of an illicit drug from the question asking about the frequency of illicit or nonmedical use of drugs (C8).

GAMBLING (G)
• Added MGM Springfield Casino as a venue option for where person played EGMs (GY8e) or table games (GY8d) • Added Resorts World Catskills as an additional venue option for out-of-state casinos (GY8j) • Removed questions about lifetime gambling: age first recall gambling for money (GL1); family members ever being regular gamblers (GL2a); family members ever being problem gamblers (GL2b). However, added question about whether person's parents responsibly modeled or provided information about gambling (GL2c).

PERSONALITY
Removed the NEO Personality Inventory as personality is thought to be fairly stable over time.

Table 10 identifies the specific questions in each of the five waves of the study. Arrows between Wave 2 and 3 indicate that the variable continued to be assessed, but with the new question wording utilized in Waves 3+.

Table 10. Questionnaire Content in Each Wave

		W1	W2	W3	W4	W5
COMORBIDITIES (C) "Health Section" in Questionnaire						
RECREATION	Preferred recreational activity (C1); Specify (C1a)	▓	▓			
	Participate in extreme sports such as hang gliding or sky diving (C2)	▓	▓			
PHYSICAL HEALTH	Rating of general health in the past 12 months (C3)	▓	▓	▓	▓	▓
	Have any health problem that requires special equipment such as cane, wheelchair, etc. (C12)	▓	▓↘			
	Have any physical disability or chronic health problem (C3a)			↖▓	▓	▓
STRESS	Rating of overall level of stress in past 12 months (C4)	▓	▓	▓	▓	▓
	Number of significant life events in past 12 months (C4a)	▓	▓	▓	▓	▓
	Post-Traumatic Stress Disorder (DSM-5; past 12 months; C4b)			▓	▓	▓
SUBSTANCE USE & ADDICTIONS	100 cigarettes in life (C6a) →Current frequency of cigarette use (C6b)	▓	▓↘			
	Currently use of other forms of tobacco (C6c)	▓	▓↘			
	Number of days using any form of tobacco in last 30 (C6d)	▓	▓↘			
	Use of tobacco or e-cigarettes past 12 months (C6a) →Which specific products (C6b) →use past 30 days (C6c)			↖▓	▓	▓
	Alcohol use past 12 months (C7a) →#days using alcohol in past 30 (C7b) →#drinks per occasion past 30 (C7c) →#times consume 5 (males) or 4 (females) drinks per occasion in past 30 days	▓	▓↘			
	Frequency of past 12-month alcohol use (C7)			↖▓	▓	▓
	Use of marijuana, hallucinogens, cocaine, heroin or opium or other drugs not intended for medical use in past 12 months (C8)	▓	▓↘			
	Frequency of marijuana, hallucinogens, cocaine, heroin or opium, etc. in past 12 months (C8) →Which ones (C8a) (Wave 4 & 5); marijuana eliminated from list in Wave 5 and asked as separate question			↖▓	▓	▓
	Frequency of cannabis use past 12 months (C7a) →for what purpose (C7b) →where obtain from (C7c)					▓
	Problems with drugs or alcohol past 12 months (C9a)	▓	▓↘			
	Substance Use Disorder (DSM-5; past 12 months; C9a)			↖▓	▓	▓
	Sought help for use of alcohol or drugs past 12 months (C9b)	▓	▓	▓	▓	▓
	Problems controlling other behavior past 12 months (overeating, sex or pornography, shopping, exercise, Internet chat line, other) (C10a) →Which specific activities (C10b) 'Behavioral Addictions'	▓	▓	▓	▓	▓
MENTAL HEALTH	General rating of happiness (past 12 months; C5)	▓	▓	▓	▓	▓
	Serious problems with depression, anxiety or other mental health problem past 30 days (C11a)	▓	▓			
	Serious problems with depression, anxiety or other mental health problem past 12 months (C11b) →Which problem (C11c)	▓	▓			
	Seriously consider attempting suicide past 12 months (C11d) →Attempted suicide past 12 months (C11e)	▓	▓			
	Major Depression (DSM-5; past 12 months; C11a, C11b)			▓	▓	▓
	Generalized Anxiety (DSM-5; past 12 months; C12a, C12b, C12c)			▓	▓	▓
	Panic Attacks (DSM-5; past 12 months; C13a, C13b)			▓	▓	▓
	Any other mental health problem (bipolar, schizophrenia, bulimia, obsessive compulsive, agoraphobia) (past 12 months; C14)			▓	▓	▓

		W1	W2	W3	W4	W5
LIFETIME COMORBIDITIES	Childhood happiness rating (C13)					
	Physical, sexual or emotional abuse as child (C17)					
	Significant problems with overuse of drugs or alcohol *prior to* past 12 months (C9c)					
	Significant problems with excessive involvement in overeating, sex or pornography, shopping, exercise, Internet chat lines, or other things *prior to* past 12 months (C10c)					
	Significant history of mental health problems *prior to* past 12 months (C15)					
	Significant family history of drug or alcohol addiction, behavioral addiction, or mental health problems (C16)					
GAMBLING (G)						
GAMBLING ATTITUDES (GA)	Perceived benefit or harm of gambling (GA1)					
	Is gambling morally wrong (GA2)					
	Opinion about legalized gambling (GA3a) →Which type should be illegal (GA3b, removed after Wave 2)					
	Perceived availability of gambling opportunities in Massachusetts (GA4)					
	Perceived beneficial/harmful Impact of 3 new casinos and slot parlor for MA (GA5)					
	Most positive impact of the new casinos/slot parlor for MA (GA6a)					
	Most negative impact of the new casinos/slot parlor for MA (GA6b)					
	Overall impact a new casino or slot parlor would have for your own community (GA7)					
GAMBLING BEHAVIOR (GY)	Lottery ticket frequency (past 12 months; GY1a) →Typical month spending (past 12 months; GY1b)					
	→In person or online (GY1c)					
	Instant tickets or pull-tab frequency (past 12 months; GY2a) →Typical month spending (past 12 mo; GY2b)					
	→In person or online (GY2bb)					
	Raffle ticket frequency (past 12 months; GY2c) →Typical month spending (past 12 months; GY2d)					
	Daily lottery frequency (past 12 months; GY3a) →Typical month spending (past 12 months; GY3b)					
	Sports betting frequency (past 12 months; GY4a) →Typical month spending (past 12 months; GY4b)					
	→Type of sports betting (GY4c) →Type of fantasy sports betting (GY4d) →which daily fantasy sports (DFS) site (GY4e) →DFS hours playing (past 30 days; GY4f) →DFS account balance (past 30 days; GY4g) →DFS deposits (past 30 days; GY4h) →DFS cash out (past 30 days; GY4i) →DFS as % of all gambling time (GY4j)					
	Bingo frequency (past 12 months; GY5a) →Typical month spending (past 12 months; GY5b)					
	→How (in person or online) and where (MA or non-MA) play bingo (GY5c)					
	Out-of-state casino, racino or slot parlor frequency (past 12 months; GY8a) →Average gambling spend per visit (GY8b) →Average non-gambling spend per visit (GY8c) →State most often go to (GY8d) →Which specific venue most often go to (GY8e; coding changed to GY8j in Wave 3)					
	Gambled at underground casino or slots parlor in MA (past 12 months; GY8g) (beginning Wave 3 included as option in EGM and casino table game location question)		↘			
	Gambled at newly opened Plainridge Park Casino (GY8h) →How many times (GY8i) (beginning Wave 3 included as option in EGM and casino table game location question)		↘			
	Electronic gambling machine frequency (past 12 months; GY8a) →typical month spending (past 12 months; GY8b) →where played (GY8e)			↖		

		W1	W2	W3	W4	W5
	→Have a casino player rewards card (GY8k) →For a MA casino (GY8l) →Used PlayMyWay (GY8m) →Useful in managing your gambling (GY8n)			■	■	■
	Casino table game frequency (past 12 months; GY8c) →typical month spending (past 12 months; GY8d) →where played (GY8d)			↖	■	■
	→Have a casino player rewards card (GY8k) →For a MA casino (GY8l) →Used PlayMyWay (GY8m) →Useful in managing your gambling (GY8n)			■	■	■
	Horse race betting frequency (past 12 months; GY9a) →Typical month spending (past 12 months; GY9b) →Where most often go to bet on horse racing (GY9c) [Note: horse *or dog race* betting was added in Wave 3+]	■		■	■	■
	Social gambling against other people frequency (past 12 months; GY10a) →Typical month spending (GY10b)	■		■	■	■
	Other types of gambling frequency (past 12 months; GY10a) →Typical month spending (GY10b). →What are these types (GY10b) →In person or online (GY10c)	■		■	■	■
	High risk, stocks, options, future or day trade frequency (past 12 months; GY11a) →Net loss or gain in typical month (GY11b); reworded in Wave 3 to better define its meaning: person manage most of their own stock market investments (GY11a) →Which financial products engaged in (GY11b)	■		■	■	■
	Gambled online past 12 mo (GY12a) →Typical month spending (GY12b) →Main type online gambling (GY12c)	■		■	■	■
	ATM frequency in Bingo Halls, Casinos, or Racetracks (GY12)	■		■	■	■
	Biggest win in a single day in past 12 months (GY13a)	■		■	■	■
	Biggest loss in a single day in past 12 months (GY13b)	■		■	■	■
GAMBLING MOTIVATION (GM)	Main reason for gambling (GM1)	■		■	■	■
	Wealth a good measure of success in life (GM0)			■	■	■
GAMBLING RECREATION (GR)	Importance of gambling as recreational activity (GR1)	■		■	■	■
	Has gambling replaced other recreational activities (past year; GR2a) →Which ones (GR2b)	■		■	■	■
GAMBLING CONTEXT & AVAILABILITY (GC)	Typically gamble alone or with friends (GC1)	■		■	■	■
	Availability of opportunities to gamble at workplace or school (GC2)	■		■	■	■
	Perceived driving distance to nearest casino from home/work/school (GC3)	■		■	■	■
	Actual driving distance to nearest casino (independently assessed from person's residential zip code)	■		■	■	■
LIFETIME GAMBLING (GL)	Any problem with gambling in lifetime prior to past 12 months? (GP24)	■		■	■	■
	Age recall gambling for money first time (GL1)	■		■	■	■
	Any family members ever been regular gamblers (GL2a) →Any ever been problem gamblers (GL2b)	■		■	■	■
	Parents responsibly model gambling when growing up (GL2C)			■	■	■
GAMBLING FALLACIES (GF)	*Gambling Fallacies Measure* (GF1 – GF10)	■		■	■	■
GAMBLING ASSOCIATIONS (A)	First word or phrase that comes to mind (A1a-A12a)			■	■	■
	First behavior that comes to mind (A1b-A12b)			■	■	■
	Heard media campaigns to prevent problem gambling (past 12 months; GPA1)	■		■	■	■
	Awareness of programs to prevent problem gambling at school, work, community (past 12 months; GPA2a) →Participate in any problem gambling prevention programs (past 12 months; GPA2b)	■		■	■	■

		W1	W2	W3	W4	W5
GAMBLING PREVENTION AWARENESS (GPA)	Any media campaigns or programs cause alteration of gambling behavior (GPA3)					
GAMBLING PROBLEMS – OTHERS (GPO)	Portion of friends/family regular gamblers (GPO1)					
	Any person in life gambles too much (past 12 months; GPO2) →Relationship to you (GPO3)					
	→How has this person's gambling affected you in past 12 months (GPO4) →On scale from 1-10 have much negative impact on you in past 12 months (GPO5)					
GAMBLING PROBLEMS – SELF (GP)	*Problem Gambling Severity Index* (PGSI) (past 12 months; GP1-GP9)					
	Problem & Pathological Gambling Measure (PPGM) (past 12 months; GP1-GP20)					
	→Discrete impacts of excessive gambling in past 12 months: amount of money borrowed (GP5b); bankruptcy (GP6b); seek medical or psychological help (GP7b); suicidal ideation (GP10b); attempted suicide (GP10c); domestic violence (GP11b); separation or divorce (GP11c); repeated neglect of children or family (GP12a); child welfare involvement (GP12b); # work or school days lost (GP13b); Lost job or quit school (GP13c); received public assistance $ (GP13d); How much public $ received (GP13e); How much $ illegally obtained (GP14b); commit a crime where arrested (GP14c); convicted of crime (GP14d); nature of offense (GP14d); incarcerated (GP14g); # days incarcerated (GP14h)					
	→Certain types of gambling contributing to problems more than others (GP21) →Which ones (GP22)					
	→Wanted help for gambling problems (past 12 months; GP23a); Sought help for gambling problems (past 12 months; GP23b); Where from (GP23c); How helpful (GP23d)					
	→Entered into casino self-exclusion agreement (past 12 months; GP23e); Which states (GP23f)					
	→Main cause of gambling problems (GP24)					
	→Having fewer gambling problems than last year (GP25a); Why (GP25b)					
PERSONALITY						
TRAITS	Neuroticism-Emotional Stability (N) domain from NEO-Short Form					
	Agreeableness-Disagreeableness (A) domain from NEO-Short Form					
	Conscientiousness-Nonconscientiousness (C) domain from NEO-Short Form					
	Vulnerability (N-V), subdomain of Neuroticism-Emotional Stability from NEO-PI-R (full form)					
	Impulsivity (N-I), subdomain of Neuroticism-Emotional Stability from NEO-PI-R (full form)					
	Excitement-seeking (E-ES) subdomain of Extraversion-Introversion domain from NEO-PI-R (full form)					
SOCIAL FUNCTIONING (SF)						
SOCIAL SUPPORT	Rating of current family relationships (SF1)					
	Rating of current marital relationship (SF2)					
	Rating of current level of social support (SF3)					
	Importance of religion (SF4)					
ANTISOCIALITY	Committed any illegal activities (past year; SF5)					
	Have criminal record (SF6)					
	Levenson's Primary Psychopathy Scale (SF7-SF22)					

DEMOGRAPHICS (D)						
DEMOGRAPHICS	Gender (D2)					
	Year of birth (D3)					
	Marital status (D4)					
	# children under 18 in household (D5)					
	Highest level of educational attainment (D6)					
	Employment status (D7a)					
	Every served in military (D7b); When (D7c)					
	What type of healthcare coverage do you have? (D8)					
	Rent or own residence (D9)					
	Annual household income (D10)					
	Current debt (D11)					
	Born in U.S. (D12)					
	Live in Massachusetts for 6 or more months out of the year (D12a)					
	Hispanic or Latino (D13)					
	Race/Ethnicity (D14)					
	Internet connection at home or work (C2a) →How often use Internet (C2b)					

Retention

MAGIC achieved fairly high retention, with 79.7% of eligible participants completing Wave 5 (75.9% of the original 3139 Wave 2 respondents), 66.5% completing all five waves, and 77.8% completing four or more waves. Table 11 shows the completion patterns as a function of number of assessments completed. Table 4 reports the response rate for Waves 1 and 2 and the retention rates for Waves 3, 4, and 5.

Table 11. MAGIC Completion Patterns among Eligible Participants

	n/Wave 5 eligible sample	%
Completed 5/5 Waves	2087/3139	66.5
Completed 4/5 Waves	354/3139	11.3
Completed 3/5 Waves	280/3139	8.9
Completed 2/5 Waves	302/3139	12.8
Completed 1/5 Waves[a]	16/3139	0.01

a = everyone who completed Wave 2 should have also completed Wave 1, however there were 16 people who could not be matched to Wave 1 (and potentially may have been a different household member in Wave 1).

Poor retention has the potential of compromising the validity of a longitudinal study, as attrition is not usually random. Rather, males, young people, ethnic minorities, substance users, and individuals with mental health problems are known to have higher attrition (Claus, Kindelberger & Dugan, 2002; de Graaf et al., 2000; Eaton et al., 1992). However:

- Attrition is more of a concern when employing older statistical techniques such as repeated measures ANOVA where the entire case is dropped when there are any missing waves. Modern techniques, such as Generalized Estimating Equations, use the 'all available pairs' method, in which all non-missing pairs of data are used in estimating the correlation parameters and no cases are dropped because of missing waves.

- Because the analyses are looking at the strength of the associations between the independent variables (IVs) and the dependent variable (DV), what is important is that the *distribution and range* of scores on these variables remains similar, not the sample size at each level of the DV or IVs. The high retention rate in the present study gives us confidence that the variable distributions have not been altered to any significant degree.

Validity of Self-Report

The data collected in MAGIC consists primarily of retrospective self-report of behavior. Thus, the utility of this information hinges on the validity of this self-report. Valid self-report requires that a) the information be attended to in the first place; b) it is accurately recalled, and c) the person is not deliberately distorting or selectively reporting the information. Many factors are known to compromise memory storage (Baddeley, 2013; Cahill & McGaugh, 1996; Kensinger, 2004; Paller & Wagner, 2002); accurate recall (Baddeley, 2013; Del Boca & Darkes, 2003; Eisenhower et al., 1991; Gorin & Stone, 2001; Greene, 2014; Parkin, 2013; Stone, Turkkan, Bachrach et al., 2000); and honest self-disclosure (Del Boca & Darkes, 2003; Nederhof, 1985; Tourangeau & Yan, 2007).

As reviewed by Williams, Volberg, Stevens et al. (2017, p.29-35), research studies have shown that, in general, self-report of alcohol, tobacco, and illicit drug use tends to be reasonably accurate.[5] The limited empirical evidence on gambling has found similar results (Williams et al., 2017).

That said, there are some basic principles that enhance the validity of self-report of sensitive behavior such as gambling. One of these is providing confidentiality, something that is repeatedly emphasized in the MAGIC questionnaires. Another is structuring the questions to avoid conceptual overlap, to use optimal reporting time frames, and to use appropriate wording (e.g., 'spend' rather than 'net win or loss') (see Williams et al., 2017 for a review of these issues). All of these considerations have been incorporated into the MAGIC questionnaire.

A final consideration is to employ self-administered surveys, which produce significantly more accurate self-report compared to interviews because of the greater perception of anonymity as well as being able to proceed at one's own pace (Dawson, 2003; Langenbucher & Merrill, 2001; Tourangeau & Smith, 1996; Tourangeau & Yan, 2007; van der Heijden et al., 2000; Williams & Volberg, 2009; Williams et al., 2017). In this regard, it is important to recognize that 94% of surveys were self-administered in Wave 1 of MAGIC, 95% in Wave 2, and 100% in Wave 3, 4, and 5. It is worth noting that the *type* of self-administration did change significantly over time, with 44% of the cohort taking the survey *online* in Wave 1, increasing to 88% in Wave 5. However, research has found no evidence of differential responding between online and paper survey administration when people are randomly assigned to one or the other (Dodou & de Winter, 2014). However, when people have the choice of online or paper administration (as in MAGIC), there are consistent response profile differences between the administration modes, which in turn, are due to differences in the demographic makeup of the people who choose online over paper administration. As an illustration of this, in MAGIC there were 956 people who always took the surveys online and 385 people who always did them on paper. Consistent with prior research, Table 12 shows there to be large and significant differences in age, employment and educational attainment between the groups, with the paper survey group being much older, more likely to be retired, and with lower educational attainment.

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[5] That said, there is also considerable variability in validity depending on the particular assessment/reporting conditions. For example, in Massachusetts, data recorded in administrative records such as medical claims, autopsy reports, jails, prisons, and records from homeless shelters shows that the prevalence of opioid use disorder is at least 4-5 times higher than what self-reported data suggests (Barocas et al., 2018).

Table 12. Demographic Profile of Participants who Completed Online or on Paper for all Surveys

		Online Surveys Only			Paper Surveys Only			
		n	%	95% CI	*n*	%	95% CI	*p*-value
GENDER	Male	473	49.5	(47.4, 51.5)	176	45.8	(42.6, 49.1)	0.2269
	Female	483	50.5	(48.5, 52.6)	208	54.2	(50.9, 57.4)	
RACE/ETHNICITY	Hispanic/Black/Asian	106	11.1	(9.9, 12.5)	56	14.6	(12.4, 17.0)	0.0951
	White/Other	847	88.9	(87.5, 90.1)	328	85.4	(83.0, 87.6)	
AGE	18-24	21	2.2	(1.7, 2.9)	0	0	0	<0.0001
	25-34	121	12.8	(11.4, 14.2)	13	3.4	(2.4, 4.8)	
	35-54	368	38.9	(36.8, 40.9)	44	11.5	(9.6, 13.8)	
	55+	437	46.1	(44.1, 48.2)	324	85.0	(82.5, 87.2)	
EMPLOYMENT	Employed	672	71.0	(69.1, 72.9)	115	30.4	(27.5, 33.5)	<0.0001
	Unemployed	16	1.7	(1.2, 2.3)	*n* < 6			
	Retired	192	20.3	(18.7, 22.0)	233	61.6	(58.4, 64.8)	
	Student/homemaker/disabled	66	7.0	(6.0, 8.1)	26	6.9	(5.4, 8.7)	
EDUCATIONAL ATTAINMENT	High School or Less	77	8.1	(7.0, 9.3)	169	44.0	(40.8, 47.3)	<0.0001
	Some College to Bachelor's Degree	544	56.9	(54.8, 58.9)	166	43.2	(40.0, 46.5)	
	Graduate or Professional Degree	335	35.0	(33.1, 37.0)	49	12.8	(10.7, 15.1)	

Data Cleaning

Throughout data collection, SAS programs were run by NORC to identify any errors that occurred in the online or computerized assisted telephone interview systems. This allowed inconsistencies to be reconciled and system or questionnaire errors to be fixed as they occurred. Once data collection was complete, NORC reviewed verbatim responses for several questions that offered an "Other" response category. The verbatim responses were back-coded into existing response categories where appropriate. After the dataset was received by the University of Massachusetts Amherst, skip patterns and outliers were reviewed and a cleaned dataset was created. Using the cleaned data, several additional composite variables were created and added to the final dataset.

There were discrepancies in gender and/or year of birth for a small number of respondents from Wave 1 to Wave 2 (*n*=87, 3.0%), from Wave 2 to Wave 3 (*n*=16, 0.6 %), from Wave 2 to Wave 4 (*n*=31, 1.3%) and from Wave 2 to Wave 5 (*n*=19, 0.8%). Upon further investigation, 51% of the Wave 2 discrepancies were deemed to be the same individual who completed the Wave 1 questionnaire, 69% of Wave 3 discrepancies were deemed to be the same Wave 2 respondent, 65% of Wave 4 discrepancies were deemed to be the same Wave 2 respondent and 68% of Wave 5 discrepancies were deemed to be the same Wave 2 respondent. The 43 respondents whose gender and/or year of birth could not be matched to Wave 1 data are included in the cohort beginning in Wave 2 but are deemed to have missing data for Wave 1 (as the survey was likely done by another individual). For similar reasons there were five surveys excluded from Wave 3, 11 surveys excluded in Wave 4, and six surveys excluded in Wave 5.

Data Imputation

The vast majority of survey questions had response rates over 95% across the five waves, despite respondents being allowed to refuse to answer any question or to provide a 'don't know' response. However, there were 15 variables missing 10% or more of their data. Most of these variables were invariant measures collected in only one wave with the answers then copied to the other waves. Greater than 10% missingness across waves in the following variables occurred in most cases because the person did not complete the wave in which the invariant measure was collected:

- 3 lifetime measures (abuse as a child, history of mental illness, history of addiction)
- 3 lifetime gambling measures (age first gambled (mean, change), parents responsibly modeled gambling when growing up)
- 6 personality measures (neuroticism-emotional stability, agreeableness-disagreeableness, conscientiousness –non conscientiousness, vulnerability, impulsivity, excitement-seeking)
- 1 antisociality measure (Levenson's primary psychopathology scale)
- 1 gambling recreation measure (Importance of gambling as recreational activity)
- 1 gambling context and availability measure (gamble alone or with friends)

Imputation occurred for all missing responses within an otherwise complete survey so as to facilitate the multivariate analyses in the Prediction of Concurrent and Future Problem Gambling section (imputation was not performed when the entire survey was missing). The 'multiple imputation' technique (Rubin, 2004) was employed to replace missing values with a best estimate of what this missing value would likely be. For variables missing less than 10% of their data a Markov chain Monte Carlo (MCMC) approach was utilized whereby the missing data was imputed from the distribution of non-missing data for this variable.[6] Twenty imputations were run with the results being pooled. A Fully Conditional Specification Method (Liu & De, 2015) was utilized for imputation of the 15 variables missing more than 10% of their data. This involved first examining the bivariate statistical associations between each of these variables with 81 other variables in the dataset. All variables with a significant association at the $p < .0001$ level with that specific variable were then employed in a multivariate analysis to predict the missing values for that variable (discriminant function analysis for categorical missing data and multiple regression for continuous missing data). Twenty imputations were run and results pooled. Relative efficiency was close to 1.0 for all 15 variables, indicating that the 20 imputations were sufficient.

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[6]MCMC is probably the most common parametric approach for multiple imputation. The specific algorithm used is the data augmentation (DA) algorithm, which belongs to the family of MCMC procedures. The algorithm fills in missing data by drawing from a conditional distribution, in this case a multivariate normal (MVN), of the missing data given the observed data. In most cases, simulation studies have shown that assuming a MVN distribution leads to reliable estimates even when the normality assumption is violated given a sufficient sample size.

RESULTS

Potential Impacts of Casino Introduction

Gambling Participation Across Waves

Table 13 shows the level of past year gambling and individual types of gambling in each wave among individuals who completed all five waves. A Cochran Q test tested for significant variation across waves. Serlin, Carr & Maraschuillo's (1982) maximum-corrected measure of effect size[7] is also reported (as there is no scale of reference for this measure, its primary value is in comparing the relative effect sizes between variables). As seen, there was significant variation between years on all types of gambling except casino table games, sports betting, private betting, and 'other types' of gambling. Many of the subsequent pairwise McNemar comparisons ($p < .01$, 2-tail) were also significant.

However, some of these significant statistical differences are facilitated by the large sample sizes and do not necessarily reflect meaningful changes.[8] In addition, the major expansion of the questionnaire in Wave 3 resulted in some minor question wording changes that appear to have influenced the present results. More specifically:

- The apparent increase in daily lottery games participation beginning in 2016 (20.0% in 2015 to 35.2% in 2016) is most likely due to changes in how the question was asked, as the names of all four of the daily lotteries were listed as examples in Wave 3 and beyond, whereas only Keno and Jackpot Poker were given as examples in Waves 1 and 2. For comparison purposes, Table 14 shows actual revenue in the same time period for all lottery, charitable, and casino gaming. As seen, there have been steady small increases in daily lottery revenue in every year (ranging from 2% to 7%), with no marked change in fiscal 2016 (5.2% increase over the previous year).
- The apparent increase in bingo participation beginning in 2016 is also likely artifactual as beginning in Wave 3 it was explicitly indicated that bingo participation included *online* bingo. Further support of this contention is seen in Table 14, which shows bingo revenue to have *declined* since 2015.
- The apparent increase in online gambling beginning in 2016 is also partly artifactual as online gambling was asked as a single question in Wave 2, whereas it was asked as a supplemental question for most individual types of gambling in Wave 3 (i.e., if the person indicated they participated in a particular type of gambling they were asked whether it was online or land-based participation). Obtained prevalence rates increase when questions about involvement are asked in a repeated and more specific fashion such as this (Wood & Williams, 2007).

The following observed statistically significant changes, or lack of changes, are deemed to be most likely non-artifactual and relevant to Massachusetts casino introduction (recognizing that there is some subjectivity to these determinations):

- An **increase in MA-casino** participation beginning in 2016 and increasing again in 2019. This increase is attributable to the opening of Plainridge Park Casino (PPC) (i.e., 0% participation in Wave 2 increasing to 6.8% participation in Wave 3 after PPC opened) and MGM Springfield (i.e., 7.1% participation in

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[7] Effect size is a measure of the magnitude or importance of the effect. It is an important complement and counterpoint to statistical significance, which is strongly influenced by sample size (i.e., with large samples you can have many statistically significant results that are of small magnitude).

[8] Recognizing that only people who changed their participation status across waves are used in the calculation of the Cochran Q and McNemar test statistics.

Wave 4 increasing to 16.3% in Wave 5 after MGM opened). This is consistent with the significant increase in gross casino revenue over this time period in Table 14.

- A **decrease in out-of-state casino** participation beginning in 2016 and continuing to decline up to 2019. This decrease is also almost certainly attributable to the opening of Plainridge Park Casino and MGM Springfield.
- **No negative impact on lottery participation**. This was a potential concern of casino introduction that does not appear to have materialized. There was a significant increase in traditional lottery participation in 2016 attributable to a particularly large Powerball jackpot that year.
- **No obvious impact on the other types of gambling** that could not be potentially accounted for by normal year-to-year variation, pre-existing trends (e.g., decline in horse race betting), and/or changes in question wording that occurred in Wave 3.
- An **increase in online gambling** participation beginning in 2016. While some of this is artifactual, some of it is likely real due to the fact that a) online gambling prevalence continues to increase in most Western countries and, b) because fantasy sports betting (which is online) was legalized in Massachusetts in August 2016, as the first type of legal online gambling in the state.

Table 13. Changes in Gambling Participation within the Cohort from Wave 1 to 5 among those who completed all five waves (*n* = 2087; unweighted)

	WAVE 1 Sep 13, 2013 – Apr 2, 2014		WAVE 2 Mar 20 – Jun 23, 2015		WAVE 3 Apr 8 – Jul 8, 2016		WAVE 4 Apr 12 – Jun 27, 2018		WAVE 5 Mar 28 – Jun 11, 2019		Test for change	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	*p*-value	Effect size
Traditional Lottery	70.4	(68.4, 72.3)	70.2	(68.3, 72.1)	75.0	(73.1, 76.8)	72.0	(70.0, 73.8)	73.1	(71.2, 74.9)	<.0001	.0054
Daily Lottery Games	18.1	(16.5, 19.8)	20.0	(18.3, 21.7)	35.2	(33.2, 37.2)	33.5	(31.5, 35.5)	31.8	(29.8, 33.8)	<.0001	.0584
Instant Lottery Tickets	47.4	(45.3, 49.5)	47.1	(45.0, 49.3)	50.9	(48.8, 53.0)	48.2	(46.1, 50.3)	48.1	(45.9, 50.2)	.0024	.0020
ANY LOTTERY PRODUCT	73.0	(71.1, 74.8)	72.8	(70.9, 74.7)	78.6	(76.8, 80.3)	75.5	(73.7, 77.3)	76.1	(74.3, 77.9)	<.0001	.0094
Raffle Tickets	45.8	(43.7, 47.9)	43.9	(41.8, 46.0)	46.8	(44.7, 48.9)	48.0	(45.9, 50.1)	46.2	(44.1, 48.3)	.0123	.0015
Bingo	4.4	(3.6, 5.4)	5.1	(4.2, 6.1)	7.0	(6.0, 8.2)	7.7	(6.7, 9.0)	7.3	(6.3, 8.5)	<.0001	.0067
Electronic Gambling Machines	Not asked		Not asked		22.2	(20.5, 24.0)	21.0	(19.3, 22.8)	23.8	(22.0, 25.6)	.0093	.0023
Table Games	Not asked		Not asked		12.5	(11.1, 13.9)	13.3	(11.9, 14.8)	13.0	(11.6, 14.5)	.5122	.0003
Out-of-State Casinos	33.4	(31.4, 35.4)	33.0	(31.1, 35.1)	22.6	(20.9, 24.4)	19.7	(18.1, 21.5)	15.7	(14.2, 17.3)	<.0001	.0635
Massachusetts Casinos	No MA casinos		No MA casinos		6.8	(5.8, 7.9)	7.1	(6.1, 8.2)	16.3	(14.8, 18.0)	<.0001	.0442
Horse Race Betting[a]	6.3	(5.4, 7.5)	6.8	(5.8, 8.0)	5.6	(4.7, 6.7)	6.4	(5.5, 7.5)	5.2	(4.4, 6.3)	.0108	.0016
Sports Betting	17.0	(15.5, 18.7)	18.7	(17.1, 20.4)	17.7	(16.2, 19.4)	17.3	(15.8, 19.0)	17.2	(15.7, 18.9)	.2963	.0006
Private Gambling	13.5	(12.1, 14.2)	14.7	(13.2, 16.2)	Not asked		Not asked		Not asked		.1191	.0488
Other Types of Gambling	Not asked		Not asked		4.7	(3.9, 5.7)	5.0	(4.2, 6.0)	5.0	(4.2, 6.1)	.7754	.0001
Online Gambling	1.3	(0.9, 1.9)	1.8	(1.3, 2.5)	7.1	(6.1, 8.3)	7.3	(6.3, 8.5)	6.3	(5.3, 7.4)	<.0001	.0287
ANY PAST YEAR GAMBLING	85.5	(83.9, 86.9)	84.7	(83.1, 86.2)	87.3	(85.8, 88.6)	87.5	(86.0, 88.8)	86.3	(84.8, 87.7)	.0002	.0026

Between Wave 2 and Wave 3: Plainridge Park Casino Opening: June 24, 2015

Between Wave 3 and Wave 4: One Year Postponement

Between Wave 4 and Wave 5: MGM Springfield Opening: Aug 24, 2018

After Wave 5 column: Encore Boston Harbor Opening: June 23, 2019

Note: the data collection periods listed for each Wave represent the 95% Assessment Window
[a]Wave 1 and 2 only included horse racing, while Waves 3, 4, and 5 included horse and dog racing.

Table 14. Lottery, Charitable, and Casino Gaming Gross Revenue in Massachusetts

Lottery	FISCAL 2014 (Jul 1, 2013-Jun 30, 2014)	FISCAL 2015 (Jul 1, 2014-Jun 30, 2015)	FISCAL 2016 (Jul 1, 2015-Jun 30, 2016)	FISCAL 2017 (Jul 1, 2016-Jun 30, 2017)	FISCAL 2018 (Jul 1, 2017-Jun 30, 2018)	FISCAL 2019 (Jul 1, 2018-Jun 30, 2019)
INSTANT TICKET TOTAL	$3,382,841,000	$3,522,390,000	$3,615,138,000	$3,517,783,000	$3,592,661,000	$3,673,903,000
Keno	$814,158,000	$850,487,000	$904,967,000	$914,787,000	$966,794,000	$1,054,948,000
Numbers Game	$322,649,000	$322,813,000	$329,372,000	$324,506,000	$325,158,000	$325,375,000
Mass Cash	$73,027,000	$75,052,000	$79,626,000	$78,861,000	$81,808,000	$90,054,000
Jackpot Poker	$6,550,000	$2,780,000	$2,170,000	$2,000	$0	$0
All or Nothing	$0	$0	$0	$18,814,000	$9,679,000	$8,906,000
DAILY LOTTERY TOTAL	$1,216,384,000	$1,251,132,000	$1,316,135,000	$1,336,970,000	$1,383,439,000	$1,479,283,000
Powerball	$113,075,000	$101,861,000	$169,091,000	$119,334,000	$130,832,000	$133,704,000
MegaMillions	$82,819,000	$78,646,000	$69,148,000	$60,985,000	$92,552,000	$158,782,000
Lucky for Life	$32,112,000	$27,524,000	$27,317,000	$25,614,000	$25,028,000	$25,208,000
TRADITIONAL LOTTERY TOTAL	$228,006,000	$208,031,000	$265,556,000	$205,933,000	$248,412,000	$317,694,000

Charitable	CALENDAR 2014 (Jan 1, 2014-Dec 31, 2014)	CALENDAR 2015 (Jan 1, 2015-Dec 31, 2015)	CALENDAR 2016 (Jan 1, 2016-Dec 31, 2016)	CALENDAR 2017 (Jan 1, 2017-Dec 31, 2017)	CALENDAR 2018 (Jan 1, 2018-Dec 31, 2018)	CALENDAR 2019 (Jan 1, 2019-Dec 31, 2019)
RAFFLE TICKET TOTAL	$18,542,537	$17,595,734	$19,199,979	$19,015,374	$20,806,087	$21,415,468
BINGO TOTAL	$29,825,143	$27,581,036	$26,987,266	$25,380,941	$23,685,765	$22,240,200

Casinos	CALENDAR 2014 (Jan 1, 2014-Dec 31, 2014)	CALENDAR 2015 (Jan 1, 2015-Dec 31, 2015)	CALENDAR 2016 (Jan 1, 2016-Dec 31, 2016)	CALENDAR 2017 (Jan 1, 2017-Dec 31, 2017)	CALENDAR 2018 (Jan 1, 2018-Dec 31, 2018)	CALENDAR 2019 (Jan 1, 2019-Dec 31, 2019)
CASINO TOTAL	$0	$88,230,548	$155,041,917	$164,786,230	$273,072,584	$718,534,899

Sources: Massachusetts Lottery Commission (2014, 2015, 2016, 2017, 2018, 2019); Massachusetts Lottery Commission Charitable Gaming Division (2014, 2015, 2016, 2017, 2018, 2019); Massachusetts Gaming Commission Revenue Report

Gambler Categorizations Across Waves

Table 15 shows the change in the level of Non-Gambling, Recreational, At-Risk, and Problem Gambling across the waves within the cohort among individuals who completed all five waves. (As a reminder, all of these categories have a 'past 12-month' time frame). A Cochran Q test tested for significant variation across waves. Serlin et al. (1982) maximum-corrected measure of effect size is also reported (as there is no scale of reference for this measure, its primary value is in comparing the relative effect sizes between variables).

Significant variation over time is observed in all four categories. Pairwise McNemar comparisons ($p < .01$, 2-tail) established that this reflected:

- A decrease in **Non-Gambling** in Wave 3 and 4 relative to Wave 2.
- An increase in **Recreational Gambling** in Wave 3 and 4 relative to Wave 2 and a decrease in Recreational Gambling in Wave 5 relative to Wave 4.
- A decrease in **At-Risk Gambling** in Wave 4 relative to Wave 2.
- An increase in **Problem Gambling** in Wave 4 and 5 relative to Wave 1.

The increase in recreational gambling in Wave 3 is likely attributable to the significant increase in traditional lottery participation due to the unusually large Powerball jackpot in that year.

Of greatest interest and concern is the increase in problem gambling beginning in Wave 4 in 2018, which is possibly related to Massachusetts casino introduction, but perhaps not because of their actual physical availability, as this increase occurred prior to the two major casinos (MGM Springfield and Encore Boston Harbor) actually being open and there were no changes in level of problem gambling immediately after either Plainridge Park Casino opened (3.1% in Wave 2 versus 3.1% in Wave 3) or after MGM Springfield opened (3.8% in Wave 4 versus 3.7% in Wave 5). This issue is explored in greater depth in the next section of this report.

The SEIGMA Follow-Up General Population Survey in Fall 2021 will also shed more definitive light on whether there has been a significant increase in problem gambling in the state.

Table 15. Changes in Gambling Categorization within the Cohort from Wave 1 to 5 among those who completed all five waves (*n* = 2,087; unweighted)

	WAVE 1 Sep 13, 2013 – Apr 2, 2014			WAVE 2 Mar 20 – Jun 23, 2015			Plainridge Park Casino Opening	WAVE 3 Apr 8 – Jul 8, 2016			One Year Postponement	WAVE 4 Apr 12 – Jun 27, 2018			MGM Springfield Opening	WAVE 5 Mar 28 – Jun 11, 2019			Encore Boston Harbor Opening:	Test for change	
	n	%	95% CI	*n*	%	95% CI		*n*	%	95% CI		*n*	%	95% CI		*n*	%	95% CI		p-value	Effect size
Non-Gambler	302	14.5	(13.0, 15.2)	317	15.2	(13.7, 16.8)		265	12.7	(11.3, 14.2)		260	12.5	(11.1, 13.9)		285	13.7	(12.3, 15.2)		.0003	.0025
Recreational Gambler	1,471	70.5	(68.5, 68.8)	1,424	68.2	(66.2, 70.2)		1,513	72.5	(70.6, 74.4)		1,526	73.1	(71.2, 75.0)		1.466	70.2	(68.3, 72.1)		<.0001	.0032
At-Risk Gambler	262	12.6	(11.2, 13.3)	282	13.5	(12.1, 15.0)		245	11.7	(10.4, 13.2)		222	10.6	(9.4, 12.0)		259	12.4	(11.1, 13.9)		.0120	.0015
Problem Gambler	52	2.5	(1.9, 3.1)	64	3.1	(2.4, 3.9)		64	3.1	(2.4, 3.9)		79	3.8	(3.1, 4.7)		77	3.7	(3.0, 4.6)		.0105	.0016

Note: the data collection time periods listed for each Wave represent the 95% Assessment Window

Stability of Gambler Categorizations across Waves

Non-Gamblers

Figure 2 depicts the stability of the PPGM Non-Gambling classification over the five waves for the 302 Non-Gamblers at Wave 1. Each row represents an individual, with white designating Non-Gambling, green designating Recreational Gambling, yellow designating At-Risk Gambling, and red designating Problem or Pathological Gambling. As can be seen, Non-Gambling is a reasonably stable category, with the majority of Non-Gamblers also being Non-Gamblers in the next wave. However, Figure 2 also illustrates that only a minority were Non-Gamblers throughout all five waves. Rather, it was common for Non-Gamblers to transition into Recreational Gambling at some point. However, it is also the case that among the Non-Gamblers who made a transition to Recreational Gambling, a minority transitioned back into Non-Gambling in the next wave. The movement back and forth from Non-Gambling to Recreational Gambling is to be expected considering that the single purchase of a lottery or raffle ticket is sufficient to be designated as a Recreational Gambler. Of final note, it was uncommon for Non-Gamblers to directly transition into At-Risk or Problem Gambling in the next wave. Non-Gamblers at Wave 1 also had the lowest risk of ever becoming Problem Gamblers, occurring in 5/302 (1.7%) of individuals over the five waves.

The top part of Table 16 shows the First Order Markov transition probabilities, which is the probability of continuing as a Non-Gambler in the next wave (65.01%) compared with the probability of transitioning to a Recreational Gambler (33.76%), an At-Risk Gambler (0.97%), or a Problem Gambler (0.26%). The bottom part of Table 16 shows the 'Second Order' probabilities, which is the likelihood of being a Non-Gambler, Recreational Gambler, At-Risk Gambler, and Problem Gambler depending on the person's status in the prior two waves. (Note that both the 1st and 2nd order probabilities were also partly derived from repeated sampling from the same individual in different wave periods). Cell sizes $\leq$ 5 are suppressed.

Table 16. First and Second Order Markov Transition Probabilities for Non-Gamblers

State 1	State 2	*n*	Probability
Non-Gambler	Non-Gambler	744	65.01%
Non-Gambler	Recreational Gambler	386	33.76%
Non-Gambler	At Risk Gambler	11	0.97%
Non-Gambler	Problem Gambler	--	0.26%

State 1	State 2	State 3	*n*	Probability
Non-Gambler	Non-Gambler	Non-Gambler	429	78.41%
Non-Gambler	Non-Gambler	Recreational Gambler	116	21.22%
Non-Gambler	Non-Gambler	At-Risk Gambler	0	0.01%
Non-Gambler	Non-Gambler	Problem Gambler	--	0.37%
Non-Gambler	Recreational Gambler	Non-Gambler	80	24.62%
Non-Gambler	Recreational Gambler	Recreational Gambler	239	73.83%
Non-Gambler	Recreational Gambler	At-Risk Gambler	--	0.93%
Non-Gambler	Recreational Gambler	Problem Gambler	--	0.62%
Non-Gambler	At-Risk Gambler	Non-Gambler	--	27.46%
Non-Gambler	At-Risk Gambler	Recreational Gambler	--	18.45%
Non-Gambler	At-Risk Gambler	At-Risk Gambler	--	45.08%
Non-Gambler	At-Risk Gambler	Problem Gambler	--	9.02%
Non-Gambler	Problem Gambler	Non-Gambler	--	50.00%
Non-Gambler	Problem Gambler	Recreational Gambler	--	50.00%
Non-Gambler	Problem Gambler	At-Risk Gambler	0	0%

| Non-Gambler | Problem Gambler | Problem Gambler | 0 | 0% |

Figure 2. Individual Stability of Non-Gambling across Waves (*n* = 302)

| Wave 1 | Wave 2 | Wave 3 | Wave 4 | Wave 5 |

White=Non-Gambling; Green=Recreational Gambling; Yellow=At-Risk Gambling; Red=Problem Gambling

Recreational Gamblers

Figure 3 depicts the stability of the PPGM Recreational Gambling classification over the five waves for the 1471 Recreational Gamblers at Wave 1. Each row represents 50 individuals, with green designating Recreational Gambling, white designating Non-Gambling, yellow designating At-Risk Gambling, and red designating Problem or Pathological Gambling.

This figure illustrates that Recreational Gambling is a very stable category with the large majority of Recreational Gamblers also being Recreational Gamblers in the next wave. Furthermore, most Recreational Gamblers at Wave 1 continued to be Recreational Gamblers throughout all five waves, although a small percentage eventually transitioned into Non-Gambling or At-Risk Gambling. (Thus, while it is common for Non-Gamblers to transition to Recreational Gambling, it is much less common for Recreational Gamblers to transition to Non-Gambling). Of final note, it was uncommon for Recreational Gamblers to transition directly into Problem Gambling in the next wave, and 59/1471 (4.0%) of Recreational Gamblers in Wave 1 became Problem Gamblers at some point in the subsequent four waves.

Table 17 shows the specific first and second order Markov transition probabilities for Recreational Gamblers who completed all five waves. Cell sizes $\leq$ 5 are suppressed.

Table 17. First and Second Order Markov Transition Probabilities for Recreational Gamblers

State 1	State 2	n	Probability
Recreational Gambler	Non-Gambler	367	6.19%
Recreational Gambler	Recreational Gambler	5,015	84.51%
Recreational Gambler	At Risk Gambler	497	8.38%
Recreational Gambler	Problem Gambler	55	0.93%

State 1	State 2	State 3	n	Probability
Recreational Gambler	Non-Gambler	Non-Gambler	117	41.73%
Recreational Gambler	Non-Gambler	Recreational Gambler	159	56.84%
Recreational Gambler	Non-Gambler	At-Risk Gambler	--	1.43%
Recreational Gambler	Non-Gambler	Problem Gambler	0	0%
Recreational Gambler	Recreational Gambler	Non-Gambler	164	4.41%
Recreational Gambler	Recreational Gambler	Recreational Gambler	3,307	89.02%
Recreational Gambler	Recreational Gambler	At-Risk Gambler	224	6.03%
Recreational Gambler	Recreational Gambler	Problem Gambler	20	0.54%
Recreational Gambler	At-Risk Gambler	Non-Gambler	0	0%
Recreational Gambler	At-Risk Gambler	Recreational Gambler	233	61.97%
Recreational Gambler	At-Risk Gambler	At-Risk Gambler	122	32.45%
Recreational Gambler	At-Risk Gambler	Problem Gambler	21	5.59%
Recreational Gambler	Problem Gambler	Non-Gambler	0	0%
Recreational Gambler	Problem Gambler	Recreational Gambler	15	39.47%
Recreational Gambler	Problem Gambler	At-Risk Gambler	10	26.32%
Recreational Gambler	Problem Gambler	Problem Gambler	13	34.21%

Figure 3. Individual Stability of Recreational Gambling across Waves (*n* = 1471)

White=Non-Gambling; Green=Recreational Gambling; Yellow=At-Risk Gambling; Red=Problem Gambling

At-Risk Gamblers

Figure 4 depicts the stability of the PPGM At-Risk Gambling classification over the five waves for the 262 At-Risk individuals at Wave 1. Each row represents an individual, with yellow designating At-Risk Gambling.

As can be seen, this category displays considerably more instability compared to the Non-Gambling and Recreational Gambling categories. Only a minority of At-Risk individuals continued in this category in the next assessment period and very few individuals remained in the At-Risk category in all five waves. It is also important to note that although a small but significant percentage of At-Risk Gamblers subsequently become Problem Gamblers (51/262 = 19.5%), a much more common route was for At-Risk Gamblers to transition back to Recreational Gambling.

Table 18 shows the specific first and second order Markov transition probabilities for At-Risk Gamblers who completed all five waves.

Table 18. First and Second Order Markov Transition Probabilities for At-Risk Gamblers

State 1	State 2	n	Probability
At-Risk Gambler	Non-Gambler	11	1.06%
At-Risk Gambler	Recreational Gambler	484	47.90%
At-Risk Gambler	At-Risk Gambler	423	41.84%
At-Risk Gambler	Problem Gambler	93	9.20%

State 1	State 2	State 3	n	Probability
At-Risk Gambler	Non-Gambler	Non-Gambler	--	31.00%
At-Risk Gambler	Non-Gambler	Recreational Gambler	7	69.00%
At-Risk Gambler	Non-Gambler	At-Risk Gambler	0	0%
At-Risk Gambler	Non-Gambler	Problem Gambler	0	0%
At-Risk Gambler	Recreational Gambler	Non-Gambler	7	1.78%
At-Risk Gambler	Recreational Gambler	Recreational Gambler	275	69.82%
At-Risk Gambler	Recreational Gambler	At-Risk Gambler	99	25.10%
At-Risk Gambler	Recreational Gambler	Problem Gambler	13	3.30%
At-Risk Gambler	At-Risk Gambler	Non-Gambler	--	0.87%
At-Risk Gambler	At-Risk Gambler	Recreational Gambler	113	36.55%
At-Risk Gambler	At-Risk Gambler	At-Risk Gambler	167	53.87%
At-Risk Gambler	At-Risk Gambler	Problem Gambler	27	8.71%
At-Risk Gambler	Problem Gambler	Non-Gambler	--	1.33%
At-Risk Gambler	Problem Gambler	Recreational Gambler	12	16.00%
At-Risk Gambler	Problem Gambler	At-Risk Gambler	29	38.67%
At-Risk Gambler	Problem Gambler	Problem Gambler	33	44.00%

Figure 4. Individual Stability of At-Risk Gambling across Waves (*n* = 262)
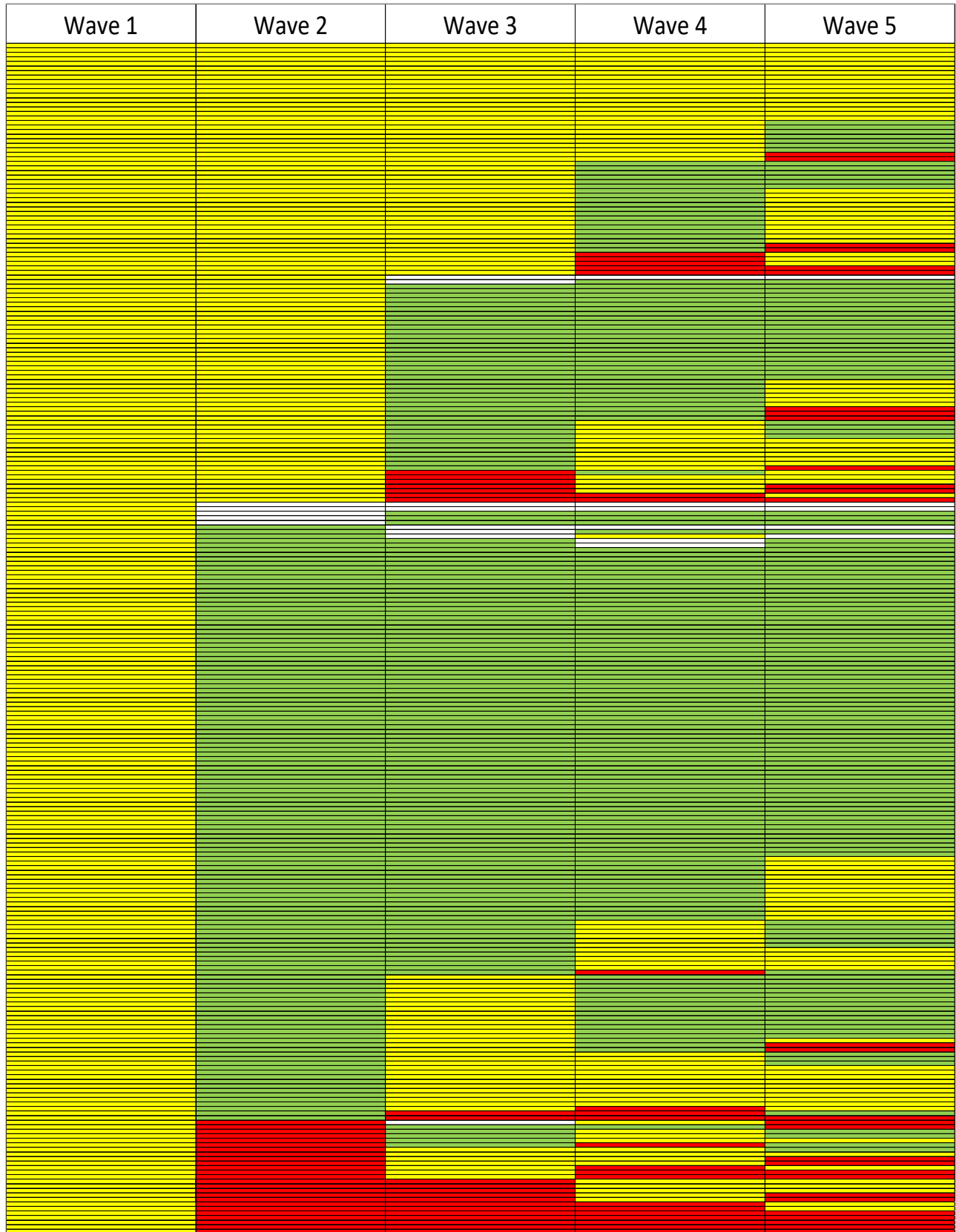
White=Non-Gambling; Green=Recreational Gambling; Yellow=At-Risk Gambling; Red=Problem Gambling

Problem Gamblers

Figure 5 depicts the stability of Problem Gambling in the five waves using a problem or pathological designation on the PPGM to designate problem gambling. The figure is restricted to the 167 individuals who were problem or pathological gamblers on the PPGM at any point during the MAGIC study. (This was done because of the smaller number of problem gamblers and for the purposes of seeing the composition of problem gamblers at each time period in terms of being relapsed or new individuals). Each row represents an individual with red indicating Problem/Pathological Gambling.

Problem Gambling was more stable than At-Risk Gambling, but still fairly unstable, with most Problem Gamblers transitioning to At-Risk or Recreational Gambling in the next wave. Indeed, one wave was the modal duration of Problem Gambling, occurring in 50.3% of individuals. A longer duration did occur for a small minority, with 6.0% being in this category in all five waves and many others being in this category for either two, three, or four consecutive waves. Risk of chronic problem gambling increased with each consecutive year of problem gambling status.

The relatively short episode duration for most problem gamblers also meant that remittance rates tended to be high, with the majority having at least one year of remittance over the five waves. However, relapse rates were also quite high. Of the 27 people that had remitted in Wave 2, 33.3% (9/27) had relapsed by Wave 3, 4, or 5 and of the 22 that had remitted in Wave 3, 54.5% (12/22) had relapsed by Wave 4 or 5. The cumulative longer-term relapse rate beyond these time frames is unknown but will be significantly higher. It is also instructive to note that almost no problem gamblers transitioned to non-gambling in the following wave, which might account for the high rate of relapse (for the five problem gamblers who *did* become non-gamblers in the next wave, only one became a problem gambler in the subsequent wave). Similarly, although only 19.8% of At-Risk Gamblers at Wave 1 subsequently became Problem Gamblers, the onset of Problem Gambling was preceded by being in the At-Risk category in the previous wave 48.5% of the time. [Note: a more in-depth investigation of the predictors of future problem gambling is contained in the next section of this report].

Related to the above point is the observation that the large majority (74.0%) of all of the identified problem gamblers in Wave 5 were *relapsed* problem gamblers rather than new problem gamblers (this percentage being 60.8% for Wave 4, 60.9% for Wave 3, and 39.1% for Wave 2) [for Wave 1, 46.2% of problem gamblers indicated they had a lifetime history of problem gambling prior to the past 12 months]. Furthermore, the significant increase in the rate of problem gambling reported in Table 15 for Wave 4 and sustained in Wave 5 is due to the increased number of relapsed problem gamblers.

Table 19 shows the specific first and second order Markov transition probabilities for Problem Gamblers who completed all five waves.

Table 19. First and Second Order Markov Transition Probabilities for Problem Gamblers

State 1	State 2	n	Probability
Problem Gambler	Non-Gambler	--	1.93%
Problem Gambler	Recreational Gambler	44	16.99%
Problem Gambler	At-Risk Gambler	77	29.73%
Problem Gambler	Problem Gambler	133	51.35%

State 1	State 2	State 3	n	Probability
Problem Gambler	Non-Gambler	Non-Gambler	--	20.00%
Problem Gambler	Non-Gambler	Recreational Gambler	--	40.00%
Problem Gambler	Non-Gambler	At-Risk Gambler	--	20.00%
Problem Gambler	Non-Gambler	Problem Gambler	--	20.00%
Problem Gambler	Recreational Gambler	Non-Gambler	0	0%
Problem Gambler	Recreational Gambler	Recreational Gambler	14	45.16%
Problem Gambler	Recreational Gambler	At-Risk Gambler	11	35.48%
Problem Gambler	Recreational Gambler	Problem Gambler	6	19.35%
Problem Gambler	At-Risk Gambler	Non-Gambler	0	0%
Problem Gambler	At-Risk Gambler	Recreational Gambler	--	9.62%
Problem Gambler	At-Risk Gambler	At-Risk Gambler	28	53.85%
Problem Gambler	At-Risk Gambler	Problem Gambler	19	36.54%
Problem Gambler	Problem Gambler	Non-Gambler	--	2.17%
Problem Gambler	Problem Gambler	Recreational Gambler	--	5.43%
Problem Gambler	Problem Gambler	At-Risk Gambler	23	25.00%
Problem Gambler	Problem Gambler	Problem Gambler	62	67.39%

Figure 5. Individual Stability of Problem Gambling across Waves (*n* = 167)

White=Non-Gambling; Green=Recreational Gambling; Yellow=At-Risk Gambling; Red=Problem Gambling

Figure 6 illustrates all of the first order Markov transitional probabilities for all four categories of gamblers.

Figure 6. First Order Markov Transitional Probabilities
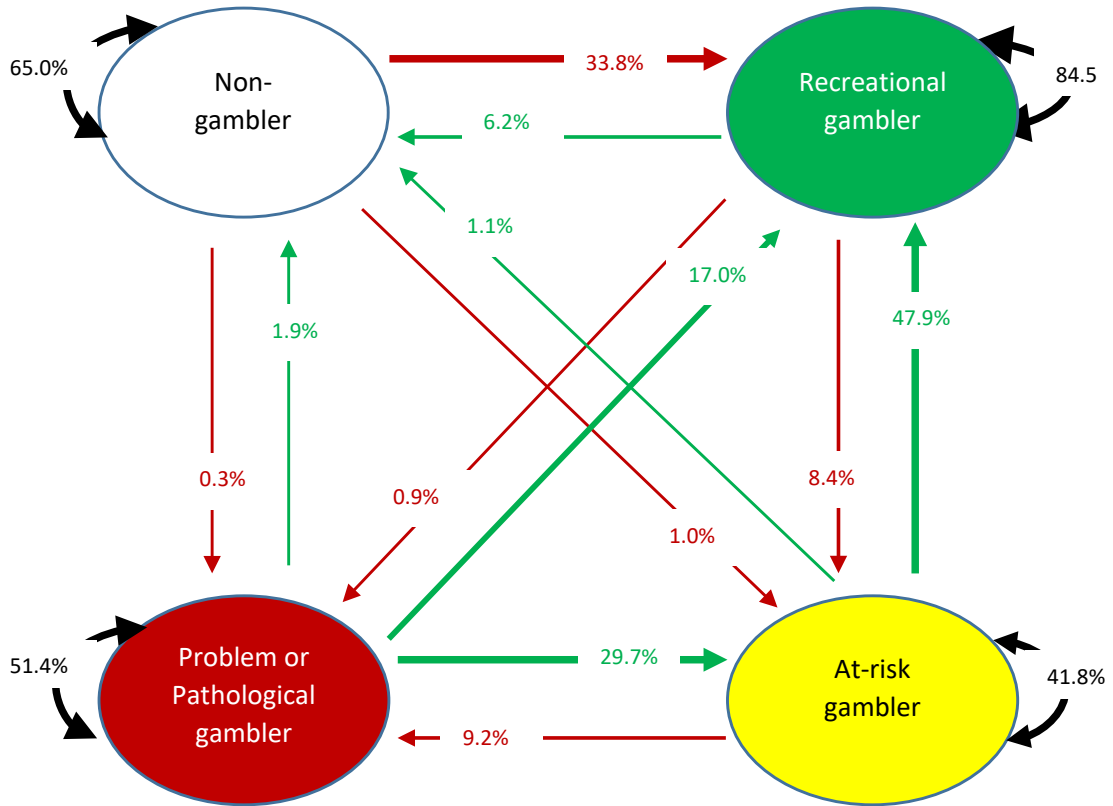
Red lines indicate increase risk, Green lines indicate decrease risk, Black lines indicates no change

Prediction of Concurrent and Future Problem Gambling

Analytic Approach

Concurrent versus Lagged Analyses

The typical approach to analyzing longitudinal data is to analyze the concurrent (within-wave) relationship between the dependent variable (DV) and independent variables (IVs) across waves. However, the drawback to this approach is that when a relationship exists, the causal direction between the DV and IVs is potentially unclear. While invariant IVs (e.g., gender, age) can only have one causal direction with respect to the DV (problem gambling), other IVs could be a consequence of problem gambling or have developed concurrently with problem gambling (e.g., mental health problems, experiencing a 'big win').

An alternative approach is to analyze the association between IVs in the current wave as they relate to the DV in the next wave (lagged association). The advantage of this approach is that if there is a significant association the causal direction is much less ambiguous. The disadvantage is that because many of the variables use a 'past year' time frame, it is possible that the IV occurred at the beginning of the preceding wave and problem gambling developed at the end of the next wave, creating almost two years of separation between the events and potentially weakening their causal impact. This is especially true for Wave 4 as it was conducted two years after Wave 3. Nonetheless, because there are strengths and weaknesses to both concurrent and lagged approaches, have been utilized in the present analysis and we identify variables that are robustly associated with the DVs in both approaches.[9]

A complication with the lagged analysis is that there are some individuals who do not have sequential waves because of missing an assessment period. A decision was made to exclude all waves from the lagged analyses that were not sequential. The pattern of Wave completion and the identification of which waves were excluded is contained in Table 20 below. In the end, 99.5% (3123/3139) of participants in the concurrent analyses were also included in the lagged analyses, and 74.2% (10036/13511) of waves in the concurrent analyses were also included in the lagged analyses.

Table 20. Pattern of Wave Completion in MAGIC

Wave Completion	n	%	Included in Lagged Analysis?
01000	16	0.51	No
01011	5	0.16	Waves 4→5 only
01100	4	0.13	Waves 2→3
01101	3	0.10	Waves 2→3 only
01110	1	0.03	Waves 2→3, 3→4
01111	14	0.45	Waves 2→3, 3→4, 4→5
11000	398	12.68	Waves 1→2
11001	41	1.31	Waves 1→2 only
11010	55	1.75	Waves 1→2 only
11011	174	5.54	Waves 1→2, 4→5
11100	175	5.58	Waves 1→2, 2→3
11101	58	1.85	Waves 1→2, 2→3 only
11110	108	3.44	Waves 1→2, 2→3, 3→4
11111	2087	66.49	Waves 1→2, 2→3, 3→4, 4→5

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[9] A third potential type of longitudinal analysis is to examine the association between *changes* in the DV and IVs between waves. However, in addition to having the same issue with causal attribution because of their concurrent nature, another problem is that many of the important IVs in the present study are invariant across waves (e.g., personality, demographics, lifetime history).

Discrete versus Continuous Dependent Variable

An important theoretical question concerns whether the dependent variable (DV) should be the presence or absence of problem gambling (a dichotomous approach) or the level of problem gambling symptomatology (a continuous approach). Prior research has found that most problem gambling scores tend to exist on a continuum (i.e., there is no clear demarcation in the distribution of people with scores in the problem gambling range). It is also the case that almost all forms of psychopathology (e.g., substance abuse, depression, anxiety) exist on a continuum. These observations tend to support the contention that the best approach is to examine the relationship between independent variables (IVs) and the *level* of problem gambling symptomatology. This is especially true when using assessment instruments such as the PGSI (Ferris & Wynne, 2001) and the DSM-5 criteria for disordered gambling (APA, 2013) where problem gambling designation is determined by score level rather than the presence of specific diagnostic criteria. These instruments were designed in this fashion partly due to an underlying assumption that problem/disordered gambling is a unitary construct, and the person's score reflects the degree to which he/she 'loads' on this construct (Ferris & Wynne, 2001; Petry, Blanco, Auriacombe et al., 2014).

That said:
- Even instruments such as the PGSI and DSM acknowledge there is a scoring level meriting designation that is clinically significant and distinct from lower levels. This is also true of psychopathology and substance use more generally, where categorical cut-offs are routinely applied.
- Problem gambling is actually a multidimensional entity rather than a unidimensional construct (Christensen et al., 2019).[10]
- The problem gambling instrument utilized in MAGIC (i.e., PPGM) does not use a total score threshold. Rather, problem gambling designation on the PPGM requires evidence of a) impaired control over gambling and, b) significant harm deriving from this impaired control (which is the definition of problem gambling utilized by most researchers (Neal, Delfabbro & O'Neil, 2005)).
- The preceding section on the Stability of Gambler Categorizations across Waves is predicated on the assumption that problem gambling is conceptually distinct from at-risk gambling.
- From a statistical point of view, analyses that predict total score will tend to identify IVs associated with *severity* of problem gambling more so than the presence of problem gambling.

Thus, although the present authors believe that a discrete DV is somewhat preferable, in the interests of comprehensiveness, we have completed an additional set of analyses using a continuous measure of problem gambling (PPGM Total Score).

Generalized Estimating Equations

Generalized estimating equations (GEE) were utilized to analyze the within-wave and lagged-wave data over time. GEE extends the generalized linear model to accommodate correlated observations, as occurs with repeated measures of the same individual over time (Hardin, 2005). The other advantages of GEE are that it is able to include both categorical and continuous IVs and it utilizes the "all available pairs" method, in which all non-missing pairs of data are used in estimating the correlation parameters (thus, data loss is restricted to just the missing observations).

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[10] The basis for the belief that problem gambling in a single factor has to do in large part with repeated analyses that have shown that the 9 questions from the Problem Gambling Severity Index (Ferris & Wynne, 2001) tend to form a unitary factor (e.g., Miller, Currie, Hodgins & Casey, 2013). What is forgotten is that this is simply a result of the original set of 45 questions being winnowed down to eliminate the ones with low correlations with the other items and/or the total score. As a consequence, the number of problem gambling factors was artificially reduced from 3 to 1 (Ferris & Wynne, 2001).

Bivariate Analyses

The first step in our analysis was to examine the bivariate relationship between each of the 105 IVs with respect to both problem gambling status and PPGM total score both concurrently and in the subsequent wave. As seen in the following tables, the large majority of these variables were found to have a significant bivariate relationship to problem gambling at the $p < .01$ level. This is not surprising, as almost all of the IVs contained in the MAGIC questionnaire were chosen because they have been shown to be empirically related to problem gambling in previous cross-sectional and/or longitudinal research.

Table 21 contains the detailed results of the bivariate relationship for each of the IVs in relationship to Concurrent PPGM Problem Gambling Status and PPGM Total Score using GEE.

Table 22 contains the detailed results of the bivariate relationship for each of the IVs in relationship to Future PPGM Problem Gambling Status and PPGM Total Score using GEE.

The odds ratios in these tables show the expected change in the odds of the DV for a change of one unit of the IV while holding all other variables constant (thus, odds ratios will always be higher for dichotomous variables (both DV and IV) over continuous variables; and continuous variables with fewer levels compared to continuous variables with many levels).

Table 21. Bivariate Relationships with **Concurrent** Problem Gambling Status and Problem Gambling Total Score across Waves

			Problem Gambling Status			PPGM Total Score		
			Wald Statistic	*p*-value	Odds Ratio	Wald Statistic	*p*-value	Odds Ratio
COMORBIDITIES								
PHYSICAL HEALTH	General health in past 12 months (1=excellent; 5=poor)		16.20	<.0001	1.28	13.39	.0003	1.17
	Physical disability or chronic health problem		2.92	.0882	1.29	2.23	.1403	1.15
STRESS	Level of stress in past 12 months (1=very low; 5=very high)		0.87	.3512	1.06	2.96	.0893	1.06
	Life events in past 12 months: Total number		26.29	<.0001	1.16	22.42	<.0001	1.11
	Life events: Work/school number		6.21	.0128	1.17	9.37	.0024	1.13
	Life events: Family/friends number		6.89	.0087	1.14	6.50	.0116	1.10
	Life events: Property/finances number		19.53	<.0001	1.72	34.56	<.0001	1.55
	Life events: Legal matters/crime number		9.47	.0021	1.75	4.85	.0290	1.35
	Life events: Health number		17.62	<.0001	1.75	11.45	.0008	1.42
	Post-Traumatic Stress Disorder (DSM-5)	Not collected in wave vs No	13.91	.0030	0.75	12.20	.0074	0.83
		Traumatic life events not endorsed vs NO			0.81			0.91
		Yes vs No			2.36			1.47
SUBSTANCE USE & ADDICTIONS	Tobacco use in past 30 days		21.36	<.0001	2.16	10.07	.0018	1.52
	Alcohol use in past 30 days		0.16	.6914	1.07	0.04	.8512	1.02
	5 (male) or 4 (female) drinks on an occasion in past 30 days	Not collected in Wave vs No	13.94	.0011	1.36	18.63	.0001	1.21
		Yes vs No			1.42			1.17
	Non-medical use of drugs in past 12 months		14.28	.0002	1.88	14.19	.0002	1.57
	Substance Use Disorder		54.97	<.0001	1.46	90.48	<.0001	1.28
	Sought help for alcohol or drug problems in past 12 months		8.42	.0040	3.96	2.23	.1512	1.91
	Behavioral addiction in past 12 months		10.78	.0010	1.81	7.41	.0067	1.37
MENTAL HEALTH	General happiness in past 12 months (1=very low, 5=very high)		18.26	<.0001	0.74	30.33	<.0001	0.79
	Self-assessed mental health problem in past 12 months		3.48	.0652	1.43	7.81	.0062	1.43
	Major Depression (DSM-5)	Not collected in Wave vs No	14.96	.0006	0.88	13.32	.0014	0.90
		Yes vs No			2.17			1.53
	Generalized Anxiety (DSM-5)	Not collected in Wave vs No	13.61	.0011	0.87	13.74	.0012	0.89
		Yes vs No			2.22			1.43
	Panic Attacks (DSM-5)	Not collected in Wave vs No	20.76	<.0001	0.92	19.08	<.0001	0.91
		Yes vs No			3.07			1.82
	Any other mental health problem	Not collected in wave vs No	12.11	.0024	0.86	12.95	.0017	0.89
		Yes vs No			2.37			1.65
	ANY DSM-5 mental health problem		36.59	<.0001	2.80	22.12	<.0001	1.71
LIFETIME COMORBIDITIES	Childhood happiness (mean) (1=very happy; 5=very unhappy)		6.89	.0099	1.24	10.07	.0024	1.19
	Physical, sexual or emotional abuse as child		3.27	.1015	1.42	5.69	.0647	1.34

			Problem Gambling Status			PPGM Total Score		
			Wald Statistic	p-value	Odds Ratio	Wald Statistic	p-value	Odds Ratio
	Problems with overuse of drugs or alcohol prior to past 12 months		44.90	<.0001	4.22	33.46	<.0001	2.78
	Behavioral addiction prior to past 12 months		40.55	<.0001	3.06	48.68	<.0001	2.59
	Significant mental health problems prior to past 12 months		8.65	.0126	1.63	12.30	.0026	1.46
	Significant family hx of addiction or mental health problems	Unsure vs No	13.10	.0072	1.50	13.19	.0057	1.32
		Yes vs No			1.66			1.37
GAMBLING								
GAMBLING ATTITUDES	Perceived benefit or harm of gambling (benefit=harm reference group)	Benefits far > harm	1.61	.8057	1.25	1.89	.7547	1.04
		Benefits somewhat > harm			0.98			1.11
		Harm far > benefits			0.91			0.97
		Harm somewhat > benefits			1.03			1.00
	Opinion about legalized gambling (some types should be legal=reference group)	All types should be illegal	2.61	.2743	0.89	6.58	.0395	0.89
		All types should be legal			1.18			1.16
	Opinion about gambling opportunities in MA (current availability fine=reference group)	Gambling not available enough	2.81	.2475	1.11	5.11	.0825	1.12
		Gambling too widely available			1.22			1.15
GAMBLING BEHAVIOR	Traditional lottery participation in past 12 months		73.49	<.0001	3.92	80.46	<.0001	2.17
	Daily lottery participation in past 12 months		69.21	<.0001	2.62	81.07	<.0001	1.85
	Instant lottery participation in past 12 months		78.84	<.0001	2.88	104.6	<.0001	1.94
	Raffle ticket purchase in past 12 months		14.66	.0001	1.48	20.92	<.0001	1.29
	Sports betting in past 12 months		32.28	<.0001	1.96	32.05	<.0001	1.51
	Bingo in past 12 months		13.21	.0003	2.07	20.65	<.0001	1.70
	Electronic gambling machine participation in past 12 months	Not collected in Wave vs No	13.44	.0013	1.00	23.42	<.0001	1.00
		Yes vs No			1.72			1.52
	Table game participation in past 12 months	Not collected in Wave vs No	11.19	.0037	0.94	25.34	<.0001	0.96
		Yes vs No			1.81			1.64
	Casino (out-of-state) participation in past 12 months		21.29	<.0001	1.73	26.08	<.0001	1.43
	Casino (in-state) participation in past 12 months		10.83	.0015	1.79	8.97	.0036	1.40
	Casino (in OR out-of-state) participation in past 12 months		32.84	<.0001	1.95	47.03	<.0001	1.59
	Casino (In AND out of state) participation in past 12 months		10.62	.0015	2.44	3.69	.0631	1.45
	Has casino player rewards card	Did not gamble at casino vs No	17.41	.0007	0.62	42.93	<.0001	0.63
		Not collected in wave vs No			0.65			0.68
		Yes vs No			1.16			1.08
	Horse race betting in past 12 months (includes dog racing in W3,W4,W5)		14.17	.0002	2.25	9.31	.0025	1.59

			Problem Gambling Status			PPGM Total Score		
			Wald Statistic	*p*-value	Odds Ratio	Wald Statistic	*p*-value	Odds Ratio
	Private gambling against others in past 12 months	Not collected in Wave vs No	9.75	.0077	1.28	18.82	<.0001	1.20
		Yes vs No			1.37			1.26
	Other types of gambling in past 12 months	Not collected in Wave vs No	6.31	.0426	0.86	14.29	.0009	0.90
		Yes vs No			1.54			1.45
	Financial speculation in past 12 months		3.35	.0705	1.24	8.87	.0042	1.19
	Online gambling participation in past 12 months		8.33	.0045	2.07	15.94	<.0001	1.79
	Biggest win in single day past year		126.5	<.0001	1.00	189.9	<.0001	1.00
	Biggest loss in single day past year		125.6	<.0001	1.00	85.06	<.0001	1.00
	Total number of types of gambling engaged in (past 12 months)		173.2	<.0001	1.53	218.4	<.0001	1.34
	Total frequency of gambling (past 12 months)		162.9	<.0001	1.01	136.4	<.0001	1.00
	Total net expenditure in typical month (past 12 months) (9 categories)		194.5	<.0001	1.25	120.1	<.0001	1.12
GAMBLING MOTIVATION	Main reason for gambling: Excitement/entertainment		2.85	.0921	0.81	0.04	.8720	1.00
	Main reason for gambling: Escape/distract		17.02	<.0001	2.70	11.20	.0009	1.65
	Main reason for gambling: Win money		28.82	<.0001	1.77	34.13	<.0001	1.40
	Main reason for gambling: Socialize with family and friends		6.19	.0138	0.73	17.33	<.0001	0.77
	Main reason for gambling: Support worthy causes		22.08	<.0001	0.58	16.49	.0001	0.74
	Main reason for gambling: Makes me feel good about self + Other		1.40	.2540	0.79	2.75	.1082	0.83
	Wealth a good measure of success in life (1=s.agree; 5=s.disagree)		24.20	<.0001	0.66	28.94	<.0001	0.77
GAMBLING RECREATION	Importance of gambling as recreational activity (1=not at all important; 4=very important)		189.2	<.0001	2.96	226.4	<.0001	2.08
GAMBLING CONTEXT & AVAILABILITY	Typically gamble alone or with friends	More often alone vs More often with friends	14.12	.0009	1.37	24.68	<.0001	1.20
		Not collected in wave vs More often with friends			0.85			0.86
	Availability of opportunities to gamble at workplace or school	Extensively available vs Not available	10.56	.0064	1.33	9.89	.0085	1.13
		Somewhat available vs Not available			1.58			1.31
	Measured distance from home to closest EGM or table game venue		0.02	.9029	1.00	0.01	.9378	1.00
	Perceived distance from home or work to closest EGM or table game venue (>30 min drive=reference group)	16-30 minute drive	11.71	.0248	0.95	15.04	.0064	0.96
		5-15 minute drive			1.01			0.94
		<5 minute drive			1.99			1.26
		Not collected in Wave			0.83			0.86
	Number of MA casinos open		5.75	.0166	1.13	9.66	.0021	1.09
LIFETIME GAMBLING	Age first gambled for money		17.52	.0001	0.98	37.98	<.0001	0.99
		Unsure vs No	40.39	<.0001	1.74	54.74	<.0001	1.48

			Problem Gambling Status			PPGM Total Score		
			Wald Statistic	p-value	Odds Ratio	Wald Statistic	p-value	Odds Ratio
	Family member ever been regular gambler	Yes vs No			2.82			2.31
	Family member ever been problem gambler	Unsure vs No	14.63	.0007	1.50	26.63	<.0001	1.35
		Yes vs No			2.33			2.37
	Parents responsibly model gambling or provide info	No vs Yes	16.60	.0020	1.84	13.83	.0080	1.39
		Unsure vs Yes			1.29			1.18
GAMBLING FALLACIES	Gambling Fallacies Measure (higher scores = fewer fallacies)		35.72	<.0001	0.79	51.59	<.0001	0.83
PREVENTION AWARENESS	Heard media campaigns to prevent problem gambling (past 12 months)		1.40	.2383	0.90	1.20	.2830	0.95
	Awareness of programs to prevent problem gambling at school, work, community (past 12 months)		5.29	.0219	0.75	5.67	.0192	0.84
GAMBLING PROBLEMS - OTHERS	Portion of close friends and family that are regular gamblers (0=none; 4=all of them)		73.54	<.0001	2.00	65.12	<.0001	1.47
PERSONALITY								
TRAITS	Neuroticism - Emotional Stability (high score = neurotic)		21.50	.0003	1.05	15.45	.0017	1.03
	Agreeableness – Disagreeableness (high score = agreeable)		25.69	<.0001	0.93	27.51	<.0001	0.95
	Conscientiousness – Nonconscientiousness (high score = conscientious)		11.10	.0022	0.95	10.62	.0027	0.97
	Vulnerability		16.33	.0004	1.07	12.53	.0039	1.04
	Impulsivity		45.02	<.0001	1.11	35.64	<.0001	1.07
	Excitement-Seeking		17.09	.0004	1.07	27.43	<.0001	1.06
SOCIAL FUNCTIONING								
SOCIAL SUPPORT	Rating of current family relationships (1=excellent; 5=poor)		3.74	.0533	1.18	8.31	.0042	1.17
	Rating of current marital relationship	Average vs Excellent	14.42	.0133	1.96	16.48	.0059	1.57
		Below Average vs Excellent			2.24			1.66
		Not applicable vs Excellent			2.20			1.61
		Poor vs Excellent			3.08			2.08
		Very good vs Excellent			1.54			1.27
	Rating of current level of social support (1=excellent; 5=poor)		12.09	.0005	1.31	16.01	<.0001	1.22
	Importance of religion in your life (1=very impt; 4=not at all impt)		0.00	.9770	1.00	0.95	.3345	1.05
ANTISOCIALITY	Committed any illegal activities in past year		10.89	.0024	2.24	9.51	.0045	1.76
	Have criminal record		21.55	<.0001	2.87	23.45	<.0001	2.17
	Levenson's Primary Psychopathology Scale		50.24	<.0001	1.08	52.20	<.0001	1.05
DEMOGRAPHICS								

			Problem Gambling Status			PPGM Total Score		
			Wald Statistic	p-value	Odds Ratio	Wald Statistic	p-value	Odds Ratio
DEMOGRAPHICS	Gender (1=female; 2=male)		11.54	.0007	1.69	12.71	.0004	1.46
	Race/ethnicity	Hispanic vs White	25.34	<.0001	2.20	34.89	<.0001	1.98
		Black vs White			3.41			2.76
		Asian vs White			1.02			0.83
		Other vs White			1.06			1.02
	Born in U.S. (1=yes; 2=no)		4.04	.0446	1.55	2.98	.0851	1.31
	Age		0.53	.4827	1.00	1.14	.3412	1.00
	Marital status	Never married vs Living with partner/Married/Widowed	6.01	.0509	1.50	3.82	.1514	1.31
		Divorced or Separated vs Living with partner/Married/Widowed			1.44			1.07
	# children under 18 in household		1.79	.1978	1.09	1.29	.2895	1.06
	Educational Attainment	High school or less vs graduate/professional degree	35.32	<.0001	3.81	33.45	<.0001	2.36
		some college or Bachelor's degree vs graduate/professional degree			2.02			1.54
	Employment status	unemployed vs employed	3.92	.2763	1.38	6.21	.1163	1.19
		retired vs employed			1.18			1.09
		student/homemaker/disabled vs employed			1.46			1.35
	Served in Military		2.15	.1424	1.33	0.93	.3384	1.14
	Household Income		25.20	<.0001	0.99	15.03	.0002	1.00
	Current Debt	< $10K vs No debt	14.20	.0034	1.80	16.17	.0017	1.36
		$10K-<$200K vs No debt			1.45			1.19
		$200K+ vs No debt			1.20			1.07
WAVE								
WAVE	2 vs 1		11.78	.0192	1.28	12.72	.0136	1.09
	3 vs 1				1.20			1.16
	4 vs 1				1.50			1.25
	5 vs 1				1.43			1.21

Table 22. Bivariate Relationships with **Future** Problem Gambling Status and Problem Gambling Total Score across Waves

			Problem Gambling Status			PPGM Total Score		
			Wald Statistic	p-value	Odds Ratio	Wald Statistic	p-value	Odds Ratio
COMORBIDITIES								
PHYSICAL HEALTH	General health in past 12 months (1=excellent; 5=poor)		13.68	.0002	1.28	9.19	.0026	1.13
	Physical disability or chronic health problem		18.43	<.0001	1.87	12.68	.0004	1.36
STRESS	Level of stress in past 12 months (1=very low; 5=very high)		5.52	.0189	1.16	3.84	.0509	1.08
	Life events in past 12 months: Total number		52.62	<.0001	1.22	48.67	<.0001	1.15
	Life events: Work/school number		3.32	.0686	1.15	4.60	.0352	1.11
	Life events: Family/friends number		31.94	<.0001	1.34	24.99	<.0001	1.22
	Life events: Property/finances number		33.55	<.0001	1.94	24.37	<.0001	1.58
	Life events: Legal matters/crime number		7.84	.0051	1.65	10.24	.0016	1.47
	Life events: Health number		33.05	<.0001	2.16	23.95	<.0001	1.66
	Post-Traumatic Stress Disorder (DSM-5)		No Convergence			No Convergence		
SUBSTANCE USE & ADDICTIONS	Tobacco use in past 30 days		28.70	<.0001	2.46	13.86	.0003	1.57
	Alcohol use in past 30 days		3.45	.0635	0.76	0.74	.4001	0.93
	5 (male) or 4 (female) drinks on an occasion in past 30 days	Not collected in Wave vs No	4.95	.0850	1.19	6.55	.0401	1.13
		Yes vs No			0.92			1.04
	Non-medical use of drugs in past 12 months		9.96	.0019	1.81	2.39	.1261	1.26
	Substance Use Disorder		10.30	.0013	1.28	9.64	.0020	1.19
	Sought help for alcohol or drug problems in past 12 months		4.73	.0296	3.13	0.57	.4563	1.47
	Behavioral addiction in past 12 month		5.14	.0236	1.55	8.96	.0029	1.42
MENTAL HEALTH	General happiness in past 12 months (1=very low, 5=very high)		33.34	<.0001	0.65	15.57	<.0001	0.83
	Self-assessed mental health problem in past 12 months		6.07	.0143	1.55	1.71	.1931	1.19
	Major Depression (DSM-5)	Not collected in Wave vs No	12.74	.0017	0.87	6.09	.0489	0.92
		Yes vs No			2.27			1.42
	Generalized Anxiety (DSM-5)	Not collected in Wave vs No	9.39	.0092	0.86	7.24	.0278	0.92
		Yes vs No			1.96			1.56
	Panic Attacks (DSM-5)	Not collected in Wave vs No	8.90	.0117	0.88	6.24	.0453	0.92
		Yes vs No			2.35			1.50
	Any other mental health problem	Not collected in wave vs No	5.79	.0557	0.84	10.12	.0071	0.92
		Yes vs No			1.79			1.82
	ANY DSM-5 mental health problem		16.38	<.0001	2.32	8.59	.0036	1.56
LIFETIME COMORBIDITIES	Childhood happiness (mean) (1=very happy; 5=very unhappy)		4.38	.0407	1.19	8.56	.0055	1.17
	Physical, sexual or emotional abuse as child		2.54	.1546	1.42	7.23	.0224	1.49
	Problems with overuse of drugs or alcohol prior to past 12 months		57.40	<.0001	5.05	42.07	<.0001	3.23
	Behavioral addiction prior to past 12 months		44.13	<.0001	3.42	52.16	<.0001	2.88
	Significant mental health problems prior to past 12 months		13.52	.0011	1.97	17.66	.0003	1.73

			Problem Gambling Status			PPGM Total Score		
			Wald Statistic	*p*-value	Odds Ratio	Wald Statistic	*p*-value	Odds Ratio
	Significant family hx of addiction or mental health problems	Unsure vs No	16.92	.0008	1.57	17.43	.0005	1.47
		Yes vs No			1.96			1.57
GAMBLING								
GAMBLING ATTITUDES	Perceived benefit or harm of gambling (benefit=harm reference group)	Benefits far > harm	5.51	.2505	1.41	9.49	.0532	1.03
		Benefits somewhat > harm			0.87			1.02
		Harm far > benefits			0.75			0.78
		Harm somewhat > benefits			0.98			0.87
	Opinion about legalized gambling (some types should be legal=reference group)	All types should be illegal	1.65	.4386	0.95	1.88	.3941	0.81
		All types should be legal			1.16			1.01
	Opinion about gambling opportunities in MA (current availability fine=reference group)	Gambling not available enough	1.51	.4771	1.14	.65	.7256	1.04
		Gambling too widely available			1.12			1.06
GAMBLING BEHAVIOR	Traditional Lottery participation in past 12 months		39.00	<.0001	2.75	54.47	<.0001	1.94
	Daily Lottery participation in past 12 months		50.06	<.0001	2.40	50.78	<.0001	1.68
	Instant Lottery participation in past 12 months		36.57	<.0001	2.21	44.08	<.0001	1.61
	Raffle ticket purchase in past 12 months		1.72	.1908	1.16	0.82	.3704	1.06
	Sports betting in past 12 months		15.63	<.0001	1.73	19.96	<.0001	1.43
	Bingo in past 12 months		6.79	.0094	1.95	2.44	.1229	1.29
	Electronic Gambling machine participation in past 12 months	Not collected in Wave vs No	8.06	.0190	0.95	9.98	.0073	1.00
		Yes vs No			1.56			1.40
	Table game participation in past 12 month	Not collected in Wave vs No	6.58	.0374	0.89	6.64	.0372	0.96
		Yes vs No			1.54			1.39
	Casino (out-of-state) participation in past 12 months		18.10	<.0001	1.72	18.97	<.0001	1.42
	Casino (in-state) participation in past 12 months		1.03	.3573	1.34	1.09	.3114	1.21
	Casino (in OR out-of-state) participation in past 12 months		20.85	<.0001	1.78	20.71	<.0001	1.46
	Casino (In AND out of state) participation in past 12 months		0.40	.5539	1.34	1.14	.2898	1.36
	Has casino player rewards card	Did not gamble at casino vs No	8.48	.0457	0.67	9.85	.0237	0.73
		Not collected in wave vs No			0.64			0.73
		Yes vs No			1.00			0.95
	Horse race betting in past 12 months (includes dog racing in W3,W4,W5)		6.97	.0087	1.82	10.92	.0011	1.54
	Private gambling against others in past 12 months	Not collected in Wave vs No	7.69	.0217	1.28	10.07	.0070	1.16
		Yes vs No			1.28			1.21
	Other types of gambling in past 12 months	Not collected in Wave vs No	9.93	.0070	0.87	13.42	.0014	0.95
		Yes vs No			1.96			1.85
	Financial speculation in past 12 months		3.76	.0580	1.28	2.80	.1031	1.11

			Problem Gambling Status			PPGM Total Score		
			Wald Statistic	p-value	Odds Ratio	Wald Statistic	p-value	Odds Ratio
	Online gambling participation in past 12 months		17.47	<.0001	2.52	11.37	.0012	1.65
	Biggest win in single day past year		120.1	<.0001	1.00	91.89	<.0001	1.00
	Biggest loss in single day past year		90.43	<.0001	1.00	207.6	<.0001	1.00
	Total number of types of gambling engaged in (past 12 months)		80.71	<.0001	1.39	68.48	<.0001	1.24
	Total frequency of gambling (past 12 months)		133.1	<.0001	1.01	69.16	<.0001	1.00
	Total net expenditure in typical month (past 12 months) (9 categories)		120.1	<.0001	1.16	120.1	<.0001	1.11
GAMBLING MOTIVATION	Main reason for gambling: Excitement/entertainment		8.74	.0032	1.41	8.69	.0035	1.24
	Main reason for gambling: Escape/distract		0.76	.3839	1.42	0.04	.8556	1.05
	Main reason for gambling: Win money		2.68	.1036	1.24	5.66	.0181	1.19
	Main reason for gambling: Socialize with family and friends		3.85	.0551	0.76	8.80	.0053	0.82
	Main reason for gambling: Support worthy causes		79.98	<.0001	0.36	148.0	<.0001	0.59
	Main reason for gambling: Makes me feel good about self + Other		1.49	.2627	0.78	0.68	.4170	0.91
	Wealth a good measure of success in life (1=s.agree; 5=s.disagree)		20.72	<.0001	0.65	26.93	<.0001	0.74
GAMBLING RECREATION	Importance of gambling as recreational activity (1=not at all important; 4=very important)		98.13	<.0001	2.37	91.62	<.0001	1.58
GAMBLING CONTEXT & AVAILABILITY	Typically gamble alone or with friends	More often alone vs More often with friends	9.90	.0073	1.26	8.29	.0178	1.05
		Not collected in wave vs More often with friends			0.82			0.87
	Availability of opportunities to gamble at workplace or school	Extensively available vs Not available	2.58	.3898	2.01	3.22	.2690	1.66
		Somewhat available vs Not available			0.98			0.94
	Measured distance from home to closest EGM or table game venue		0.34	.5618	1.00	0.69	.4098	1.00
	Perceived distance from home to closest EGM or table game venue	16-30 minute drive	12.74	.0167	1.51	14.12	.0102	1.25
		5-15 minute drive			0.72			0.68
		<5 minute drive			2.24			1.39
		Not collected in Wave			0.85			0.91
	Number of MA casinos open		5.16	.0234	1.22	5.86	.0163	1.12
LIFETIME GAMBLING	Age first gambled for money		14.20	.0003	0.98	35.09	<.0001	0.98
	Family member ever been regular gambler	Unsure vs No	47.43	<.0001	1.87	58.51	<.0001	1.50
		Yes vs No			3.25			2.46
	Family member ever been problem gambler	Unsure vs No	16.26	.0003	1.59	26.66	<.0001	1.36
		Yes vs No			2.47			2.48

			Problem Gambling Status			PPGM Total Score		
			Wald Statistic	p-value	Odds Ratio	Wald Statistic	p-value	Odds Ratio
	Parents responsibly model gambling or provide info	No vs Yes	16.90	.0007	2.05	14.99	.0015	1.52
		Unsure vs Yes			1.42			1.30
GAMBLING FALLACIES	Gambling Fallacies Measure (higher scores = fewer fallacies)		45.01	<.0001	0.75	37.20	<.0001	0.83
GAMBLING PREVENTION AWARENESS	Heard media campaigns to prevent problem gambling (past 12 months)		7.44	.0068	0.77	6.00	.0160	0.88
	Awareness of programs to prevent problem gambling at school, work, community (past 12 months)		4.90	.0274	0.72	2.54	.1136	0.87
GAMBLING PROBLEMS - OTHERS	Portion of close friends and family that are regular gamblers (0=none; 4=all of them)		25.68	<.0001	1.62	18.56	<.0001	1.29
GAMBLING PROBLEMS - SELF	PPGM Problem Gambler		33.03	<.0001	7.03	3.74	.0536	2.05
	PPGM At Risk Gambler		35.29	<.0001	2.59	4.55	.0336	1.27
	PPGM Recreational Gambler		81.40	<.0001	0.27	17.98	<.0001	0.72
	PPGM Non-Gambler		62.96	<.0001	0.23	54.40	<.0001	0.42
PERSONALITY								
TRAITS	Neuroticism - Emotional Stability (high score = neurotic)		25.02	<.0001	1.07	20.75	<.0001	1.04
	Agreeableness – Disagreeableness (high score = agreeable)		26.12	<.0001	0.92	32.35	<.0001	0.94
	Conscientiousness – Nonconscientiousness (high score = conscientious)		13.49	.0015	0.94	12.01	.0027	0.96
	Vulnerability		18.97	<.0001	1.09	17.10	.0011	1.06
	Impulsivity		52.55	<.0001	1.14	46.98	<.0001	1.10
	Excitement Seeking		18.76	<.0001	1.08	34.12	<.0001	1.07
SOCIAL FUNCTIONING								
SOCIAL SUPPORT	Rating of current family relationships (1=excellent; 5=poor)		7.20	.0073	1.29	5.20	.0234	1.17
	Rating of current marital relationship	Average vs Excellent	18.31	.0027	1.81	14.94	.0122	1.30
		Below Average vs Excellent			4.12			2.31
		Not applicable vs Excellent			1.99			1.27
		Poor vs Excellent			1.46			1.11
		Very good vs Excellent			2.11			1.29
	Rating of current level of social support (1=excellent; 5=poor)		4.90	.0272	1.21	2.68	.1041	1.11
	Importance of religion in your life (1=very impt; 4=not at all impt)		3.09	.0790	0.88	2.59	.1095	0.91
ANTISOCIALITY	Committed any illegal activities in past year		11.54	.0009	2.39	12.20	.0008	1.99
	Have criminal record		19.30	<.0001	2.88	27.45	<.0001	2.38
	Levenson's Primary Psychopathology Scale		57.53	<.0001	1.09	73.43	<.0001	1.07
DEMOGRAPHICS								
DEMOGRAPHICS	Gender (1=female; 2=male)		9.19	.0024	1.63	10.73	.0011	1.43
	Race/ethnicity	Hispanic vs White/other	20.66	.0002	2.11	32.14	<.0001	0.93

			Problem Gambling Status			PPGM Total Score		
			Wald Statistic	p-value	Odds Ratio	Wald Statistic	p-value	Odds Ratio
		Black vs White/other			3.33			2.94
		Asian vs White/other			0.97			0.80
	Born in U.S. (1=yes; 2=no)		2.89	.0891	1.50	2.73	.1000	1.33
	Age		0.75	.3910	1.00	2.94	.0883	0.99
	Marital status	Never married vs Living with partner/Married/Widowed	5.13	.0794	1.45	3.17	.2103	1.25
		Divorced or Separated vs Living with partner/Married/Widowed			1.46			1.20
	# children under 18 in household		0.07	.8359	1.01	1.22	.2939	1.05
	Educational Attainment	High school or less vs graduate/professional degree	22.76	<.0001	3.41	30.77	<.0001	2.34
		some college or Bachelor's degree vs graduate/professional degree			2.24			1.77
	Employment status	unemployed vs employed	3.66	.3128	1.33	6.85	.0812	1.34
		retired vs employed			0.98			0.94
		student/homemaker/disabled vs employed			1.50			1.30
	Served in Military		2.30	.1291	1.36	0.94	.3328	1.14
	Household Income		33.34	<.0001	0.99	19.44	<.0001	1.00
	Current Debt	$10K vs No debt	11.79	.0117	1.27	18.24	.0012	1.39
		$10-<200K vs No debt			1.20			1.22
		$200K+ vs No debt			0.76			1.00

Table 23 is a summary of the bivariate results, reporting the Wald statistics from each of the statistically significant variables (*p* < .01) in all four bivariate analyses. There were 68 variables that demonstrated *both* a significant concurrent and future relationship with either problem gambling status or PPGM total score. These variables are listed in the top part of the table. There were an additional 21 variables that demonstrated *either* a concurrent or future relationship with problem gambling. These are listed in the bottom part of the table. Within each of these two groupings the variables are listed roughly in order of importance (as determined by their highest concurrent Wald statistic added to their highest future Wald statistic).

There were also 16 variables that demonstrated no significant concurrent or future relationship with problem gambling at a *p* < .01 level. *Italicized variables* are ones that have been significant in other cross-sectional and/or longitudinal research; **bolded** *variables* are ones that were significant in the Baseline General Population Survey in 2013/2014:

- Number of children under 18 in the household
- Importance of religion
- Attitudes toward gambling (perceived benefit or harm; types that should be legal; whether gambling too widely available in MA)
- Alcohol use in past 30 days
- Main reason for gambling: makes me feel good about myself
- Awareness of PG prevention programs at work, school, or in community
- *Age*
- *Marital status*
- *Born in the United States*
- *Distance from home to closest EGM or table game venue*
- *Level of stress in the past 12 months*
- *Physical, sexual or emotional abuse as a child*
- ***Employment status***
- ***Having served in the military***

Table 23. Wald Statistics from all the Bivariate GEE Analyses

	Concurrent Problem Gambling Status	Concurrent Problem Gambling Total Score	Future Problem Gambling Status	Future Problem Gambling Total Score
Biggest loss in single day past year	125.6	85.06	90.43	207.6
Importance of gambling as recreational activity	189.2	226.4	98.13	91.62
Biggest win in single day past year	126.5	189.9	120.1	91.89
Total number of types of gambling engaged in past 12 months	173.2	218.4	80.71	68.48
Total frequency of gambling in past 12 months	162.9	136.4	133.1	69.16
Total net expenditure in typical month (past 12 months)	105.4	120.1	120.1	120.1
Main reason for gambling: Support worthy causes (negative)	22.08	16.49	79.98	148.0
PPGM Recreational Gambler	Not assessed	Not assessed	81.40	17.98
PPGM Non-Gambler	Not assessed	Not assessed	62.96	54.40
Instant lottery participation in past 12 months	78.84	104.6	36.57	44.08
Traditional lottery participation in past 12 months	73.49	80.46	39.00	54.47
Daily lottery participation in past 12 months	69.21	81.07	50.06	50.78
Higher psychopathy/antisociality	50.24	52.20	57.53	73.43
Family member ever been regular gambler	40.39	54.74	47.43	58.51
Problems with overuse of drugs or alcohol prior to past 12 months	44.90	33.46	57.40	42.07
PPGM At-Risk Gambler	Not assessed	Not assessed	35.29	4.55
PPGM Problem Gambler	Not assessed	Not assessed	33.03	3.74
Substance Use Disorder	54.97	90.48	10.30	9.64
Behavioral addiction prior to past 12 months	40.55	48.68	44.13	52.16
Portion of close friends and family that are regular gamblers	73.54	65.12	25.68	18.56
Higher Impulsivity	45.02	35.64	52.55	46.98
Higher number of gambling fallacies	35.72	51.59	45.01	37.20
Higher number of life events in past 12 months	26.29	22.42	52.62	48.67
Younger age when first gambled for money	17.52	37.98	14.20	35.09
Higher number of property/financial life events in past 12 months	19.53	34.56	33.55	24.37
Casino (in OR out-of-state) participation in past 12 months	32.84	47.03	20.85	20.71
Race/ethnicity (Black, Hispanic)	25.34	34.89	20.66	32.14
Lower educational attainment	35.32	33.45	22.76	30.77
Lower happiness in past 12 months (1=very low, 5=very high)	18.26	30.33	33.34	15.57
Higher excitement-seeking	17.09	27.43	18.76	34.12
Lower agreeableness	25.69	27.51	26.12	32.35
Lower household Income	25.20	15.03	33.34	19.44
Wealth a good measure of success in life (1=s.agree; 5=s.disagree)	24.20	28.94	20.72	26.93
Family member ever been problem gambler	14.63	26.63	16.26	26.66
ANY past year DSM-5 mental health problem	36.59	22.12	16.38	8.59
Sports betting in past 12 months	32.28	32.05	15.63	19.96
Have criminal record	21.55	23.45	19.30	27.45
Higher number of health life events in past 12 months	17.62	11.45	33.05	23.95
Tobacco use in past 30 days	21.36	10.07	28.70	13.86
Higher levels of neuroticism	21.50	15.45	25.02	20.75
Casino (out-of-state) participation in past 12 months	21.29	26.08	18.10	18.97
Higher number of friends/family life events past 12 months	6.89		31.94	24.99
Higher vulnerability	16.33	12.53	18.97	17.10
Poorer rating of current marital relationship		16.48	18.31	
More typically gamble alone rather than with friends	14.12	24.68	9.90	
Higher current debt	14.20	16.17		18.24
Parents not responsibly modelling gambling or providing education	16.60	13.83	16.90	14.99
Online gambling participation in past 12 months	8.33	15.94	17.47	11.37

	Concurrent Problem Gambling Status	Concurrent Problem Gambling Total Score	Future Problem Gambling Status	Future Problem Gambling Total Score
Electronic gambling machine participation in past 12 months	13.44	23.42		9.98
Significant family hx of addiction or mental health problems	13.10	13.19	16.92	17.43
Significant mental health problems prior to past 12 months		12.30	13.52	17.66
Poorer general health in past 12 months	16.20	13.39	13.68	12.68
Private gambling against others in past 12 months	9.75	18.82		10.07
Other types of gambling participation in past 12 months		14.29	9.93	13.42
Major Depression (DSM-5)	14.96	13.32	12.74	
Bingo in past 12 months	13.21	20.65	6.79	
Main reason for gambling: Socialize with family and friends (-ve)		17.33		8.80
Horse/dog race betting in past 12 months	14.17	9.31	6.97	10.92
Lower conscientiousness	11.10	10.62	13.49	12.01
Non-medical use of drugs in past 12 months	14.28	14.19	9.96	
Male gender	11.54	12.71	9.19	10.73
Generalized Anxiety (DSM-5)	13.61	13.74	9.39	
Committed any illegal activities in past year	10.89	9.51	11.54	12.20
Any other mental health problem	12.11	12.95		10.12
Higher number of legal/crime events in past 12 months	9.47		7.84	10.24
Behavioral addiction in past 12 months	10.78	7.41		8.96
Lower rating of current family relationships		8.31	7.2	
Lower childhood happiness	6.89	10.07		8.56
Has casino player rewards card	17.41	42.93		
Main reason for gambling: Win money	28.82	34.13		
Table game participation in past 12 months	11.19	25.34		
Raffle ticket purchase in past 12 months	14.66	20.92		
Panic Attacks (DSM-5)	20.76	19.08		
5 (male) or 4 (female) drinks on an occasion in past 30 days	13.94	18.63		
Physical disability or chronic health problem			18.43	12.68
Main reason for gambling: Escape/distract	17.02	11.20		
Lower rating of current level of social support	12.09	16.01		
Perceived distance from home/work to nearest EGM venue		15.04		
Post-Traumatic Stress Disorder (DSM-5)	13.91	12.20		
Casino (in-state) participation in past 12 months	10.83	8.97		
Availability of opportunities to gamble at workplace or school	10.56	9.89		
Casino (In AND out of state) participation in past 12 months	10.62			
Number of MA casinos open		9.66		
Higher number of work/school life events past 12 months		9.37		
Financial speculation in past 12 months		8.87		
Main reason for gambling: Excitement/entertainment			8.74	8.69
Sought help for alcohol or drug problems in past 12 months	8.42			
Self-assessed mental health problem in past 12 months		7.81		
Heard media campaigns to prevent PG in past 12 months			7.44	

Multivariate Analyses

Variables are often strongly correlated with one another (e.g., educational attainment and income). Consequently, bivariate relationships do not identify whether there may be specific attribute(s) underlying a range of bivariate associations. The *relative* importance of different variables is better established in a stepwise multivariate analysis where variables having the strongest association with the dependent variable enter the model first, and other variables only enter the model if they add additional predictive power beyond their shared variance.

All variables that demonstrated a statistically significant bivariate relationship to the dependent variable at a $p < .01$ level were included in the multivariate GEE analyses. A stepwise GEE was employed with an entry level of $p < .10$ and an exit level of $p < .05$.

A few variables were excluded as they are too conceptually related to the construct of problem gambling (i.e., they are also manifestations of problem gambling) and would dominate the model if included. (These variables were included in our initial multivariate analyses and subsequently excluded because of their dominance):
- Measures of gambling intensity (number of formats engaged in; total frequency; total loss)
- Largest Gambling Loss in Past 12 Months
- Largest Gambling Win in Past 12 Months
- Gambling Category (Non-Gambler, Recreational Gambler, At-Risk Gambler, Problem Gambler)

A total of 19 variables predicted Concurrent PPGM Status across waves. These are listed in order of their Wald statistic in Table 24.

A total of 22 variables predicted Concurrent PPGM Total score across waves. These are listed in order of their Wald statistic in Table 25.

A total of 17 variables predicted Future PPGM Status across waves. These are listed in order of their Wald statistic in Table 26.

A total of 19 variables predicted Future PPGM Total score across waves. These are listed in order of their Wald statistic in Table 27.

Table 24. Multivariate Predictors of **Concurrent** PPGM Problem Gambling Status Across Waves

	Wald statistic	*p*-value	Odds Ratio
Higher rated importance of gambling as a recreational activity	123.77	<.0001	2.57
Main reason to gamble: To escape or distract	34.55	<.0001	3.54
Main reason to gamble: To win money	31.49	<.0001	2.06
Higher impulsivity	29.90	<.0001	1.09
Higher portion of friends and family that are regular gamblers	17.70	<.0001	1.54
Daily lottery game participation (past 12 months)	15.92	<.0001	1.65
Any DSM-5 mental health problem (past 12 months)	15.86	<.0001	1.95
Instant lottery participation (past 12 months)	10.75	.0011	1.69
Higher number of significant property/financial life events (past 12 months)	10.34	.0014	1.48
Lower educational attainment (high school or less vs graduate/prof degree)	9.17	.0105	1.56
Lower annual household income	8.77	.0039	1.00
Male gender	8.38	.0039	1.58
Behavioral addictions (past 12 months)	7.99	.0049	1.57
Casino participation (in <u>or</u> out-of-state) (past 12 months)	7.58	.0069	1.46
Tobacco use (past 30 days)	6.08	.0150	1.51
Problems with overuse of drugs or alcohol prior to past 12 months	5.91	.0187	1.83
Sports betting participation (past 12 months)	5.82	.0166	1.40
Casino participation (in <u>and</u> out-of-state) (past 12 months)	5.70	.0195	1.72
Traditional lottery participation (past 12 months)	5.38	.0215	1.94

Table 25. Multivariate Prediction of **Concurrent** PPGM Total Score Across Waves

	Wald statistic	*p*-value	Odds Ratio
Higher rated importance of gambling as a recreational activity	187.97	<.0001	1.81
Main reason to gamble: To win money	36.76	<.0001	1.43
Having player reward card	32.75	.0004	1.20
More typically gamble alone rather than with friends	34.27	<.0001	1.27
Instant lottery participation (past 12 months)	28.89	<.0001	1.45
Higher impulsivity	24.70	.0003	1.05
Daily lottery game participation (past 12 months)	24.17	<.0001	1.36
Higher number of significant property/financial life events (past 12 months)	23.59	<.0001	1.54
Main reason to gamble: To escape or distract	20.11	<.0001	1.73
Higher portion of friends and family that are regular gamblers	16.53	.0001	1.20
Lower educational attainment (high school or less vs graduate/prof degree)	9.80	.0081	1.36
Any family member ever been problem gambler	9.49	.0094	1.06
Casino participation (in <u>or</u> out-of-state) (past 12 months)	9.26	.0034	1.25
Depression (past 12 months)	7.46	.0079	1.29
Level of happiness (past 12 months)	7.43	.0070	.89
Gambling Fallacies Measure (higher scores = fewer fallacies)	6.70	.0110	.95
Poorer rating of general health (past 12 months)	6.61	.0105	1.10
Traditional lottery participation (past 12 months)	6.58	.0121	1.33
Higher scores on psychopathy (Levenson's Scale)	6.23	.0226	1.01
Problems with drugs or alcohol prior to past 12 months	5.86	.0190	1.43
Male gender	5.16	.0250	1.22
Sports betting participation (past 12 months)	4.17	.0431	1.15

Table 26. Multivariate Predictors of **<u>Future</u>** PPGM Problem Gambling Status Across Waves

	Wald statistic	*p*-value	Odds Ratio
Higher rated importance of gambling as a recreational activity	54.59	<.0001	2.05
Higher impulsivity	23.38	<.0001	1.10
Level of happiness (past 12 months)	19.10	<.0001	0.69
Online gambling participation (past 12 months)	17.04	<.0001	2.05
Lower annual household income	15.11	<.0001	0.99
Problems with overuse of drugs or alcohol prior to past 12 months	12.47	.0006	2.36
Daily lottery game participation (past 12 months)	12.37	.0005	1.64
Casino participation (out-of-state) (past 12 months)	11.13	.0014	1.58
Male gender	9.63	.0020	1.70
Any family member ever been regular gambler	9.42	.0092	1.72
Main reason to gamble: To support worthy causes (negative association)	8.37	.0078	3.58
Gambling Fallacies Measure (higher scores = fewer fallacies)	8.28	.0043	0.88
Higher number of significant property/financial life events (past 12 months)	7.65	.0058	1.42
Traditional lottery participation (past 12 months)	5.57	.0186	1.76
Higher number of significant family/friend life events (past 12 months)	4.59	.0329	1.13
Higher scores on psychopathy (Levenson's Scale)	4.44	.0435	1.02
Instant lottery participation (past 12 months)	4.17	.0423	1.41

Table 27. Multivariate Prediction of **<u>Future</u>** PPGM Total Score Across Waves

		Wald statistic	*p*-value	Odds Ratio
Higher rated importance of gambling as a recreational activity		58.95	<.0001	1.42
Main reason to gamble: To support worthy causes (negative association)		36.59	<.0001	2.00
Higher impulsivity		21.21	<.0001	1.06
Daily lottery game participation (past 12 months)		22.01	<.0001	1.37
Casino participation (out-of-state) (past 12 months)		21.47	<.0001	1.37
Traditional lottery participation (past 12 months)		15.45	.0001	1.57
Main reason to gamble: To socialize with family/friends (negative association)		12.88	.0006	1.39
Race/ethnicity	Black vs White/Other	12.84	.0133	1.77
	Hispanic vs White/Other			1.34
	Asian vs White/Other			1.04
Any family member ever been regular gambler		12.70	.0018	1.42
Higher scores on psychopathy (Levenson's Scale)		11.38	.0025	1.02
Higher number of significant life events (past 12 months)		11.33	.0009	1.07
Instant lottery participation (past 12 months)		10.00	.0017	1.29
Male gender		8.47	.0039	1.32
Lower household income		8.43	.0047	1.00
Wealth is a good measure of success in life		8.41	.0044	.87
Problems with drugs or alcohol prior to past 12 months		5.88	.0173	1.47
Level of happiness (past 12 months)		5.70	.0188	.90
Problems with behavioral addictions prior to past 12 months		5.26	.0241	1.37
Sports betting participation (past 12 months)		5.16	.0246	1.19

Table 28 is a summary of the multivariate results, reporting the Wald statistics from the statistically significant variables in all four multivariate analyses (remembering that current gambling category and measures of the intensity of gambling involvement were also strongly significant but were excluded from this list). There were 13 variables that demonstrated both a significant concurrent and future relationship with either problem gambling status or PPGM total score and these are listed in the top part of the table. There were 24 variables that demonstrated either a concurrent or future relationship and are listed in the bottom part of the table. The variables are listed roughly in order of importance within each group (as determined by their highest concurrent Wald statistic added to their highest future Wald statistic).

Table 28. Wald Statistics from all Multivariate GEE Analyses

	Concurrent Problem Gambling Status	Concurrent Problem Gambling Total Score	Future Problem Gambling Status	Future Problem Gambling Total Score
Higher rated importance of gambling as a recreational activity	123.77	187.97	54.59	58.95
Higher impulsivity	29.90	24.70	23.38	21.21
Daily lottery game participation (past 12 months)	15.92	24.17	12.37	22.01
Instant lottery participation (past 12 months)	10.75	28.89	4.17	10.00
Higher number of significant property/financial life events	10.34	23.59	7.65	
Lower level of happiness (past 12 months)		7.43	19.10	5.70
Lower household income	8.77		15.11	8.43
Male gender	8.38	5.16	9.63	8.47
Traditional lottery participation (past 12 months)	5.38	6.58	5.57	15.45
Problems with drugs or alcohol prior to past 12 months	5.91	5.86	12.47	5.88
Higher scores on psychopathy/antisociality (Levenson's Scale)		6.23	4.44	11.38
Sports betting participation (past 12 months)	5.82	4.17		5.16
Higher level of gambling fallacies		6.70	8.28	
Main reason to gamble: To win money	31.49	36.76		
Main reason to gamble: To support worthy causes (negative)			8.37	36.59
Main reason to gamble: To escape or distract	34.55	20.11		
More typically gamble alone rather than with friends		34.27		
Having player reward card		32.75		
Casino participation (out-of-state) (past 12 months)			11.13	21.47
Higher portion of friends and family that are regular gamblers	17.70	16.53		
Online gambling participation (past 12 months)			17.04	
Any DSM-5 mental health disorder (past 12 months)	15.86			
Main reason to gamble: To socialize with family and friends (-ve)				12.88
Race/ethnicity (Black, Hispanic)				12.84
Family member ever been regular gambler			9.42	12.70
Higher number of significant life events (past 12 months)				11.33
Lower educational attainment	9.17	9.80		
Family member ever been problem gambler		9.49		
Casino participation (in or out-of-state) (past 12 months)	7.58	9.26		
Wealth is a good measure of success in life (higher endorsement)				8.41
Behavioral addictions (past 12 months)	7.99			
Depression (past 12 months)		7.46		
Poorer rating of general health (past 12 months)		6.61		
Tobacco use (past 30 days)	6.08			
Casino participation (in and out-of-state) (past 12 months)	5.70			
Problems with behavioral addictions prior to past 12 months				5.26
Higher number of significant family/friend life events past 12 mo			4.59	

Predictors of Problem Gambling Remission versus Continuation

A supplemental GEE analysis was conducted to identify variables that best differentiated problem gamblers who continued to be problem gamblers in the next wave compared to problem gamblers who remitted in the next wave (i.e., transitioned to Non-Gamblers, Recreational Gamblers, or At-Risk Gamblers). All 105 independent variables were examined.

The following table identifies the 15 variables that had a significant bivariate relationship with problem gambling remission in the next wave, listed in order of the size of their Wald statistic. A significance level of .05 was utilized because of the much smaller sample size.

Table 29. Variables with a Bivariate Relationship to Problem Gambling **Remission in the Next Wave** among Existing Problem Gamblers

	Wald statistic	*p*-value	Odds Ratio
Problems with gambling in lifetime prior to past 12 months	22.84	<.0001	0.46
Impulsivity	11.77	.0013	0.90
PPGM Total Score	11.01	.0009	0.83
Total net expenditure in typical month (past 12 months)	10.27	.0014	0.99
Biggest win in single day past year	7.31	.0069	0.99
Behavioral addictions (past 12 months)	7.30	.0072	0.46
Number of significant property/financial life events (past 12 months)	7.09	.0077	0.56
Participation in 'other types' of gambling (past 12 months)	6.16	.0460	0.31
Illegal activities in past year	5.36	.0282	0.42
Gambling Fallacies Measure (higher scores = fewer fallacies)	4.99	.0268	1.17
DSM-5 mental health disorder (past 12 months)	4.99	.0255	0.51
Importance of gambling as recreational activity	4.78	.0290	0.73
Biggest loss in single day past year	4.32	.0378	1.00
Number of significant life events (past 12 months)	4.07	.0438	0.90
Wealth a good measure of success in life (1=strongly agree;5=strongly disagree)	4.04	.0450	1.35

Variables significant at the bivariate level were entered into a stepwise multivariate GEE predicting problem gambling remission in the next wave. There were four variables that had a significant (*p* < .05) multivariate relationship with problem gambling remission in the next wave as identified in the following table.

Table 30. Variables with a Multivariate Relationship to Problem Gambling **Remission in the Next Wave** among Existing Problem Gamblers

	Wald statistic	*p*-value	Odds Ratio
Problems with gambling in lifetime prior to past 12 months	21.69	<.0001	0.56
Impulsivity	11.74	.0009	0.89
Biggest win in single day past year	8.89	.0029	0.99
Gambling Fallacies Measure (higher scores = fewer fallacies)	6.28	.0130	1.18

Supplemental Descriptive Results

The MAGIC questionnaire contained several additional questions that further contextualize the preceding findings and are relevant to policy recommendations.

The first set of questions pertains to awareness of problem gambling prevention efforts. Participants in each wave were asked "In the past 12 months have you seen or heard any media campaigns to prevent problem gambling in Massachusetts?" and "In the past 12 months have you been aware of any programs to prevent problem gambling (other than media campaigns) offered at your school, your place of work, in your community or elsewhere?" If they said 'yes' to awareness of programs, they were asked "Did you participate in any of the problem gambling prevention programs that you heard of in the past 12 months?" If they said 'yes' to either awareness of media campaigns or prevention programs, they were asked "Did any of these media campaigns or programs cause you to alter your own gambling behavior?" The results are displayed in Table 31 below.

Table 31. Prevention Awareness and Participation within the Cohort

		Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Average
1. Seen/heard media campaigns to prevent problem gambling in MA (past 12 months)? (% yes)		49.2%	50.1%	43.9%	33.6%	34.3%	42.2%
2. Aware of any prevention programs at school, work, in community or elsewhere? (past 12 months) (% yes)		15.1%	16.6%	18.0%	16.5%	17.1%	16.7%
If yes to 2	Did you participate in any of these prevention programs? (% yes)	1.7%	1.2%	1.9%	1.5%	2.5%	1.8%
If yes to 1 or 2	Did these media campaigns or programs alter your gambling behaviors? (% yes)	1.2%	0.8%	1.1%	1.1%	1.2%	1.1%

Problem gamblers[11] in each wave were asked a series of supplemental questions. The first set of questions pertained to problematic types of gambling. They were asked "Are there particular types of gambling that have contributed to your problems more than others?" If they said 'yes', they were asked "Which types?" and were provided with a list of response options and asked to 'check all that apply'. The results are presented below in Table 32. [Note: open-ended responses from the 'other' category option were back-coded into the existing categories]. Cells with sample sizes of 5 or less were suppressed.

Table 32. Types of Gambling Contributing to Problems among Problem Gamblers

		Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Average
Are there particular types of gambling that have contributed to your problems more than others? (% yes)		23.3%	36.5%	53.2%	44.8%	47.5%	41.1%
If yes which ones?	Instant Lottery Tickets	23.5%	28.6%	66.7%	66.7%	67.9%	50.7%
	Slot Machines or Video Lottery Terminals	--	28.6%	27.3%	23.3%	21.4%	23.6%
	Traditional Lottery Tickets	--	--	24.2%	36.7%	28.6%	23.1%
	Daily Lotteries	--	--	18.2%	20.0%	--	16.2%
	Casino Table Games	--	--	--	--	17.9%	11.2%
	Sports Betting	--	--	--	20.0%	--	11.2%
	Bingo	--	0%	--	--	--	7.6%
	Horse or Dog Race Betting	0%	--	--	0%	0%	--
	High Risk Stocks, Options, Futures, Day Trading	0%	0%	--	0%	--	--
	Online Gambling	--	0%	--	0%	0%	--

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[11] Anyone who had a Problem Gambling Severity Index (PGSI) Score of 5 or higher. The PGSI was utilized as it was too complicated to create an online scoring algorithm to calculate PPGM Problem Gambling status. A PGSI score of 5+ corresponds closely to the PPGM Problem Gambling category (Williams & Volberg, 2014).

Problem gamblers were also asked questions concerned treatment seeking. The stem question was "Have you *wanted* help for gambling problems in the past 12 months?" If they said 'yes', they were asked "Have you *sought* help for gambling problems in the past 12 months?" If they said 'yes', they were asked "Where did you seek help from?" and provided with a list of response options and asked to 'check all that apply'. The results are presented below in Table 33. Cells with sample sizes of 5 or less were suppressed.

Table 33. Help Seeking among Problem Gamblers

		Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Average
Have you *wanted* help for gambling problems in the past 12 months? (% yes)		--	7.9%	11.3%	--	--	7.8%
If yes:	Have you *sought* help for gambling problems in the past 12 months? (% yes)	--	--	--	--	--	36.1%

In terms of where people sought help from, across all five waves there were seven reports of seeking help from Gamblers Anonymous. All other categories of treatment providers had less than five reports.

Regardless of whether the person indicated they wanted or sought help, all problem gamblers were asked about casino self-exclusion. More specifically, the question was "Have you excluded yourself from any casino or slots parlor in the past 12 months?" If they said 'yes', they were asked to identify which state(s). The results are presented below in Table 34.

Table 34. Utilization of Casino Self-Exclusion among Problem Gamblers

		Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Average
Have you excluded yourself from any casino or slots parlor in the past 12 months? (% yes)		12.3%	21.1%	19.4%	19.4%	17.5%	17.9%
If yes, which state(s)?	Connecticut	88.9%	--	83.3%	46.2%	60.0%	61.9%
	Massachusetts	0%	0%	75.0%	--	80.0%	38.7%
	Rhode Island	0%	0%	75.0%	--	--	27.2%
	New Jersey	0%	0%	--	--	--	19.0%
	New York	0%	0%	--	--	--	15.3%
	Pennsylvania	0%	0%	--	--	--	15.3%
	Maine	0%	0%	--	--	--	13.7%
	Nevada	0%	--	--	--	--	13.0%
	Other Jurisdiction	--	50.0%	--	--	--	25.8%

Beginning in Wave 3, all problem gamblers were asked "What would you say have been the main cause or causes of your gambling problems (provide as much detail as needed)?" Although a response to this question was not mandatory, the large majority did provide one. These open-ended written responses had a few distinctive characteristics. For one, they tended to be short, with a phrase or sentence being the most common length, and only a few people providing multi-sentence responses. However, in most cases this appeared to be due to a relatively simple and singular belief about the cause(s) of their gambling problems that did not require elaboration. As an indication of this, 79.6% only reported a single cause, 19.0% identified two causes, 1.3% identified three causes, and no one identifying four or more causes.

Table 35 groups these reported causes into themes. The five most common themes were: the desire to win money; to relieve boredom or for the enjoyment or excitement of gambling; because of stress, depression, or the need to escape; and poor self-control or addiction. It is also notable that 9.3% of people denied having gambling problems at all.

Table 35. Frequency of Self-Reported Causes of Problem Gambling

	Wave 3	Wave 4	Wave 5	TOTAL	%
Desire to Win Money	18	18	19	55	30.2%
Boredom/Enjoyment/Excitement	14	13	12	39	21.4%
Denial of Problem	5	7	5	17	9.3%
Stress/Depression/Escape	6	2	6	14	7.7%
Addiction/Poor Self-Control	5	2	6	13	7.1%
Chasing Losses	3	3	1	7	3.8%
Availability of Gambling	3	1	2	6	3.3%
Losing	4	0	2	6	3.3%
Social Pressure	1	2	1	4	2.2%
Don't Know	0	2	1	3	1.6%
Other	5	7	6	18	9.9%
TOTAL	64	57	61	182	100%

Figures in the cells indicate the number of people reporting this reason during that assessment period.

Finally, beginning in Wave 3, people who were problem gamblers in the previous wave were asked "Do you believe you are having fewer gambling problems than last year?" If they said 'yes', they were asked "What would you say is responsible for this improvement (provide as much detail as needed)?" Similar to people's explanations of what caused their problems, the explanations for improvement tended to be very short and simple, with only three of the 28 people providing more than one reason. Table 36 groups these reported reasons into themes. The four most common themes were: self-control; having less money available; winning or having more money available; and spousal or family pressure or support. A total of 9.4% of responses indicated that the person did not believe they had a problem in the previous year. No one reported formal treatment as a reason for improvement.

Table 36. Reasons for Improvement from Previous Year Problem Gambling

	Wave 3	Wave 4	Wave 5	TOTAL	%
Exerting Self-Control	2	4	3	9	28.1%
Less Money Available	3	0	1	4	12.5%
Winning/Having More Money Available	1	1	1	3	9.4%
Spouse/Family Pressure/Focus/Support	0	2	1	3	9.4%
Never had a Problem	1	1	1	3	9.4%
Became Bored with Gambling	1	1	0	2	6.3%
Became too Busy	0	2	0	2	6.3%
Depression	0	2	0	2	6.3%
Health Issues	0	1	0	1	3.1%
Lacking Transportation	0	1	0	1	3.1%
Summer	0	0	1	1	3.1%
Don't Know	0	0	1	1	3.1%
TOTAL	8	15	9	31	100%

DISCUSSION

Potential Impacts of MA Casino Introduction

While there was significant variation in rates of gambling participation between waves on most types of gambling within the cohort, some changes were of small magnitude, some reflected pre-existing trends (e.g., decrease in horse race betting; increase in online gambling), and some were artifactual. Taking everything into account, it is clear that the introduction of casinos into Massachusetts was associated with a significant decrease in out-of-state casino participation and a significant increase in within-state casino patronization beginning in 2016, with these trends continuing through to 2019. More specifically, there was no participation in Massachusetts casinos prior to Plainridge Park Casino (PPC) opening, which increased to 6.8% in the wave immediately after PPC opened and a 7.1% Massachusetts casino participation rate in Wave 4 increasing to 16.3% in the wave immediately after MGM Springfield opened. Recapturing out-of-state casino patronage was one of the reasons that Massachusetts casinos were introduced, and this appears to have occurred.

One of the concerns with casino introduction was a potential negative impact on lottery participation and revenue. However, there is no evidence that this has happened, as lottery participation within the cohort remained stable or increased slightly, and lottery revenues within the state have continued to increase. Finally, there is no obvious impact on the other types of gambling within the cohort that could not be potentially accounted for by normal year-to-year variation, pre-existing trends, and/or the changes in question wording that occurred in Wave 3.

There was also significant variation over time within the cohort in the level of Non-Gambling, Recreational Gambling, At-Risk Gambling, and Problem Gambling. This reflected a slight decrease in Non-Gambling in Wave 3 and 4 along with a corresponding slight increase in Recreational Gambling. The increase in recreational gambling in Wave 3 is likely attributable to the significant increase in traditional lottery participation due to the unusually large Powerball jackpot in that year.

Of greatest interest and concern is the significant increase in problem gambling beginning in Wave 4 in 2018, which is potentially related to Massachusetts casino introduction, but probably not because of their actual physical availability, as a) this increase occurred prior to the two major casinos (MGM Springfield and Encore Boston Harbor) actually being open and b) there were no changes in level of problem gambling immediately after either Plainridge Park Casino opened (3.1% in Wave 2 versus 3.1% in Wave 3) or after MGM Springfield opened (3.8% in Wave 4 versus 3.7% in Wave 5).[12] Figure 5 earlier in this report shows that the increase in problem gambling is due to an increased rate of problem gambling relapse, possibly due to the increased publicity and media attention concerning gambling. While prior research has established that advertising is a precipitator for relapse in problem gamblers (Binde, 2009; 2014; Parke et al., 2014; Planzer & Wardle, 2011), we are unaware of any other study that has shown this same effect for media coverage. Support for this possibility is seen in Figure 7 which displays the number of media stories identified by Google News Archive Search containing the terms 'Plainridge Park Casino', 'MGM Springfield', 'Wynn Boston Harbor' or 'Encore Boston Harbor' from 2013 to 2019 (either in the title or the story itself). As seen, the three highest peaks for news stories were during Wave 5 (W5), Wave 4 (W4), and Wave 2 (W2) (assessment periods represented by light yellow shading), all of which occurred prior to one of the three venues being opened, and all three of these Waves showing elevated rates of problem gambling compared to the other Waves.

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[12] The SEIGMA Follow-Up General Population Survey in Fall 2021 will shed more definitive light on whether there has been a significant increase in problem gambling in the state.

Potentially being exposed to a news story does not ensure that people have attended to it. Thus, a stronger indication of awareness and interest is seen in Figure 8, which shows the number of Google searches among Massachusetts residents for any of these same terms from 2013 to 2019 (from Google Trends). Numbers on the y-axis represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. Here again, in all cases Google searches peaked just prior to the opening of each venue, with two of these peaks occurring during Wave 3 and Wave 5. (As a reminder, although current behavior always disproportionately influences self-report, cohort participants are actually being asked about their behavior in the preceding 12 months up to the time of the assessment).

Figure 7. Number of U.S. News Stories from 2013 – 2019 Containing the Term Plainridge Park Casino, MGM Springfield, Wynn Boston Harbor or Encore Boston Harbor
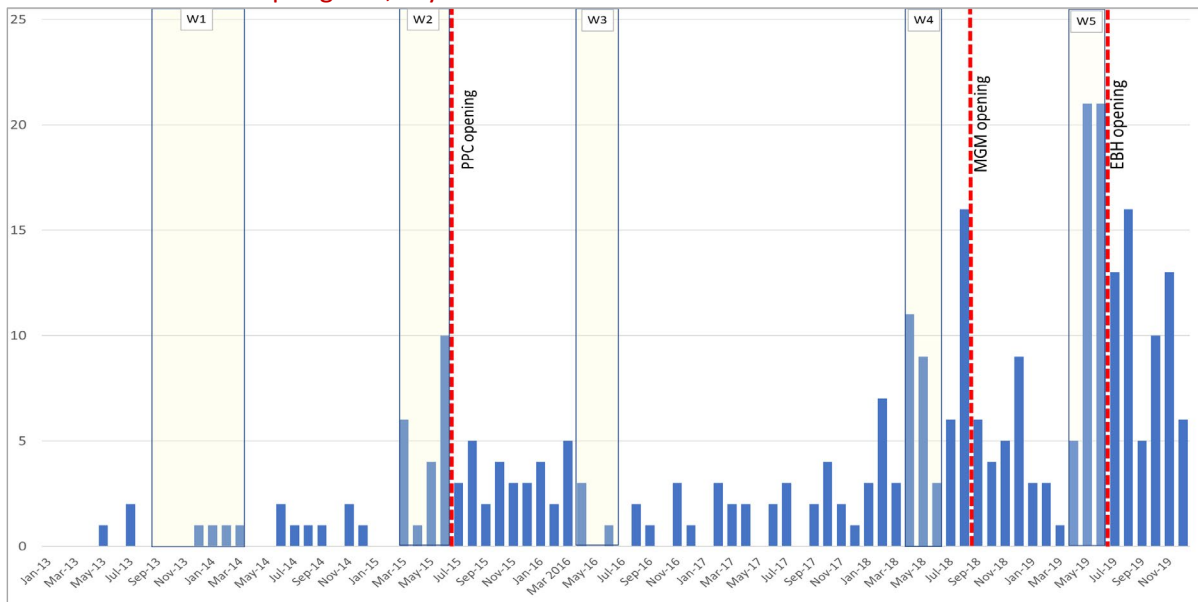
Figure 8. Google Searches among Massachusetts Residents for the Term Plainridge Park Casino, MGM Springfield, Wynn Boston Harbor or Encore Boston Harbor from 2013 – 2019
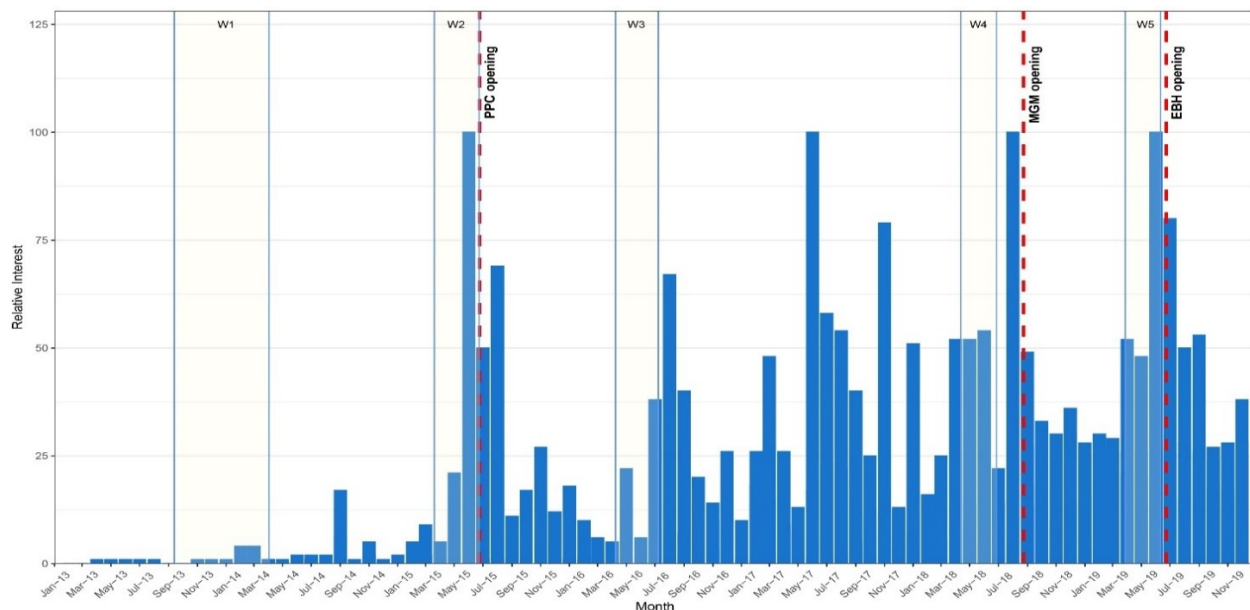
As an additional reminder, the impacts of casino introduction are explored much more extensively in the Social and Economic Impacts of Gambling in Massachusetts (SEIGMA) study (e.g., SEIGMA Research Team, 2018, 2019), where the above findings will be triangulated with other primary and secondary data to more definitively determine the impacts of casino introduction and quantify their magnitude. The next major integrative report is planned in 2023.

Stability of Gambler Categorizations over Time

The stability of gambling categorization within the cohort varied as a function of specific category. Non-Gambling was found to be a fairly stable category, with the majority of Non-Gamblers also being Non-Gamblers in the next wave. However, only a minority of Non-Gamblers continued in this category throughout all five waves. Rather, it was common for Non-Gamblers to transition back and forth into Recreational Gambling, which is to be expected considering that the single purchase of a lottery or raffle ticket is sufficient to be designated as a Recreational Gambler. Non-Gamblers at Wave 1 had the lowest risk of ever becoming Problem Gamblers, occurring in 1.7% of cases.

Recreational Gambling was found to be the most stable category with the large majority of Recreational Gamblers also being Recreational Gamblers in the next wave and most continuing to be Recreational Gamblers throughout all five waves. A small percentage transitioned into either At-Risk Gambling or Non-Gambling. A total of 4.0% of Recreational Gamblers in Wave 1 became Problem Gamblers at some point in the subsequent four waves.

At-Risk Gambling had the most unstable pattern, with only a minority of people continuing to be in this category in the next wave and very few remaining in this category in all five waves. Although a significant percentage of At-Risk Gamblers subsequently become Problem Gamblers (19.5%), a much more common route was for At-Risk Gamblers to transition to Recreational Gambling.

Problem Gambling was more stable than At-Risk Gambling, but still fairly unstable, with most Problem Gamblers transitioning to At-Risk or Recreational Gambling in the next wave. Indeed, one wave was the modal duration of Problem Gambling, occurring in 50.3% of individuals. A longer duration did occur for a small minority, with 6.0% being in this category in all five waves and many others being in this category for either two, three, or four consecutive waves. Risk of chronic problem gambling increased with each consecutive year of problem gambling status. The onset of Problem Gambling was preceded by being in the At-Risk category in the previous wave 68.9% of the time.

The relatively short episode duration for most problem gamblers also meant that remission rates tended to be high, with the majority having at least one year of remission over the five waves. However, relapse rates were also quite high, with 34.6% of those that had remitted in Wave 2 subsequently relapsing and 54.5% of those that had remitted in Wave 3 relapsing. The cumulative longer-term relapse rate is unknown, but is expected to be significantly higher. Of clinical relevance is the fact that the majority of problem gamblers in Wave 3 (60.9%), Wave 4 (60.9%) and Wave 5 (74.0%) were relapsed problem gamblers rather than new problem gamblers. There are two important implications deriving from this. The first is that devoting resources to the successful treatment of existing problem gambling may need to be higher priority than preventing new cases in Massachusetts. The second is that the increase in relapsed problem gambling that occurred in Wave 4 was prior to the opening of MGM Springfield and Encore Boston Harbor. Thus, the publicity associated with the future opening of casinos may be as problematic as their actual increased physical availability. (In this regard, it is also worth noting that, within the cohort, the actual physical distance to their nearest casino from their home residence was not significantly related to problem gambling in either the bivariate or multivariate analyses). It is still quite possible that increased physical availability of casino gambling will produce an increase in new problem gamblers in future years (as MAGIC

ended prior to Encore Boston Harbor being open), but it is clear that, as of 2019, relapsed problem gamblers and the publicity/advertising that may have precipitated their relapse are a bigger concern.

The above results about the stability and instability of different categories of gambler is entirely consistent with the findings of all the prior large scale gambling studies (i.e., Abbott et al., 2017; Billi et al., 2014; el-Guebaly et al., 2015; Romild et al., 2014; Williams et al., 2015). The instability of problem gambling might seem surprising to some outside of the gambling-research field. However, there have been two important changes in our understanding and assessment of addictions in the last 20-30 years, largely driven by longitudinal research. First, longitudinal research has established that all addictions are more unstable than historically thought. They are chronic in the sense that once you have an addiction you have a lifetime higher risk for relapse and continuation; however, they do not tend to have unremitting manifestations. Rather, the most typical course is manifestation of the disorder for a year or two followed by remission for a while, followed by relapse. This new understanding is why DSM introduced a past 12-month time frame for disordered gambling in DSM-5 in 2013 (lifetime prior to that); changed the name from 'pathological gambling' (pathological meaning 'disease-like') to 'gambling disorder'; and introduced an 'episodic' vs 'persistent' specifier. This 12-month time frame change had already been implemented for the substance use disorders in DSM-IV in 1994 (these disorders had a lifetime frame in DSM-III). The second recognition is that there are people who merit clinical attention who do not meet the older more stringent definitions of addictions. This continuum of harm is why DSM-5 lowered the criteria for gambling disorder from 5 to 4 and why mild, moderate, and severe levels were introduced for both disordered gambling and substance use disorder. Whenever less severe forms are included in the diagnostic category, the condition will be associated with more recovery and therefore more instability.

Predictors of Concurrent and Future Problem Gambling

The present research established that there were 67 variables having a significant bivariate relationship with both concurrent and future problem gambling, with the vast majority of these having shown an association with problem gambling in prior cross-sectional and/or longitudinal research. However, there are often a smaller number of common attributes that underlie a range of bivariate relationships. Thus, the more important question is their relationship to problem gambling when entered into a multivariate model where only variables having the strongest relationship and/or unique predictive power enter the model. This is the value of large-scale longitudinal research such as MAGIC that comprehensively assesses all variables of etiological relevance.

Biopsychosocial Etiology with Multiple Risk and Protective Factors

The multivariate analyses established that there was a smaller but still fairly large number of different variables related to problem gambling at a multivariate level (*n* = 17). This provides evidence for the first important finding, which is that *problem gambling is caused by a large number of different risk factors from different domains,* which is consistent with the biopsychosocial understanding of the etiology of addictions more generally (Griffiths, 2005a; Griffiths & Delfabbro, 2001; Kumpfer, Trunnell & Whiteside, 1990; Marlatt et al., 1988; Sharpe, 2002; Skews & Gonzalez, 2013). Most problem gamblers appear to have several risk factors, suggesting they act in an additive fashion to increase overall risk. The particular pattern of risk factors tends to be different between different problem gamblers, although most of the strongest risk factors are fairly prevalent.[13] Although the emphasis of the present research has been on risk factors, it

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[13] It also needs to be recognized that all of the findings in this report **are for the cohort as a whole** (intended to be roughly representative of the Massachusetts adult population), and do not necessarily apply for any specific demographic subgroup. There probably are some differences in the impacts of casino introduction, stability of

follows that not having a risk factor, or being on the other end of the continuum of a risk factor confers some protection against future problem gambling. Similarly, the greater number of protective factors someone has, the greater the likelihood that the person will always gamble in a responsible manner.

While problem gambling is caused by a multitude of risk factors, these risk factors tend to have an organizational and temporal sequence, as described below:

Gambling-Related Predictors

In general, consistent with prior longitudinal studies, *gambling-related* variables are most robustly predictive of concurrent and future problem gambling within the MAGIC cohort. The strongest predictive variables within this category are:

- Having a large gambling loss in the past 12 months (which is related to intensity of involvement)
- Having a large gambling win in the past 12 months (which is related to intensity of involvement)
- Greater intensity of gambling involvement (i.e., greater number of formats engaged in; higher total frequency of involvement; higher total monetary losses)
- Current gambling category (Non-Gambler, Recreational Gambler, At-Risk Gambler, Problem Gambler)
- Gambling being identified as an important or very important recreational activity
- Participation in daily lotteries
- Participation in traditional lotteries
- Participation in sports betting
- Having a higher number of gambling fallacies

Some of these above variables were not entered into the multivariate models because they are also aspects of being a problem gambler (i.e., greater intensity of gambling involvement, large gambling losses, large gambling wins) or have an obvious theoretical relationship to problem gambling (i.e., current gambling category) and would therefore dominate the model. However, it is important to recognize that these same variables are also among the strongest individual predictors of *future* problem gambling. In other words:

- While **intense gambling involvement** is part of being a problem gambler, it is also both theoretically and empirically an immediate precursor to the development of problem gambling.
- Similarly, while having a **big win** is indicative of intensive gambling involvement and problem gambling, it is also independently a driver of increased future gambling problems. Problem gamblers commonly report that a big gambling win escalated their gambling (Lesieur & Custer, 1984; Turner et al., 2006, 2008). As far as we are aware, the present study is only the second prospective study in addition to Williams et al. (2015) to empirically support this contention.
- Having subclinical levels of problem gambling symptomology (**At-Risk Gambler**) is a very strong predictor of future problem gambling.
- Being a **current problem gambler** strongly predicts continued and/or future problem gambling.

An argument can be made that gambling being rated "**as an important recreational activity**" is also an aspect of being a problem gambler. Empirically, this appears to be the case in the present analyses. However, it was included in the multivariate models because its theoretical connection is not as strong (i.e., there are many recreational gamblers who also consider gambling to be recreationally important) and because this variable also robustly predicts *future* problem gambling independent of current gambling status.

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problem gambling, and predictors of problem gambling for specific age groups, gender, educational attainment, racial/ethnic groups, etc. However, it would require considerable additional work to determine these demographic-specific differences.

It may be surprising that **daily lottery, instant lottery tickets, traditional lottery, and sports betting** participation were identified as the types of gambling most robustly associated with concurrent and future problem gambling in Massachusetts. While there have been some historical reports of lottery products being associated with harm prior to worldwide casino expansion (e.g., Hendriks et al., 1997; Hraba et al., 1990; Lorenz, 1990), contemporary accounts of gambling-related harm due to lottery products are very uncommon (Booth et al., 2020). Similarly, there have only been occasional reports of sports betting being strongly associated with problem gambling in the literature (Russell et al., 2019; Williams, Lee & Back, 2013; Winters & Derevensky, 2019).

That said, the association between lottery products, sports betting and problem gambling in Massachusetts is consistent with the following observations:
- Among the subset of problem gamblers who indicated that there was a particular type of gambling that contributed to their problem more than others (Table 32), instant lottery tickets were identified most often (by 50.7%).
- Lottery-related products were the predominant type of gambling accessible to Massachusetts residents during the period of this study, so it is natural that problem gamblers would preferentially utilize these products. Furthermore, as seen earlier in Table 14, even in 2019 spending on lottery products in Massachusetts (primarily instant tickets and daily lotteries) far exceeded spending on casinos and charitable gambling. Indeed, for many years Massachusetts has had the highest per capita spending on lottery games in the United States (probably the world) at $765 per capita (LendEDU, 2020). This, in turn, is likely attributable to: a) the early adoption of lotteries (one of the first U.S. states to introduce a state lottery in 1971 and the first jurisdiction in North America to introduce instant lottery tickets in 1974); b) having the highest overall payback percentage on its games (over 75%) (Schoen, 2016); and c) the historical absence of casinos and EGMs until 2015 as well as the continued prohibition of most forms of online gambling.
- Legally provided sports betting was introduced in Massachusetts for the first time in the form of online daily fantasy sports in 2016, and this specific type of sports betting does have an association with problem gambling (Nower et al., 2018). Furthermore, an in-depth analysis of the cross-sectional predictors of problem gambling from the 2013/2014 Baseline General Population Survey confirmed that monthly sports bettors to have elevated rates of problem gambling in Massachusetts (Mazar et al., 2020).

However, some additional context is required here:
- The association between certain types of gambling and problem gambling is also a function of the types of gambling that heavy gamblers and problem gamblers are drawn to (i.e., the local 'gambling culture'). In current Western culture this is most typically casinos and electronic gambling machines. However, in Asian countries it is casino table games (e.g., mahjong, baccarat). In Massachusetts, it historically has been lottery products.
- Only a minority of problem gamblers (41.1%) indicated that there was a particular type of gambling causing them more problems than others. While instant lottery tickets were identified most frequently (by 50.7%), this still only means that 20.8% (41.1% x 50.7%) of problem gamblers identified instant tickets as problematic, with the comparable figures being 9.5% for traditional lottery tickets, 6.7% for daily lotteries, and 4.6% for sports betting.
- It is also important to remember that **online gambling** and **casino participation** still have a significant relationship to future or concurrent (but not both) problem gambling in the current study. Online gambling was the strongest predictor of future problem gambling compared to any other type of gambling. Out-of-state casino participation was a stronger predictor of future problem gambling than instant lotteries, traditional lotteries, and sports betting, and casino participation (in or out-of-state) was a stronger predictor of concurrent problem gambling than sports betting and traditional lotteries.

It will be instructive to observe whether casino games and online gambling gradually supplant lottery products and sports betting as the strongest predictors of problem gambling in future years.

Gambling fallacies have long been identified as etiologically important in the development of problem gambling in many studies (Delfabbro, 2004; Fortune & Goodie, 2012; Gaboury & Ladouceur, 1989; Goodie & Fortune, 2013; Jacobsen et al., 2007; Joukhador et al., 2003; Leonard & Williams, 2016; Toneatto et al., 1997; Wohl et al., 2007; Xian et al., 2008; Yakovenko et al., 2016). However, the present study is one of the few *prospective* investigations to empirically support this contention.

Non-Gambling Predictors

Several non-gambling variables were also robustly predictive of concurrent and future problem gambling. In order of importance, these were:
- Impulsivity
- Higher number of significant property/financial life events in the past 12 months
- Lower level of happiness
- Lower household income
- Male gender
- Problems with drugs or alcohol prior to past 12 months
- Higher levels of antisociality/psychopathy

Impulsivity has been implicated as one of the most robust predictors of problem gambling in many other cross-sectional and longitudinal studies (Ioannidis et al., 2019; MacLaren et al., 2011; Mestre-Bach et al., 2020; Yan et al., 2016). However, this is partly due with its conceptual overlap with problem gambling (as impaired control over one's gambling is one of the diagnostic features of the disorder). Indeed, pathological gambling was categorized as a subtype of Impulse-Control Disorder in the DSM-IV.

Number of life events is another variable fairly well established in both the correlational (Afifi et al., 2010; Roberts et al., 2017) and longitudinal literature (Abbott et al., 2018; el-Guebaly et al., 2015; Goudriaan et al., 2009; Luce et al., 2016; Romild, Volberg & Abbott, 2014; Williams et al., 2015). The disruption that life events cause can impair judgement, promote the development of mental health problems, and potentially also cause some people to use gambling as a way to escape from their problems. In the present study, a higher number of life events (of any kind) was predictive of future PPGM Total Score, but not future problem gambling status or concurrent problem gambling. Rather, it was a **larger number of property/financial events** that was robustly predictive of concurrent and future problem gambling. In this regard, it is important to recognize that negative financial events commonly co-occur in problem gamblers (i.e., significant financial losses, bankruptcy, etc.) and that this variable was much more strongly predictive of concurrent rather than future problem gambling.[14]

Lower level of happiness was strongly correlated with DSM-5 Depression in the present study but preferentially entered the multivariate models because it was assessed in all five waves, whereas DSM-5 Depression was only assessed in three (allowing it to have stronger overall predictive power). Depression has been known to be a strong correlate of problem gambling for quite some time (Kim et al., 2006; Lorains, Cowlishaw & Thomas, 2011; Mood Disorders of Canada, 2004; Quigley et al., 2014; Welte et al., 2017), as it is a common consequence of developing any addiction. However, it is also the second most commonly identified predictor of *future* problem gambling in longitudinal research (e.g., Cunningham-

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[14] The specific property/financial events that could be endorsed were: suffered a significant financial loss; declared bankruptcy; went on social support or welfare; suffered a significant loss or damage of property; borrowed a significant amount of money (e.g., mortgage); had a significant financial improvement.

Williams et al., 1998; el-Guebaly et al., 2015; Lee et al., 2011; Scherrer et al., 2007; Shaffer & Hall, 2002; Slutske, Caspi, Morritt & Poulton, 2005; Xian et al., 2007; Williams et al., 2015). Indeed, in the present study it was a much stronger predictor of future problem gambling compared to concurrent problem gambling. It is thought that depression weakens one's resolve to inhibit maladaptive behavior and that for some, gambling serves as a temporary escape from their mood state. The co-occurrence of mood disorder and problem gambling, while partly due to common environmental risk factors, it is also due to a shared genetic vulnerability (Potenza et al., 2005; Slutske, 2019; Slutske, Caspit et al., 2004; Slutske, Cho et al., 2013).

Prior research has found **male gender** to be the strongest individual correlate of problem gambling, with males having higher rates in every population prevalence survey that has ever been conducted (Williams, Volberg & Stevens, 2012) (including Massachusetts; Volberg et al., 2017). In general, males are more prone to risk taking compared to females (Byrnes, Miller & Schafer, 1999), with the cross-cultural and cross-species nature of this difference suggesting a biological basis. As the nature of gambling involves risk, is not surprising that males should also have higher rates of gambling involvement and problem gambling.

Lower household income has been identified as a predictor of problem gambling in several other studies (e.g., Hahmann et al., 2020; Welte et al., 2017). Sometimes this is attributed to its association with lower education attainment and minority group status. However, the present study, as well as others (e.g., Williams, Leonard, Belanger et al., 2021) indicate that lower income is a multivariate predictor independent of its other associations. It is fairly commonsensical that people with lower incomes would gamble at greater rates so as to potentially increase their financial well-being.

A history of drug or alcohol abuse. This is not surprising, as nicotine dependence and substance abuse have been found to be the strongest comorbid conditions correlated with problem gambling (Grant, Kushner & Kim, 2002; Hammond et al., 2020; Lorains et al., 2011; Petry, 2007). Having problems with alcohol has also been the most consistently identified predictor of problem gambling in prior longitudinal research (Abbott, Volberg & Williams, 1999; Abbott et al., 2018; Cunningham-Williams et al., 1998; Goudriaan et al., 2009; Parhami et al., 2014; Williams et al., 2015). Tobacco use/abuse, has been identified as a predictor almost as often. The strong association of these variables to problem gambling is likely due to some shared vulnerability to and propensity for addiction (e.g., Slutske, 2019; Slutske, Eisen et al., 2000; Slutke, Ellingson et al., 2013). (Of final note, while past year substance use disorder had a strong bivariate relationship to concurrent and future problem gambling in the present study, it was less strong than lifetime history, and was therefore not able to enter the multivariate models).

Antisociality or **psychopathy** is another well-established correlate of problem gambling (Hammond et al., 2020; Meyer & Fabian, 1991; Mishra et al., 2011; Petry, Stinson & Grant, 2005), which again may be due to shared genetic vulnerability (Slutske, Eisen et al., 2001). Antisociality and/or conduct disorder have also been linked to future problem gambling in several prior longitudinal studies (Cunningham-Williams et al., 1998; Goudriaan et al., 2009; Scherrer et al., 2007; Winters et al., 2002, 2005; Xian et al., 2007; Williams et al., 2015).

Predictors of Remission

Among existing problem gamblers, there were 15 variables that individually predicted problem gambling remission in the next wave and four variables that were predictive of remission in the multivariate model.

In general, problem gamblers who remitted in the next wave had less prior history of problem gambling, less severe current manifestations of problem gambling (lower PPGM Total Scores, lower gambling expenditures), fewer comorbidities (lower impulsivity, absence of other behavioral addictions, absence of illegal activity, absence of mental health disorders, lower number of significant life or financial events) and

fewer gambling fallacies. The four significant variables in the multivariate model were: no lifetime history of problem gambling; lower impulsivity; smaller biggest win in single day past year; and fewer gambling fallacies.

In many ways these results are not surprising in that problem severity, complexity, and past history are commonly associated with poorer outcomes for almost all health conditions. However, there are two 'operationalizable' results from this analysis. The first is that effective treatment of comorbid mental health conditions is important in facilitating problem gambling remission. The second is that effectively educating problem gamblers about how gambling works, the true odds, and the negative mathematical expectation of commercial gambling also needs to be a focus of treatment.

PREVENTION AND TREATMENT IMPLICATIONS

1. The present findings confirm much of the previous longitudinal research concerning the main predictors of future problem gambling. Consequently, one of the main values is providing a **more solid scientific footing for prior recommendations concerning how to best prevent problem gambling** (e.g., Williams, West & Simpson, 2012) as well as providing a better understanding of the *relative importance* of these predictors in Massachusetts.

2. There is no 'silver bullet' to prevent problem gambling. Rather, a **wide array of educational and policy initiatives is needed to address the multi-faceted biopsychosocial etiology**. Evidence from allied fields demonstrates that effective prevention requires *coordination* between a wide range of effective educational strategies and effective policy measures targeting the same outcomes. Multiple prongs within a comprehensive and coordinated prevention strategy are often synergistic, with overlapping initiatives reinforcing the message and power of individual components (Nation et al., 2003; Stockwell et al., 2005; Williams et al., 2012; Winters et al. 2007).

3. Because of their etiological connection and role in problem gambling remission, **effective treatment of substance abuse and/or mood disorders will also help reduce the future incidence of problem gambling**. For similar reasons, it would be useful to **screen for potential gambling problems for individuals presenting for mental health and/or substance use problems.** A simple two item screen about average monthly frequency of gambling and expenditure would suffice (e.g., Rockloff, 2012), and would be less stigmatizing than asking about problem gambling symptomatology.

4. Many risk factors for problem gambling have a significant biological basis, making it difficult to address. Indeed, twin studies have found that 40-60% of the propensity for developing problem gambling can be predicted by genetic factors (Gyollaie et al., 2014; Slutske, 2019; Xuan et al., 2017). However, people with these biological vulnerabilities tend to be more concentrated in lower socioeconomic neighbourhoods. Furthermore, low household income is an independent risk factor for problem gambling in the present study. Hence, **limiting the placement of gambling opportunities and the marketing of gambling in lower socioeconomic neighbourhoods** is one way of addressing these biological vulnerabilites.[15]

5. **Educational efforts are needed to promote knowledge, motivations, and attitudes conducive to responsible gambling.**
   - *Demographically,* this needs to be provided to: all ages, all races/ethnicities, and all genders but with an extra focus on males and individuals with a lower household income (the latter of which will be particularly concentrated among African Americans and Hispanics).
   - In terms of *location and medium of communication* this should be provided via: media campaigns, school-based prevention programs, in mental health and substance abuse clinics and other health-care settings, in gambling venues, and on the gambling product. It is notable that a) prevention awareness is low among Massachusetts adults and appears to be decreasing, b) there is a lack of problem gambling prevention programming in the schools.
   - The *content* of these educational efforts should focus on:
     - Countering gambling fallacies by clearly explaining how gambling works, the true odds, and the negative mathematical expectation. It is notable that a) the most commonly self-reported cause of problem gambling was the 'desire to win money'; b) that gambling 'to

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[15] The caveat to this recommendation is that the present study did not find a relationship between physical proximity to *casinos* and likelihood of problem gambling. This differs from most prior research where small but significant distance relationshps have been observed (see Williams, West & Simpson, 2012 for a review).

win money' was the motivation for gambling most strongly related to problem gambling in both the bivariate and multivariate analyses; and c) that a higher level of gambling fallacies robustly predicts problem gambling continuation rather than remission.

- o The other risk factors for problem gambling identified in the present research: importance as a recreational activity, impulsivity, # significant property/financial events, depression, lower income, male gender, history of substance abuse, higher scores on antisociality, gambling to win money or escape, gambling alone, family history of problem gambling, higher portion of friends/family being regular gamblers
- o Lower Risk Gambling Guidelines (LRGG) that predict problem-free gambling (as well as normative amounts of gambling expenditure) (Currie & LRGG Scientific Working Group, 2019).
- o Symptoms of problem gambling and where to get help (both self-help and external help).

6. **Restrict advertising** as this is a known as a precipitator for relapse in other studies and may have also occurred in MAGIC (Binde, 2009; 2014; Parke et al., 2014; Planzer & Wardle, 2011). The other issue with commercial advertising is that it may counteract educational messaging. If the prevention message is that gambling or certain gambling practices is/are potentially dangerous, then it is inconsistent to describe gambling as 'gaming', and for commercial advertising to exclusively emphasize how much fun it is and how a big win will potentially improve a person's quality of life.

7. **Increase the availability of self-help materials**, both online and in booklets as only small minority of problem gamblers want or seek out formal treatment (only 7.8% wanted help in the present study and only 36.1% of these people sought help). People always prefer to deal with their problems themselves rather than seek outside help (it is usually only when self-help efforts have repeatedly failed that people seek outside help). Casino self-exclusion was twice as common (17.9%) as seeking formal treatment. Considering that the majority of problem gamblers in Waves 4 and 5 were relapsed rather than first time problem gamblers, Massachusetts may be a jurisdiction where successful treatment of existing problem gamblers may be equally if not more important than prevention of first-time problem gambling. Countering gambling fallacies should be a prominent component of these self-help materials (Fortune & Goodie, 2012) as well as addressing comorbid mental health conditions because of their important role in problem gambling remission.

8. **Encourage treatment-seeking nonetheless**, as people who obtain formal treatment have better long-term outcomes compared to people who do not receive treatment (Ribeiro, Afonso & Morgado, 2021). While all treatment approaches should eventually strive for abstinence to obtain the best long-term outcomes, having a low threshold for treatment access will encourage participation (i.e., promoting 'reduced gambling' or 'harm reduction' as an initial step) (Marlatt, 1996; Marlatt, Larimer, & Witkiewitz, 2011). Similar to the self-help materials, an important focus of treatment needs to be a countering of gambling fallacies (Fortune & Goodie, 2012) and treating comorbid mental health conditions.

9. **Implement policies known to be effective in curtailing risky gambling practices that have been demonstrated in other research** (see Williams et al., 2012 for a review). The aforementioned Prevention and Treatment implications (1 to 8) all directly derive from the results of the MAGIC study. The recommendations listed below derive from general research on how to prevent problem gambling.
- Restrict or eliminate access to automatic teller machines (ATMs) in gambling venues.
- Implement mandatory player pre-commitment on player reward cards.
- Send automated alerts to players when their gambling behavior escalates.
- Change the parameters of player reward cards to reward responsible gambling rather than just gambling consumption.

- Limit or eliminate alcohol on the gambling floor.
- Limit the general availability of gambling (continued age 21 restrictions for casinos; limit the number of casinos; continued prohibition of EGMs outside of dedicated gambling venues; limitations on online gambling).
- Limit or constrain high-risk forms of gambling (EGMs, online gambling), as worldwide these continue to have the most robust association to problem gambling (e.g., Williams et al., 2021).

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APPENDICES

Massachusetts Gambling Impact Cohort Study

Please have the adult in your household (18 years or older) who previously participated in the Massachusetts Survey of Health and Recreation complete this survey.

MAGIC

MASSACHUSETTS GAMBLING IMPACT COHORT STUDY

UNIVERSITY OF MASSACHUSETTS SCHOOL OF PUBLIC HEALTH AND HEALTH SCIENCES

Instructions for Completing the Booklet

This booklet contains several types of questions. Each question should be answered only about yourself, not anyone else in your household.

- For some questions, you answer the question by marking a box, like this:
    1 ☒ Yes
    2 ☐ No

- For some questions, you answer the question by filling in one number per box, like this:

    [0] [9] *Number of Days*

- You will sometimes be instructed to skip one or more questions. In this example, if your choice is 'No', you skip to question 10; otherwise, you continue to the next question.
    1 ☐ Yes
    2 ☒ No ➡ GO TO 10

- This survey asks many questions about gambling as a recreational activity. We would like you to participate even if you have never gambled. It is important that we collect information that is representative of the state of Massachusetts.

Definitions

For the purposes of this survey, please refer to the definitions below for the following terms.

- "Non-medical" drug use means using it to get high or experience pleasurable effects, see what the effects are like, or use with friends.

- "Serious" means something that either you or someone else would say is considerable, important, or major, either because of its frequency or significance.

- A high risk stock is a stock from a company that has a real risk of going out of business and/ or having their stock price double or triple in value in the next year.

- An "underground" casino is a place with unlicensed slot machines or casino game tables.

ii

Health Section

We would like to start by asking you questions about your health.

1. **Which of the following is your preferred recreational activity? Would you say…**
   - 1 ☐ Watching TV
   - 2 ☐ Walking or hiking
   - 3 ☐ Gardening
   - 4 ☐ Reading
   - 5 ☐ Socializing with friends or family
   - 6 ☐ Traveling
   - 7 ☐ Gambling
   - 91 ☐ Other

2. **Do you enjoy participating in extreme sports such as hang gliding or sky diving?**
   - 1 ☐ Yes
   - 2 ☐ No

3. **Do you have an internet connection either at home or at work?**
   - 1 ☐ Yes
   - 2 ☐ No

4. **Overall, how often do you use the Internet?**
   - 1 ☐ Daily
   - 2 ☐ A few times a week
   - 3 ☐ A few times a month
   - 4 ☐ A few times a year
   - 5 ☐ Not at all

5. **Over the past 12 months, would you say that in general your health has been…?**
   - 1 ☐ Excellent
   - 2 ☐ Very good
   - 3 ☐ Good
   - 4 ☐ Fair
   - 5 ☐ Poor

6. **In the past 12 months, how would you rate your overall level of stress? Would you say…?**
   - 1 ☐ Very high
   - 2 ☐ High
   - 3 ☐ Moderate
   - 4 ☐ Low
   - 5 ☐ Very low

7. **In the past 12 months, how would you rate your overall level of happiness? Would you say…?**
   - 1 ☐ Very high
   - 2 ☐ High
   - 3 ☐ Moderate
   - 4 ☐ Low
   - 5 ☐ Very low

8. **Have you smoked at least 100 cigarettes in your entire life?**
   - 1 ☐ Yes
   - 2 ☐ No ➡ GO TO 10

9. **Would you say you now smoke cigarettes…?**
   - 1 ☐ Every day
   - 2 ☐ Some days
   - 3 ☐ Not at all

10. **Do you currently smoke cigars, pipe tobacco, or hookah tobacco (shisha); or use dipping tobacco (including snus), chewing tobacco, or snuff…**
    - 1 ☐ Every day
    - 2 ☐ Some days
    - 3 ☐ Not at all

11. **During the past 30 days, how many days would you estimate you have used any form of tobacco?**
    - ☐☐ *Days*

12. **Have you used alcohol in the past 12 months?**
    - 1 ☐ Yes
    - 2 ☐ No ➡ GO TO 16 ON PAGE 2

13. **During the past 30 days, how many days per week or per month did you have at least one drink of any alcohol beverage such as beer, wine, a malt beverage or liquor?** *Please enter the number of days per week or days per month.*
    - 1 ☐ *Days per Week*
    - or
    - 2 ☐☐ *Days per Month*

1

14. One drink is equivalent to a 12-ounce beer, a 5-ounce glass of wine, or a drink with one shot of liquor. During the past 30 days, on the days when you drank, about how many drinks did you drink on average?

☐☐ *Number of Drinks*

15. Considering all types of alcoholic beverages, how many times during the past 30 days did you have:

If you are male: 5 or more drinks on an occasion?

☐☐ *Number of Times*

If you are female: 4 or more drinks on an occasion?

☐☐ *Number of Times*

16. In the past 12 months have you used any marijuana, hallucinogens (such as LSD, mushrooms, or PCP), cocaine, heroin or opium, or any other drugs not intended for medical use? *If you are not sure what is considered non-medical drug use, please refer to the definitions on the inside cover.*
   1 ☐ Yes
   2 ☐ No

17. Have you had any problems with drugs or alcohol in the past 12 months? By this we mean difficulties in controlling their use that have led to negative consequences for you or other people.
   1 ☐ Yes
   2 ☐ No ➜ GO TO 19

18. During the past 12 months, have you sought help for your use of alcohol or drugs?
   1 ☐ Yes
   2 ☐ No

19. Have you had any problems with other behavior in the past 12 months such as overeating, sex or pornography, shopping, exercise, Internet chat lines, or other things? What we mean is difficulties controlling the behavior which has led to significant negative consequences for you or other people.
   1 ☐ Yes
   2 ☐ No ➜ GO TO 21

20. Which specific activities have you had problems with? Have you had problems with...? *Check all that apply.*
   1 ☐ Overeating
   2 ☐ Sex or pornography
   3 ☐ Exercise
   4 ☐ Shopping
   5 ☐ Internet chat lines
   6 ☐ Video or internet gaming
   91 ☐ Other

   [ ]

21. In the past 30 days, have you had any serious problems with depression, anxiety or other mental health problems? *If you are not sure what is considered serious, please refer to the definitions on the inside cover.*
   1 ☐ Yes ➜ GO TO 23
   2 ☐ No

22. How about in the last 12 months?
   1 ☐ Yes
   2 ☐ No ➜ GO TO 26 ON PAGE 3

23. Which problems have you experienced?

   [ ]

24. During the past 12 months, did you ever seriously consider attempting suicide?
   1 ☐ Yes
   2 ☐ No ➜ GO TO 26 ON PAGE 3

25. During the past 12 months, did you actually attempt suicide?
   1 ☐ Yes
   2 ☐ No

If you would like information regarding treatment resources, please see page 13 for contact information.

2

26. Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?
   1 ☐ Yes
   2 ☐ No

27. How would you describe your childhood? Would you say…?
   1 ☐ Very happy
   2 ☐ Happy
   3 ☐ Neither happy nor unhappy
   4 ☐ Unhappy
   5 ☐ Very unhappy

Recreation Questions

The primary recreational activity we have chosen to ask you about is gambling.

We define gambling as betting money or material goods on an event with an uncertain outcome in the hopes of winning additional money or material goods. It includes things such as lottery tickets, scratch tickets, bingo, betting against a friend on a game of skill or chance, betting on horse racing or sports, investing in high risk stocks, etc.

28. Which best describes your belief about the benefit or harm that gambling has for society? Would you say...?
   1 ☐ The harm far outweighs the benefits
   2 ☐ The harm somewhat outweighs the benefits
   3 ☐ The benefits are about equal to the harm
   4 ☐ The benefits somewhat outweigh the harm
   5 ☐ The benefits far outweigh the harm

29. Do you believe that gambling is morally wrong?
   1 ☐ Yes
   2 ☐ No

30. Which of the following best describes your opinion about *legalized* gambling? Would you say…?
   1 ☐ All types of gambling should be legal ➡ GO TO 32
   2 ☐ Some types of gambling should be legal and some should be illegal
   3 ☐ All types of gambling should be illegal ➡ GO TO 32

31. Which types of gambling do you believe should be illegal?

   ┌─────────────────────────────┐
   │   │
   │   │
   └─────────────────────────────┘

32. Which of the following best describes your opinion about gambling opportunities in Massachusetts? Would you say…?
   1 ☐ Gambling is too widely available
   2 ☐ Gambling is not available enough
   3 ☐ The current availability of gambling is fine

33. There may be 3 new casinos and a slot parlor built in Massachusetts in the next few years. What sort of overall impact do you believe these may have? Would you say…?
   1 ☐ Very beneficial
   2 ☐ Somewhat beneficial
   3 ☐ Neither beneficial nor harmful
   4 ☐ Somewhat harmful
   5 ☐ Very harmful

34. What do you believe will be the single most positive impact for Massachusetts? Would you say…?
   1 ☐ Employment
   2 ☐ Benefit to other local businesses
   3 ☐ Increased government revenue
   4 ☐ Retaining money that was leaving Massachusetts
   5 ☐ Increased local leisure options (i.e., the ability to gamble locally)
   6 ☐ No positive impacts
   91 ☐ Other

   ┌─────────────────────────────┐
   │   │
   │   │
   └─────────────────────────────┘

3

35. What do you believe will be the single most negative impact for Massachusetts? Would you say...?
1. ☐ Increased gambling addiction (and associated consequences: bankruptcy, suicide, divorce, etc.)
2. ☐ Negative impact on other local businesses
3. ☐ Increased crime
4. ☐ Increased traffic congestion
6. ☐ No negative impacts
91. ☐ Other

36. What sort of overall impact do you believe a new casino or slot parlor would have for your own community? Would you say...?
1. ☐ Very beneficial
2. ☐ Somewhat beneficial
3. ☐ Neither beneficial nor harmful
4. ☐ Somewhat harmful
6. ☐ Very harmful

Past Gambling Behaviors

Now, we would like you to think about different times that you have gambled in the past year.

37. In the past 12 months, how often have you purchased *lottery tickets* such as Megabucks, Powerball, Lucky for Life, or Mass Cash? Would you say...?
1. ☐ 4 or more times a week
2. ☐ 2-3 times a week
3. ☐ Once a week
4. ☐ 2-3 times a month
5. ☐ Once a month
6. ☐ Less than once a month
7. ☐ Not at all ➡ **GO TO 39**

38. Roughly how much money do you spend on lottery tickets in a typical month? Spend means how much you are ahead (+$) or behind (–$), or your net win or loss in an average month in the past 12 months.
☐ $ ☐ , ☐☐☐ , ☐☐☐

39. In the past 12 months, how often have you purchased *instant tickets or pull tabs*? Would you say...?
1. ☐ 4 or more times a week
2. ☐ 2-3 times a week
3. ☐ Once a week
4. ☐ 2-3 times a month
5. ☐ Once a month
6. ☐ Less than once a month
7. ☐ Not at all ➡ **GO TO 41**

40. Roughly how much money do you spend on instant tickets or pull tabs in a typical month?
☐ $ ☐ , ☐☐☐ , ☐☐☐

41. In the past 12 months, how often have you purchased *raffle tickets*? Would you say...?
1. ☐ 4 or more times a week
2. ☐ 2-3 times a week
3. ☐ Once a week
4. ☐ 2-3 times a month
5. ☐ Once a month
6. ☐ Less than once a month
7. ☐ Not at all ➡ **GO TO 43**

42. Roughly how much money do you spend on raffle tickets in a typical month?
☐ $ ☐ , ☐☐☐ , ☐☐☐

43. In the past 12 months, how often have you purchased *daily lottery games* such as *Keno or Jackpot Poker*? Would you say...?
1. ☐ 4 or more times a week
2. ☐ 2-3 times a week
3. ☐ Once a week
4. ☐ 2-3 times a month
5. ☐ Once a month
6. ☐ Less than once a month
7. ☐ Not at all ➡ **GO TO 45 ON PAGE 5**

44. Roughly how much money do you spend on daily lottery games such as Keno or Jackpot Poker in a typical month?
☐ $ ☐ , ☐☐☐ , ☐☐☐

4

45. In the past 12 months, how often have you bet money on *sporting events* (this includes sports pools)? Would you say…?
- ₁ ☐ 4 or more times a week
- ₂ ☐ 2-3 times a week
- ₃ ☐ Once a week
- ₄ ☐ 2-3 times a month
- ₅ ☐ Once a month
- ₆ ☐ Less than once a month
- ₇ ☐ Not at all ➡ **GO TO 47**

46. Roughly how much money do you spend on sports betting in a typical month?

☐ $ ☐ , ☐☐☐ , ☐☐☐

47. In the past 12 months, how often have you gone to a *bingo hall* to gamble? Would you say…?
- ₁ ☐ 4 or more times a week
- ₂ ☐ 2-3 times a week
- ₃ ☐ Once a week
- ₄ ☐ 2-3 times a month
- ₅ ☐ Once a month
- ₆ ☐ Less than once a month
- ₇ ☐ Not at all ➡ **GO TO 49**

48. Roughly how much money do you spend at bingo halls in a typical month?

☐ $ ☐ , ☐☐☐ , ☐☐☐

49. In the past 12 months, how many times have you gambled at a *casino, racino, or slots parlor outside of Massachusetts?*

☐☐☐ *Times* ➡ **IF ZERO, GO TO 54**

50. Roughly how much money do you spend on gambling per visit in out of state casinos, racinos, slots parlors, and slots at racetracks.?

☐ $ ☐ , ☐☐☐ , ☐☐☐

51. Roughly how much money do you spend on nongambling activities (such as food, travel, lodging, entertainment) per visit in out-of-state casinos, racinos, slots parlors, and slots at racetracks?

$ ☐☐ , ☐☐☐

52. Which state do you most often go to for this gambling?

☐

53. Which specific casino, racino, or slots parlor do you most often go to?

☐

54. Have you gambled at any 'underground' casino or slots parlor in Massachusetts in the past 12 months? *If you are not sure what is considered an 'underground' casino, please refer to the definitions on the inside cover.*
- ₁ ☐ Yes
- ₂ ☐ No

55. In the past 12 months, how often have you bet on a *horse race* at either a horse race track or an off-track site? Would you say…?
- ₁ ☐ 4 or more times a week
- ₂ ☐ 2-3 times a week
- ₃ ☐ Once a week
- ₄ ☐ 2-3 times a month
- ₅ ☐ Once a month
- ₆ ☐ Less than once a month
- ₇ ☐ Not at all ➡ **GO TO 58 ON PAGE 6**

56. Roughly how much money do you spend on horse racing in a typical month?

☐ $ ☐ , ☐☐☐ , ☐☐☐

57. Where do you most often go to bet on horse racing?

☐

5

58. In the past 12 months, how often have you gambled or *bet money against other people* on things such as card games; golf, pool, darts, bowling; video games; board games, or poker outside of a casino? Would you say…?
Poker played in a casino and games played on the internet should NOT be included.
1 ☐ 4 or more times a week
2 ☐ 2-3 times a week
3 ☐ Once a week
4 ☐ 2-3 times a month
5 ☐ Once a month
6 ☐ Less than once a month
7 ☐ Not at all ➡ **GO TO 60**

59. Roughly how much money do you spend gambling or betting money against other people in a typical month?
☐ – $ ☐ , ☐☐☐ , ☐☐☐

60. In the past 12 months, how often did you purchase *high risk stocks, options or futures or day trade* on the stock market? Would you say…? *If you are not sure what a high risk stock is, please refer to the definitions on the inside cover.*
1 ☐ 4 or more times a week
2 ☐ 2-3 times a week
3 ☐ Once a week
4 ☐ 2-3 times a month
5 ☐ Once a month
6 ☐ Less than once a month
7 ☐ Not at all ➡ **GO TO 62**

61. What do you estimate is your net loss or gain in a typical month from high risk stocks, options, futures, or day trading?
☐ – $ ☐ , ☐☐☐ , ☐☐☐

62. In the past 12 months, have you *gambled online?* This would include things such as playing poker, buying lottery tickets, betting on sports, bingo, slots or casino table games for money or playing interactive games for money?
1 ☐ Yes
2 ☐ No ➡ **GO TO 65**

63. Roughly how much money do you spend gambling online in a typical month?
☐ – $ ☐ , ☐☐☐ , ☐☐☐

64. What is the main type of online gambling you engage in?

65. What would you say is the main reason that you gamble? Would you say…?
1 ☐ For excitement/entertainment
2 ☐ To win money
3 ☐ To escape or distract yourself
4 ☐ To socialize with family or friends
5 ☐ To support worthy causes
6 ☐ Because it makes you feel good about yourself
91 ☐ Other

66. How important is gambling to you as a recreational activity? Would you say…?
1 ☐ Very important
2 ☐ Somewhat important
3 ☐ Not very important
4 ☐ Not at all important

67. Has gambling replaced other recreational activities for you in the past 5 years?
1 ☐ Yes
2 ☐ No ➡ **GO TO 69**

68. Which recreational activities has gambling replaced?

Prevention Awareness

We would now like you to think about what you have heard about gambling prevention either from the media or from others.

69. In the past 12 months have you seen or heard any media campaigns to prevent problem gambling in Massachusetts?
1 ☐ Yes
2 ☐ No

6

70. In the past 12 months have you been aware of any programs to prevent problem gambling [other than media campaigns] offered at your school, your place of work, in your community or elsewhere?
   1 ☐ Yes
   2 ☐ No

71. Did you participate in any of the problem gambling prevention programs that you heard of in the past 12 months?
   1 ☐ Yes
   2 ☐ No

72. Did any of these media campaigns or programs cause you to alter your own gambling behavior?
   1 ☐ Yes
   2 ☐ No

73. What portion of your close friends and family members are regular gamblers? Would you say...?
   1 ☐ None of them
   2 ☐ Some of them
   3 ☐ Most of them
   4 ☐ All of them

74. During the last 12 months, has there been a person in your life that you consider gambles too much?
   1 ☐ Yes
   2 ☐ No ➡ GO TO 78

75. What is this person's relationship to you?
   1 ☐ Spouse or Partner
   2 ☐ Parent or Step Parent
   3 ☐ Child or Step Child
   4 ☐ Other person in your household
   5 ☐ Other family member not living in your household
   6 ☐ Ex-partner
   7 ☐ Work colleague
   8 ☐ Friend
   9 ☐ Neighbor
   91 ☐ Someone else

76. In what ways has this person's gambling affected you during the last 12 months?

77. Overall, on a scale from 1 to 10 how much has this person's gambling affected you negatively during the last 12 months?

No Effect									Major Effect
1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Gambling Outcomes

When answering the questions throughout the remainder of the survey, please think about the past 12 months.

78. Thinking about the past 12 months, have you bet more than you could really afford to lose? Would you say...?
   1 ☐ Never
   2 ☐ Sometimes
   3 ☐ Most of the time
   4 ☐ Almost always

79. Thinking about the past 12 months, have you felt guilty about the way you gamble or what happens when you gamble? Would you say...?
   1 ☐ Never
   2 ☐ Sometimes
   3 ☐ Most of the time
   4 ☐ Almost always

80. In the past 12 months, have you needed to gamble with larger amounts of money to get the same feeling of excitement? Would you say...?
   1 ☐ Never
   2 ☐ Sometimes
   3 ☐ Most of the time
   4 ☐ Almost always

7

81. In the past 12 months, when you gambled, did you go back another day to try to win back the money you lost? Would you say…?
   1 ☐ Never
   2 ☐ Sometimes
   3 ☐ Most of the time
   4 ☐ Almost always

82. In the past 12 months, have you borrowed money or sold anything to get money to gamble? Would you say…?
   1 ☐ Never ➔ GO TO 84
   2 ☐ Sometimes
   3 ☐ Most of the time
   4 ☐ Almost always

83. In the past 12 months, about how much money have you borrowed or obtained from selling possessions in order to gamble?

   $ ☐☐ , ☐☐☐

84. In the past 12 months, has your gambling caused any financial problems for you or your household? Would you say…?
   1 ☐ Never ➔ GO TO 86
   2 ☐ Sometimes
   3 ☐ Most of the time
   4 ☐ Almost always

85. In the past 12 months, have you filed for bankruptcy because of gambling?
   1 ☐ Yes
   2 ☐ No

86. In the past 12 months, has your gambling caused you any health problems, including stress or anxiety? Would you say…?
   1 ☐ Never ➔ GO TO 88
   2 ☐ Sometimes
   3 ☐ Most of the time
   4 ☐ Almost always

87. In the past 12 months have these health problems caused you to seek medical or psychological help?
   1 ☐ Yes
   2 ☐ No

88. In the past 12 months, have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true? Would you say...?
   1 ☐ Never
   2 ☐ Sometimes
   3 ☐ Most of the time
   4 ☐ Almost always

89. In the past 12 months, have you felt that you might have a problem with gambling? Would you say...?
   1 ☐ Never
   2 ☐ Sometimes
   3 ☐ Most of the time
   4 ☐ Almost always

90. Has your involvement in gambling caused significant mental stress in the form of guilt, anxiety, or depression for you or someone close to you in the past 12 months?
   1 ☐ Yes
   2 ☐ No ➔ GO TO 93

91. In the past 12 months, have you thought of committing suicide because of gambling?
   1 ☐ Yes
   2 ☐ No ➔ GO TO 93

92. In the past 12 months, have you attempted suicide because of gambling?
   1 ☐ Yes
   2 ☐ No

If you would like information regarding treatment resources, please see page 13 for contact information

93. Has your involvement in gambling caused significant problems in your relationship with your spouse/partner or important friends or family in the past 12 months?
   1 ☐ Yes
   2 ☐ No ➔ GO TO 96 ON PAGE 9

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94. In the past 12 months, has your involvement in gambling caused an instance of domestic violence in your household?
   1 ☐ Yes
   2 ☐ No

95. In the past 12 months, has your involvement in gambling resulted in separation or divorce?
   1 ☐ Yes
   2 ☐ No

96. In the past 12 months, has your involvement in gambling caused you to repeatedly neglect your children or family?
   1 ☐ Yes
   2 ☐ No ➡ GO TO 98

97. In the past 12 months, has child welfare services become involved because of your gambling?
   1 ☐ Yes
   2 ☐ No

98. Has your involvement in gambling caused significant work or school problems for you or someone close to you in the past 12 months or caused you to miss a significant amount of time off work or school?
   1 ☐ Yes
   2 ☐ No ➡ GO TO 103

99. In the past 12 months, about how many work or school days have you lost due to gambling?
   ☐☐☐ Days

100. In the past 12 months, have you lost your job or had to quit school due to gambling?
   1 ☐ Yes
   2 ☐ No ➡ GO TO 103

101. In the past 12 months, did anyone in this household receive any public assistance (food stamps, Temporary Assistance for Needy Families (TANF)) or any other welfare payments from the state or local welfare office as a result of losing your job because of gambling?
   1 ☐ Yes
   2 ☐ No ➡ GO TO 103

102. Roughly how much money did you receive from public assistance in the past 12 months?
   $ ☐☐ , ☐☐☐

103. In the past 12 months, has your involvement in gambling caused you or someone close to you to write bad checks, take money that didn't belong to you or commit other illegal acts to support your gambling?
   1 ☐ Yes
   2 ☐ No ➡ GO TO 110 ON PAGE 10

104. In the past 12 months, about how much money have you illegally obtained in order to gamble?
   $ ☐☐ , ☐☐☐

105. In the past 12 months, has your gambling been a factor in your committing a crime for which you have been arrested?
   1 ☐ Yes
   2 ☐ No ➡ GO TO 110 ON PAGE 10

106. Were you convicted for this crime?
   1 ☐ Yes
   2 ☐ No ➡ GO TO 110 ON PAGE 10

107. What was the offense?

108. Were you incarcerated for this crime?
   1 ☐ Yes
   2 ☐ No ➡ GO TO 110 ON PAGE 10

9

109. For how many days were you incarcerated?

□□□ *Days*

110. In the past 12 months, have you often gambled longer, with more money or more frequently than you intended to?
1 □ Yes
2 □ No

111. In the past 12 months, have you made attempts to either cut down, control or stop gambling?
1 □ Yes
2 □ No ➝ GO TO 113

112. Were you successful in these attempts to cut down, control or stop gambling?
1 □ Yes
2 □ No

113. In the past 12 months, is there anyone else who would say that you had difficulty controlling your gambling, regardless of whether you agreed with them or not?
1 □ Yes
2 □ No

114. In the past 12 months, would you say you have been preoccupied with gambling?
1 □ Yes
2 □ No

115. In the past 12 months, when you did try cutting down or stopping did you find you were very restless or irritable or that you had strong cravings for it?
1 □ Yes
2 □ No

116. In the past 12 months, did you find you needed to gamble with larger and larger amounts of money to achieve the same level of excitement?
1 □ Yes
2 □ No

117. Are there particular types of gambling that have contributed to your problems more than others?
1 □ Yes
2 □ No ➝ GO TO 119

118. Which types of gambling have contributed to your problems?

119. Have you *wanted* help for gambling problems in the past 12 months?
1 □ Yes
2 □ No ➝ GO TO 123

120. Have you *sought* help for gambling problems in the past 12 months?
1 □ Yes
2 □ No ➝ GO TO 123

121. Where did you seek help from?

122. How helpful was this? Would you say…?
1 □ Very helpful
2 □ Somewhat helpful
3 □ Not very helpful
4 □ Not at all helpful

123. Have you excluded yourself from any casino or slots parlor in the past 12 months?
1 □ Yes
2 □ No ➝ GO TO 125

124. In which state?

125. Have you had problems with gambling in your lifetime prior to the past 12 months?
1 □ Yes
2 □ No

Household Demographics

126. Are you male or female?
1 □ Male
2 □ Female

10

127. In what year were you born?

☐☐☐☐ *Year*

128. At present are you...?

1 ☐ Married
2 ☐ Living with your partner
3 ☐ Separated, but still legally married
4 ☐ Divorced
5 ☐ Widowed
6 ☐ Never been married

129. How many children under 18 years old live in your household?

☐☐ *Number of Children*

130. What is the highest degree or level of school you have completed?

1 ☐ Never attended school or only attended kindergarten
2 ☐ Grades 1 through 8
3 ☐ Grades 9 through 11
4 ☐ Regular high school diploma or GED
5 ☐ Some college credit, but less than 1 year of college credit
6 ☐ 1 or more years of college credit, no degree
7 ☐ Associate degree
8 ☐ Bachelor's degree
9 ☐ Master's degree
10 ☐ Professional degree beyond a bachelor's degree
11 ☐ Doctorate degree

131. Are you currently...?

1 ☐ Employed for wages
2 ☐ Self-employed
3 ☐ Out of work for more than 1 year
4 ☐ Out of work for less than 1 year
5 ☐ A homemaker
6 ☐ A student
7 ☐ Retired
8 ☐ Unable to work

132. Have you ever served on active duty in the U.S. Armed Forces, military Reserves, or National Guard? *Active duty does not include training for the Reserves or National Guard, but does include activation, for example, for the Persian Gulf War.*

1 ☐ Yes, now on active duty
2 ☐ Yes, on active duty in the past, but not during the last 12 months
3 ☐ No, training for Reserves or National Guard only ➡ **GO TO 134**
4 ☐ No, never served in the military ➡ **GO TO 134**

133. When did you serve on active duty in the U.S. Armed Forces? *Check all that apply.*

1 ☐ September 2001 or later
2 ☐ August 1990 to August 2001 (including Persian Gulf War)
3 ☐ September 1980 to July 1990
4 ☐ May 1975 to August 1980
5 ☐ Vietnam era (August 1964 to April 1975)
6 ☐ March 1961 to July 1964
7 ☐ Korean War (July 1950 to January 1955)
8 ☐ World War II (December 1941 to December 1946)
9 ☐ February 1955 to February 1961
10 ☐ January 1947 to June 1950
11 ☐ November 1941 or earlier

134. What type of healthcare coverage do you have?

1 ☐ Prepaid private plans such as HMOs or PPOs
2 ☐ Medicare
3 ☐ Medicaid
4 ☐ Commonwealth Care Program (Health Connector)
5 ☐ Indian Health Services
6 ☐ Veterans Affairs (VA)
91 ☐ Other Plan

7 ☐ No health insurance

11

135. Do you own the place where you currently live, pay rent or something else?

- 1 ☐ Own
- 2 ☐ Rent
- 91 ☐ Something else

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136. Is your approximate annual household income from all sources...

- 1 ☐ Less than $15,000
- 2 ☐ $15,000 - $29,999
- 3 ☐ $30,000 - $49,999
- 4 ☐ $50,000 - $69,999
- 5 ☐ $70,000 - $99,999
- 6 ☐ $100,000 - $124,999
- 7 ☐ $125,000 - $149,999
- 8 ☐ $150,000 or more

137. What do you estimate your current debt to be? Please include mortgages, credit cards, loans, car payments, etc.

- 1 ☐ $0 (no debt)
- 2 ☐ Less than $10,000
- 3 ☐ $10,000 - $19,999
- 4 ☐ $20,000 - $39,999
- 5 ☐ $40,000 - $59,999
- 6 ☐ $60,000 - $79,999
- 7 ☐ $80,000 - $99,999
- 8 ☐ $100,000 - $119,999
- 9 ☐ $120,000 - $139,999
- 10 ☐ $140,000 - $159,999
- 11 ☐ $160,000 - $179,999
- 12 ☐ $180,000 - $199,999
- 13 ☐ $200,000 - $299,999
- 14 ☐ $300,000 - $399,999
- 15 ☐ $400,000 - $499,999
- 16 ☐ $500,000 or more

138. Were you born in the United States?

- 1 ☐ Yes
- 2 ☐ No

139. Many people only live in Massachusetts for part of the year. Do you live in Massachusetts for 6 or more months out of the year? *If you recently moved to Massachusetts and plan on staying for 6 months or longer, mark yes. If you are planning on moving out of Massachusetts but have lived there for at least 6 months in 2014, mark yes.*

- 1 ☐ Yes
- 2 ☐ No

140. Are you Hispanic or Latino?

- 1 ☐ Yes
- 2 ☐ No

141. Which one or more of the following would you say is your race? *Check all that apply.*

- 1 ☐ White or Caucasian
- 2 ☐ Black or African American
- 3 ☐ Asian
- 4 ☐ Native Hawaiian or Other Pacific Islander
- 5 ☐ Native American or Alaskan Native
- 91 ☐ Some other race

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142. How many members of your household, including yourself, are 18 years of age or older?

☐☐

143. To document who completed the survey from your household, please enter your first and last name.

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144. What is the best phone number to reach you if we have more questions about your household? *This number will only be used to contact you about this study. We are prohibited from sharing, distributing, or selling your information to anyone outside of this project.*

☐☐☐ – ☐☐☐ – ☐☐☐☐

145. Please enter your email address.

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You have reached the end of the survey. Thank you for your participation! You may be re-contacted in the future to participate in related studies. If you are contacted to participate in future surveys, you have the right to refuse. Thank you on behalf of the University of Massachusetts for the time and effort you've spent answering these questions. If you have any questions about this survey, you may contact Dr. Rachel Volberg at 413-545-6700.

Thank you again.

If you would like information regarding treatment resources, please contact:

Massachusetts Substance Abuse Information and Education Helpline
800-327-5050
TTY: 617-536-5872

Drug & Alcohol Treatment Hotline
800-662-HELP

National Alliance on Mental Illness
1-800-950-6264

Samaritans
877-870-4673

National Suicide Prevention Lifeline
1-800-273-8255
1-800-799-4889

Because we are interested in how opinions change over time, we may be contacting you in the future. To help us contact you, please provide the name and contact information for three people who are likely to know where you can be reached. <u>Do not include someone who lives in your household.</u>

Contact #1
Name

Address

Phone

Email

Contact #2
Name

Address

Phone

Email

Contact #3
Name

Address

Phone

Email

Please return your completed questionnaire using the enclosed pre-paid envelope to:

University of Massachusetts Amherst
C/O NORC at the University of Chicago
1 North State Street, 16th Floor
Chicago, IL 60602

If you have misplaced the pre-paid envelope, please call 1-866-900-9601 for a new one.

NORC at the University of Chicago is conducting this study on behalf of the University of Massachusetts Amherst. If you have questions or would prefer to complete the survey by phone, please call NORC toll-free at 1-866-900-9601.

If you have questions about your rights as a study participant, you may call the NORC Institutional Review Board toll-free, at 1-866-309-0542.

If you would prefer to complete this survey online, please go to: https://MACohort.norc.org/go/MAGIC.

Your unique survey Personal Identification Number (PIN) is: XXXXX.

OFFICE USE ONLY							
Receipt		CADE		Verification		Adjudication	
Initials	Date	Initials	Date	Initials	Date	Initials	Date

Massachusetts Gambling Impact Cohort Study

Please have the adult in your household (18 years or older) who previously participated in the last round of the Massachusetts Gambling Impact Cohort Study complete this survey.

MAGIC

MASSACHUSETTS GAMBLING IMPACT COHORT STUDY

UNIVERSITY OF MASSACHUSETTS SCHOOL OF PUBLIC HEALTH AND HEALTH SCIENCES

Instructions for Completing the Booklet

This booklet contains several types of questions. Each question should be answered only about yourself, not anyone else in your household.

- For some questions, you answer the question by marking a box, like this:

  ¹ ☒ Yes
  ² ☐ No

- For some questions, you answer the question by filling in one number per box, like this:

  0 **9** *Number of Days*

- You will sometimes be instructed to skip one or more questions. In this example, if your choice is 'No', you skip to question 10; otherwise, you continue to the next question.

  ³ ☒ Yes
  ⁴ ☐ No ➡ GO TO 10

- This survey asks many questions about gambling as a recreational activity. We would like you to participate even if you have never gambled. It is important that we collect information that is representative of the state of Massachusetts.

Definitions

For the purposes of this survey, please refer to the definitions below for the following terms.

- "Non-medical" drug use means using it to get high or experience pleasurable effects, see what the effects are like, or use with friends.

- "Serious" means something that either you or someone else would say is considerable, important, or major, either because of its frequency or significance.

- A high risk stock is a stock from a company that has a real risk of going out of business and/or having their stock price double or triple in value in the next year.

- An "underground" casino is a place with unlicensed slot machines or casino game tables.

- A "sportsbook" is a venue where someone can place a bet on a sporting event.

- A "bookmaker" or "bookies" is an organization or person that takes bets on sporting events

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The University of Massachusetts is conducting a longitudinal study about gambling in Massachusetts. This survey is private and confidential. We have a Federal Certificate of Confidentiality that is designed to protect the confidentiality of your research data from a court order or subpoena. We can provide you with more information if you would like. You don't have to answer any question you don't want to, and you can stop at any time. Almost everyone will be able to finish the survey within 20 to 40 minutes.

If you have questions about the Federal Certificate of Confidentiality, please visit:
http://grants.nih.gov/grants/policy/coc/faqs.htm#187.

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ii

Health Section

We would like to start by asking you questions about your health.

1. **Over the past 12 months, would you say that in general your health has been…?**
   1. ☐ Excellent
   2. ☐ Very good
   3. ☐ Good
   4. ☐ Fair
   5. ☐ Poor

2. **Do you have any physical disability or chronic health problem that limits the amount or kind of activity you can do at home, work or school?**
   1. ☐ Yes
   2. ☐ No

3. **In the past 12 months, how would you rate your overall level of stress? Would you say…?**
   1. ☐ Very high
   2. ☐ High
   3. ☐ Moderate
   4. ☐ Low
   5. ☐ Very low

4. **Check off any events that have happened to you in the past 12 months.**
   Check all that apply.

   ## Work/School
   1. ☐ Started school
   2. ☐ Experienced significant difficulties at school
   3. ☐ Dropped out of school
   4. ☐ Started a new job
   5. ☐ Had a significant change in work hours, work demands, or work type
   6. ☐ Received an important promotion
   7. ☐ Had serious conflict(s) at work
   8. ☐ Suffered a significant business loss or failure
   9. ☐ Had difficulty finding employment
   10. ☐ Was laid off or fired
   11. ☐ Retired

   ## Family and Friends
   12. ☐ Moved to new location/house
   13. ☐ Became pregnant (or spouse became pregnant)
   14. ☐ Experienced a miscarriage or abortion
   15. ☐ Had a new addition to the family through birth or adoption

   ## Family and Friends (continued)
   16. ☐ Son or daughter left home
   17. ☐ Started a relationship with a new boyfriend/girlfriend
   18. ☐ Got married
   19. ☐ Had serious conflicts or difficulties with spouse or partner
   20. ☐ Broke up with boyfriend/girlfriend
   21. ☐ Separated or divorced
   22. ☐ Had serious conflicts with family member(s)
   23. ☐ Had serious conflicts with close friend(s)
   24. ☐ Had serious conflicts with neighbor(s)
   25. ☐ Had serious conflicts with ex-spouse
   26. ☐ Death of spouse or partner
   27. ☐ Death of other close family member
   28. ☐ Death of close friend
   29. ☐ Serious illness or injury in family member or close friend
   30. ☐ Death of important family pet

   ## Property and Finances
   31. ☐ Suffered a significant financial loss
   32. ☐ Declared bankruptcy
   33. ☐ Went on social support or welfare
   34. ☐ Suffered a significant loss or damage of property
   35. ☐ Borrowed a significant amount of money (e.g., mortgage)
   36. ☐ Had a significant financial improvement

   ## Legal Matters/Crime
   37. ☐ Arrested or charged with a crime
   38. ☐ Placed in jail
   39. ☐ Became involved in lawsuit
   40. ☐ Received serious threats or harassment
   41. ☐ Was assaulted
   42. ☐ Was robbed
   43. ☐ Was a victim of some other crime
   44. ☐ Caused a serious accident that injured or killed someone

   ## Health
   45. ☐ Witnessed a serious accident that injured or killed someone
   46. ☐ Suffered a serious injury as a result of an accident
   47. ☐ Became seriously overweight or underweight
   48. ☐ Developed a serious physical illness
   49. ☐ Developed a serious mental illness
   50. ☐ Developed a drug or alcohol addiction

1

If at Question 4, you selected any of the options below, please go to Question 5. If none of these items were selected, please go to Question 6:

Death of spouse or partner
Death of other close family member
Death of close friend
Serious illness or injury in family member or close friend
Received serious threats or harassment
Was assaulted
Was robbed
Was a victim of some other crime
Caused a serious accident that injured or killed someone
Witnessed a serious accident that injured or killed someone
Suffered a serious injury as a result of an accident

5. **Did any of the following symptoms occur for at least a month as a result of [specify the specific event(s) checked off]**
    Check all that apply.
    1. ☐ Recurrent intrusive distressing memories of the event
    2. ☐ Recurrent distressing dreams about the event
    3. ☐ Flashbacks, in which you felt you were reliving the event
    4. ☐ Intense psychological distress to reminders of the event
    5. ☐ Intense physical reactions to reminders of the event
    6. ☐ Avoidance of distressing memories, thoughts, or feelings about the event
    7. ☐ Avoidance of external reminders (people, places, etc.) that might lead to memories, thoughts, or feelings about the event
    8. ☐ Inability to remember an important part of the event
    9. ☐ Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., "I am bad", "No one can be trusted", "The world is dangerous")
    10. ☐ Persistent, distorted beliefs about the cause or consequences of the event that has led you to blame yourself or others
    11. ☐ Persistent negative emotions (fear, horror, anger, guilt, shame)
    12. ☐ Markedly decreased interest or participation in activities
    13. ☐ Feelings of detachment from others
    14. ☐ Persistent inability to experience positive emotions
    15. ☐ Irritable behavior and angry outbursts

16. ☐ Reckless or self-destructive behavior
17. ☐ Over-vigilance or over-alertness
18. ☐ Exaggerated startled response
19. ☐ Difficulty concentrating
20. ☐ Difficulty sleeping

6. **In the past 12 months, how would you rate your overall level of happiness? Would you say…?**
    1. ☐ Very high
    2. ☐ High
    3. ☐ Moderate
    4. ☐ Low
    5. ☐ Very low

7. **Have you used tobacco or e-cigarettes in the past 12 months? (includes cigarettes, cigars, pipe tobacco, shisha tobacco, chewing tobacco, dipping tobacco, snuff)**
    1. ☐ Yes
    2. ☐ No ➞ GO TO 10

8. **Which of the following products have you used?** *Check all that apply.*
    1. ☐ Cigarettes
    2. ☐ Electronic cigarettes (e-cigarettes)
    3. ☐ Cigars
    4. ☐ Pipe tobacco
    5. ☐ Shisha tobacco
    6. ☐ Chewing tobacco
    7. ☐ Dipping tobacco
    8. ☐ Snuff

9. **Have you used tobacco or e-cigarettes in the past 30 days? (includes cigarettes, cigars, pipe tobacco, shisha tobacco, chewing tobacco, dipping tobacco, snuff)**
    1. ☐ Yes
    2. ☐ No

10. **How often have you used alcohol in the past 12 months?**
    1. ☐ 4 or more times a week
    2. ☐ 2-3 times a week
    3. ☐ Once a week
    4. ☐ 2-3 times a month
    5. ☐ Once a month
    6. ☐ Less than once a month
    7. ☐ Not at all

11. **In the past 12 months how often have you used any marijuana, hallucinogens (such as LSD, mushrooms, or PCP), cocaine, heroin or opium, or any other drugs not intended for medical use?** *If you are not sure what is considered non-medical drug use, please refer to the definitions on the inside cover.*

   [1] ☐ 4 or more times a week
   [2] ☐ 2-3 times a week
   [3] ☐ Once a week
   [4] ☐ 2-3 times a month
   [5] ☐ Once a month
   [6] ☐ Less than once a month
   [7] ☐ Not at all

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*"If you selected "Less than once a month" or "Not at all" for Question 10 **AND** Question 11, go to Question 14. Otherwise, continue to Question 12.*

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12. **In the past 12 months has your use of alcohol or other drugs been associated with any of the following?** *Check all that apply.*

   [1] ☐ Often taken in larger amounts or over a longer period than intended
   [2] ☐ A persistent desire or unsuccessful efforts to cut down or control use
   [3] ☐ A great deal of time spent in activities necessary to obtain the substance
   [4] ☐ Strong cravings for the substance
   [5] ☐ Recurrent use resulting in a failure to fulfill major role obligations at work, school, or home
   [6] ☐ Continued use despite the substance causing or worsening social or interpersonal problems
   [7] ☐ Continued use despite the substance causing or worsening a physical or psychological problem
   [8] ☐ Important social, occupational, or recreational activities given up or reduced because of use
   [9] ☐ Recurrent use in situations in which it was physically dangerous
   [10] ☐ Tolerance to the substance (needing more of it to have the same effect)
   [11] ☐ Withdrawal symptoms when not using the substance

13. **During the past 12 months, have you sought help for your use of alcohol or drugs?**

   [1] ☐ Yes
   [2] ☐ No

If you would like information regarding treatment resources, please see page 19 for contact information.

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14. ***Prior to the past 12 months,* have you had any significant problems with overuse of drugs or alcohol?**

   [1] ☐ Yes
   [2] ☐ No

15. **In the past 12 months have you had any problems with other behavior such as overeating, sex or pornography, shopping, exercise, Internet chat lines, or other things? What we mean is difficulties controlling the behavior which has led to significant negative consequences for you or other people.**

   [1] ☐ Yes
   [2] ☐ No ➡ GO TO 17

16. **Which specific activities have you had problems with?** *Check all that apply.*

   [1] ☐ Overeating
   [2] ☐ Sex or pornography
   [3] ☐ Exercise
   [4] ☐ Shopping
   [5] ☐ Internet chat lines
   [6] ☐ Video or internet gaming
   [91] ☐ Other

17. ***Prior to the past 12 months,* have you had any significant problems with excessive involvement in overeating, sex or pornography, shopping, exercise, Internet chat lines, or other things?**

   [1] ☐ Yes
   [2] ☐ No

18. **In the past 12 months, was there ever a period of 2 weeks or longer where you had a depressed mood most of the day nearly every day and/or a loss of interest or pleasure in most activities?**

   [1] ☐ Yes
   [2] ☐ No ➡ GO TO 20 ON PAGE 4

3

19. **Check off any of the following that occurred during this time period.** *Check all that apply.*
   1 ☐ Significant weight loss or weight gain or an increase or decrease in appetite
   2 ☐ Problems sleeping or excessive sleeping nearly every day
   3 ☐ Physical agitation or being slowed down nearly every day
   4 ☐ Fatigue or loss of energy nearly every day
   5 ☐ Feelings of worthlessness or excessive or inappropriate guilt
   6 ☐ Decreased ability to think or concentrate or indecisiveness nearly every day
   7 ☐ Recurrent thoughts of death or suicide

20. **Would you describe yourself as chronically anxious? (i.e., having excessive anxiety and worry most days about a variety of things)?**
   1 ☐ Yes
   2 ☐ No ➡ **GO TO 23**

21. **Does this anxiety cause significant distress or impairment in your social functioning, employment, or other areas?**
   1 ☐ Yes
   2 ☐ No ➡ **GO TO 23**

22. **Do you also have any of the following symptoms?** *Check all that apply.*
   1 ☐ Restlessness or feeling keyed up or on edge
   2 ☐ Easily fatigued
   3 ☐ Difficulty concentrating or mind going blank
   4 ☐ Irritability
   5 ☐ Muscle tension
   6 ☐ Difficulty sleeping

23. **In the past 12 months have you had recurrent unexpected panic attacks during which 4 or more of the following symptoms occur:**
   • **Pounding heart**
   • **Sweating**
   • **Trembling**
   • **Shortness of breath**
   • **Feelings of choking**
   • **Chest pain**
   • **Nausea**
   • **Dizziness**
   • **Chills or hot flashes**
   • **Numbness**
   • **Feelings of unreality**
   • **Fear of losing control**
   • **Fear of dying?**
   1 ☐ Yes
   2 ☐ No ➡ **GO TO 25**

24. **Have these attacks been followed by either a persistent worry about having additional attacks and/or avoidance of activities (e.g., exercise) or unfamiliar places?**
   1 ☐ Yes
   2 ☐ No

25. **In the past 12 months have you had *any other* significant mental health problem that has not been mentioned (e.g., bipolar disorder, schizophrenia, bulimia, obsessive-compulsive disorder, agoraphobia)?**
   1 ☐ Yes
   2 ☐ No

26. ***Prior to the past 12 months,* do you have any significant history of mental health problems such as depression, post-traumatic stress, panic attacks, generalized anxiety, agoraphobia, obsessive-compulsive disorder, bipolar disorder, schizophrenia, bulimia, etc.?**
   1 ☐ Yes
   2 ☐ No

27. **Is there any significant history of mental health problems, drug or alcohol addictions, or behavioral addictions in your parents, siblings, or children?**
   1 ☐ Yes
   2 ☐ No
   3 ☐ Unsure

28. **Were you abused as a child (physically, sexually, or emotionally)?**
   1 ☐ Yes
   2 ☐ No

If you would like information regarding mental health treatment resources, please see page 19 for contact information.

4

Gambling Attitudes

Now we would like to ask you some questions about gambling.

We define gambling as betting money or material goods on an event with an uncertain outcome in the hopes of winning additional money or material goods. It includes things such as lottery tickets, scratch tickets, bingo, betting against a friend on a game of skill or chance, betting on horse racing or sports, investing in high risk stocks, etc.

29. **Which best describes your belief about the benefit or harm that gambling has for society? Would you say…?**
    - 1 ☐ The harm far outweighs the benefits
    - 2 ☐ The harm somewhat outweighs the benefits
    - 3 ☐ The benefits are about equal to the harm
    - 4 ☐ The benefits somewhat outweigh the harm
    - 5 ☐ The benefits far outweigh the harm

30. **Do you believe that gambling is morally wrong?**
    - 1 ☐ Yes
    - 2 ☐ No

31. **Which of the following best describes your opinion about *legalized* gambling? Would you say…?**
    - 1 ☐ All types of gambling should be legal
    - 2 ☐ Some types of gambling should be legal and some should be illegal
    - 3 ☐ All types of gambling should be illegal

32. **Which of the following best describes your opinion about gambling opportunities in Massachusetts? Would you say…?**
    - 1 ☐ Gambling is too widely available
    - 2 ☐ Gambling is not available enough
    - 3 ☐ The current availability of gambling is fine

Past Gambling Behaviors

The following questions ask about frequency of participation and spending on each type of gambling. Spend means how much you are ahead (+$) or behind (-$), or your net win or loss in an average month in the past 12 months.

33. **In the past 12 months, how often have you purchased *lottery tickets* such as Megabucks, Powerball, or Lucky for Life? This does not include daily lottery games (e.g., Mass Cash, Numbers Game, Keno, Jackpot Poker) or instant tickets, pull tabs, or raffle tickets. Would you say…?**
    - 1 ☐ 4 or more times a week
    - 2 ☐ 2-3 times a week
    - 3 ☐ Once a week
    - 4 ☐ 2-3 times a month
    - 5 ☐ Once a month
    - 6 ☐ Less than once a month
    - 7 ☐ Not at all ➤ GO TO 35

34. **Roughly how much money do you spend on lottery tickets in a typical month?**

    – $ ☐ , ☐☐☐ , ☐☐☐

35. **In the past 12 months, how often have you purchased *instant tickets* or *pull tabs*? Would you say…?**
    - 1 ☐ 4 or more times a week
    - 2 ☐ 2-3 times a week
    - 3 ☐ Once a week
    - 4 ☐ 2-3 times a month
    - 5 ☐ Once a month
    - 6 ☐ Less than once a month
    - 7 ☐ Not at all ➤ GO TO 37

36. **Roughly how much money do you spend on instant tickets or pull tabs in a typical month?**

    – $ ☐ , ☐☐☐ , ☐☐☐

37. **In the past 12 months, how often have you purchased *raffle tickets*? Would you say…?**
    - 1 ☐ 4 or more times a week
    - 2 ☐ 2-3 times a week
    - 3 ☐ Once a week
    - 4 ☐ 2-3 times a month
    - 5 ☐ Once a month
    - 6 ☐ Less than once a month
    - 7 ☐ Not at all ➤ GO TO 39 ON PAGE 6

5

38. Roughly how much money do you spend on raffle tickets in a typical month?

− $ ☐ , ☐☐☐ , ☐☐☐

39. In the past 12 months, how often have you played *daily lottery games* such as *Mass Cash, Keno, Jackpot Poker, Numbers Game*? Would you say…?

¹ ☐ 4 or more times a week
² ☐ 2-3 times a week
³ ☐ Once a week
⁴ ☐ 2-3 times a month
⁵ ☐ Once a month
⁶ ☐ Less than once a month
⁷ ☐ Not at all ➞ **GO TO 41**

40. Roughly how much money do you spend on daily lottery games in a typical month?

− $ ☐ , ☐☐☐ , ☐☐☐

41. In the past 12 months, how often have you bet money or gambled on *sports* (this includes social betting, online betting, and fantasy sports)? Would you say…?

¹ ☐ 4 or more times a week
² ☐ 2-3 times a week
³ ☐ Once a week
⁴ ☐ 2-3 times a month
⁵ ☐ Once a month
⁶ ☐ Less than once a month
⁷ ☐ Not at all ➞ **GO TO 51 ON PAGE 7**

42. Roughly how much money do you spend on sports betting in a typical month?

− $ ☐ , ☐☐☐ , ☐☐☐

43. What type of sports betting did you engage in? *For a definition of sportsbook, please refer to inside cover. Check all that apply.*

¹ ☐ Office sports pools or social betting against friends or family
² ☐ Placing bets with a legal land-based sportsbook outside of Massachusetts
³ ☐ Placing bets with an illegal/underground land-based sportsbook or bookmaker in Massachusetts
⁴ ☐ Placing bets on sporting events with an online sportsbook
⁵ ☐ Online fantasy sports

If you selected "Online fantasy sports," then go to Question 44. If you did NOT select "Online fantasy sports," then go to Question 51 on page 7.

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44. Do you play traditional fantasy sports (where results are determined at the end of the season) or daily fantasy sports (where results are determined on a daily or weekly basis)?

¹ ☐ Traditional fantasy sports
➞ **GO TO 51 ON PAGE 7**
² ☐ Daily fantasy sports
³ ☐ Both traditional and daily fantasy sports

45. Which internet sites do you most often use to play daily fantasy sports?
Check all that apply.

¹ ☐ DraftKings
² ☐ FanDuel
³ ☐ DraftDay
⁹¹ ☐ Other *(specify)*

☐

46. In the past 30 days, on the days that you played, how many hours on average did you spend on daily fantasy sports?

☐☐

47. In the past 30 days, what has your usual balance been in your daily fantasy sports account(s)?

$ ☐ , ☐☐☐ , ☐☐☐

48. In the past 30 days, how much have you deposited into your daily fantasy sports account(s)?

$ ☐ , ☐☐☐ , ☐☐☐

49. In the past 30 days, how much money have you cashed out from your daily fantasy sports account(s)?

$ ☐ , ☐☐☐ , ☐☐☐

50. Considering all the time you spend on all your gambling activities, what percentage of time involves playing daily fantasy sports?

☐☐☐ %

6

51. In the past 12 months, how often have you played *bingo* either in person or online? Would you say…?

¹ ☐ 4 or more times a week
² ☐ 2-3 times a week
³ ☐ Once a week
⁴ ☐ 2-3 times a month
⁵ ☐ Once a month
⁶ ☐ Less than once a month
⁷ ☐ Not at all ➝ **GO TO 54**

52. Roughly how much money do you spend on bingo in a typical month?

☐ – $ ☐ , ☐☐☐ , ☐☐☐

53. How and where do you play bingo? *Check all that apply.*

¹ ☐ In person at a bingo hall in Massachusetts
² ☐ In person at a bingo hall outside Massachusetts
³ ☐ At an online bingo site

54. In the past 12 months, how often have you spent money on *electronic gambling machines* (i.e., slot machines, video lottery terminals, electronic casino table games) either in person or online?

¹ ☐ 4 or more times a week
² ☐ 2-3 times a week
³ ☐ Once a week
⁴ ☐ 2-3 times a month
⁵ ☐ Once a month
⁶ ☐ Less than once a month
⁷ ☐ Not at all ➝ **GO TO 56**

55. Roughly how much money do you spend on electronic gambling machines in a typical month?

☐ – $ ☐ , ☐☐☐ , ☐☐☐

56. In the past 12 months how often have you bet money on any *casino table game* such as poker, blackjack, baccarat, roulette, craps, mah-jong, sic-bo, pai gow, either in person or online? *This does not include automated electronic versions of these games, which should be reported in the question about electronic gambling machines.*

¹ ☐ 4 or more times a week
² ☐ 2-3 times a week
³ ☐ Once a week
⁴ ☐ 2-3 times a month
⁵ ☐ Once a month
⁶ ☐ Less than once a month
⁷ ☐ Not at all

If you did not bet money on electronic gambling machines or casino table games in the past 12 months, please go to Question 68 on page 8. Otherwise continue to Question 58.

57. Roughly how much money do you spend on casino table games in a typical month?

☐ – $ ☐ , ☐☐☐ , ☐☐☐

58. Where did you play these electronic gambling machines and/or casino table games? *Check all that apply.*

¹ ☐ At the Plainridge Park Casino in Plainville, Massachusetts
² ☐ At a land-based casino, slot parlor, slots at racetrack, or card room outside of Massachusetts
³ ☐ At an online casino or card/poker room
⁴ ☐ At an underground/illegal casino, slot parlor, or card room in Massachusetts
⁵ ☐ At a private residence

59. Roughly what percentage of your spending on electronic gambling machines and/or casino table games is done at each location? *The percentages should add up to 100%.*

1 ☐☐☐ % Plainridge Park Casino in Plainville, Massachusetts

2 ☐☐☐ % Land-based casino, slot parlor, slots at racetrack, or card room outside of Massachusetts

3 ☐☐☐ % Online casino or card/poker room

4 ☐☐☐ % Underground/illegal casinos, slot parlor, or card room in Massachusetts

5 ☐☐☐ % At a private residence

7

60. **In the past 12 months, how many times have you played electronic gambling machines or casino table games at a casino, slots parlor, slots at racetrack, or card room outside of Massachusetts?**

    ☐☐☐ number of times

61. **Roughly how much money do you spend on *gambling* per visit in out of state casinos, slots parlors, slots at racetracks, and card rooms?**

    – $☐ , ☐☐☐ , ☐☐☐

62. **Roughly how much money do you spend on *nongambling activities* (such as food, travel, lodging, entertainment) per visit in out of state casinos, slots parlors, slots at racetracks, and card rooms?**

    $☐☐ , ☐☐☐

63. **Which specific casino or slots parlor do you most often go to?**
    - 1 ☐ Atlantic City Casino (NJ)
    - 2 ☐ Nevada Casino
    - 3 ☐ Empire City (Yonkers, NY)
    - 4 ☐ Foxwood (Ledyard, CT)
    - 5 ☐ Hollywood Slots (Bangor, ME)
    - 6 ☐ Mohegan Sun (Uncasville, CT)
    - 7 ☐ Monticello (Monticello, NY)
    - 8 ☐ Newport Grand (Newport, RI)
    - 9 ☐ Oxford Casino (Oxford, ME)
    - 10 ☐ Resorts World (Queens, NY)
    - 11 ☐ Saratoga Casino & Raceway (Saratoga, NY)
    - 12 ☐ Turning Stone (Verona, NY)
    - 13 ☐ Twin River (Lincoln, RI)
    - 14 ☐ Vernon Downs (Vernon, NY)
    - 91 ☐ Other

64. **Do you have a casino player rewards card (e.g., Marquee Rewards)?**
    - 1 ☐ Yes
    - 2 ☐ No ➤ GO TO 68

65. **Is this a rewards card for a Massachusetts casino?**
    - 1 ☐ Yes
    - 2 ☐ No ➤ GO TO 68

66. **Have you used the Play Management system on your card (allowing you to put limits on your time and expenditure)?**
    - 1 ☐ Yes
    - 2 ☐ No ➤ GO TO 68

67. **Have you found these features useful in managing your gambling?**
    - 1 ☐ Yes
    - 2 ☐ No

68. **In the past 12 months, how often have you bet on *horse racing* or *dog racing* either in person, by phone, or online? Would you say…?**
    - 1 ☐ 4 or more times a week
    - 2 ☐ 2-3 times a week
    - 3 ☐ Once a week
    - 4 ☐ 2-3 times a month
    - 5 ☐ Once a month
    - 6 ☐ Less than once a month
    - 7 ☐ Not at all ➤ GO TO 71

69. **Roughly how much money do you spend on horse or dog racing in a typical month?**

    – $☐ , ☐☐☐ , ☐☐☐

70. **Where do you most often bet on horse or dog racing?**
    - 1 ☐ Suffolk Downs
    - 2 ☐ Plainridge Racecourse
    - 3 ☐ Raynham Park
    - 4 ☐ Other Massachusetts racecourse (e.g., Brockton)
    - 5 ☐ Online racebook
    - 91 ☐ Other

71. **In the past 12 months how often have you gambled or bet money on *other types of gambling* that have not yet been mentioned, such as betting on card games other than poker, blackjack, and baccarat; board games (e.g., chess, backgammon); television events; political events; video games; cock fighting; dog fights; financial indices betting on a gambling website (including spread betting); or anything else?**
    - 1 ☐ 4 or more times a week
    - 2 ☐ 2-3 times a week
    - 3 ☐ Once a week
    - 4 ☐ 2-3 times a month
    - 5 ☐ Once a month
    - 6 ☐ Less than once a month
    - 7 ☐ Not at all ➤ GO TO 75 ON PAGE 9

8

72. **What are these other types of gambling you bet money on?** *Check all that apply.*
   - 1 ☐ Non-casino card games
   - 2 ☐ Board games
   - 3 ☐ Television events
   - 4 ☐ Political events
   - 5 ☐ Video games
   - 6 ☐ Cock fights
   - 7 ☐ Dog fights
   - 8 ☐ Financial indices betting
   - 91 ☐ Other

73. **Did you make these bets in person or remotely via a computer, phone, television, or other device?** *Check all that apply.*
   - 1 ☐ In person
   - 2 ☐ Remotely via a computer, phone, television, or other device

74. **Roughly how much money do you spend on these other types of gambling in a typical month?**

   ☐− $ ☐ , ☐☐☐ , ☐☐☐

75. **Do you personally manage most of your own *stock market* investments (i.e., make your own decisions and purchases of stocks, bonds, etc. independent of a financial advisor or fund manager)?**
   - 1 ☐ Yes
   - 2 ☐ No ➡ **GO TO 78**
   - 3 ☐ I have no stock market investments ➡ **GO TO 78**

76. **In the past 12 months, which of the following financial products/activities have you purchased, sold, or engaged in?** *Check all that apply.*
   - 1 ☐ Mutual funds
   - 2 ☐ Bonds
   - 3 ☐ Individual stocks
   - 4 ☐ Penny stocks
   - 5 ☐ Options
   - 6 ☐ Futures
   - 7 ☐ Other derivatives (e.g., Swaps)
   - 8 ☐ Shorting stocks
   - 9 ☐ Day trading

77. **What do you estimate your net loss or gain in a typical month is from your stock market activity?**

   ☐− $ ☐ , ☐☐☐ , ☐☐☐

78. **To what extent do you agree with the statement: "wealth is a good measure of success in life"?**
   - 1 ☐ Strongly agree
   - 2 ☐ Agree
   - 3 ☐ Neutral
   - 4 ☐ Disagree
   - 5 ☐ Strongly disagree

79. **How often do you use automatic teller machines at casinos, slot parlors, racetracks, or bingo halls?**
   - 1 ☐ Never
   - 2 ☐ Occasionally
   - 3 ☐ Most times that I go

80. **In the past 12 months what was the largest amount of money you have won gambling in a single day?**
   - 1 ☐ $0
   - 2 ☐ +$1 to +$199
   - 3 ☐ +$200 to +$499
   - 4 ☐ +$500 to +$999
   - 5 ☐ +$1000 to +$1999
   - 6 ☐ +$2000 or more

81. **In the past 12 months what was the largest amount of money you have lost gambling in a single day?**
   - 1 ☐ $0
   - 2 ☐ -$1 to -$199
   - 3 ☐ -$200 to -$499
   - 4 ☐ -$500 to -$999
   - 5 ☐ -$1000 to -$1999
   - 6 ☐ -$2000 or more

Gambling Motivation

The following questions ask about your current gambling activities and the availability of gambling in your area.

82. **What would you say is the main reason that you gamble? Would you say…?**
   - 1 ☐ For excitement/entertainment
   - 2 ☐ To win money
   - 3 ☐ To escape or distract yourself
   - 4 ☐ To socialize with family or friends
   - 5 ☐ To support worthy causes
   - 6 ☐ Because it makes you feel good about yourself
   - 91 ☐ Other

Gambling Recreation

83. How important is gambling to you as a recreational activity? Would you say…?
¹ ☐ Very important
² ☐ Somewhat important
³ ☐ Not very important
⁴ ☐ Not at all important

84. Has gambling replaced other recreational activities for you in the past year?
¹ ☐ Yes
² ☐ No ➡ GO TO 86

85. Which recreational activities has gambling replaced?

Gambling Context

86. Do you typically gamble alone or with friends?
¹ ☐ More often alone
² ☐ More often with friends

87. How available are gambling opportunities at your workplace or school?
¹ ☐ Not available
² ☐ Somewhat available
³ ☐ Extensively available

88. How close is the nearest casino to you?
¹ ☐ More than a 30 minute drive from either home, work, or school
² ☐ A 16 to 30 minute drive from either home, work, or school
³ ☐ A 5 to 15 minute drive from either home, work, or school
⁴ ☐ Less than a 5 minute drive from either home, work, or school

Lifetime Gambling

89. At what age do you recall gambling for money for the first time?
☐ ☐

90. Have any of your parents, brothers or sisters, or children ever been regular gamblers?
¹ ☐ Yes
² ☐ No ➡ GO TO 92
³ ☐ Unsure

91. Have any of your parents, brothers or sisters, or children ever been problem gamblers (i.e., had difficulty controlling their gambling to the extent that it caused significant problems)?
¹ ☐ Yes
² ☐ No
³ ☐ Unsure

Gambling Fallacies

The next set of questions will ask your opinion about various gambling situations.

92. Which of the following set of lottery numbers has the greatest probability of being selected as the winning combination?
¹ ☐ 1, 2, 3, 4, 5, 6
² ☐ 8, 18, 3, 55, 32, 28
³ ☐ Each of the above have an equal probability of being selected

93. Which gives you the best chance of winning the jackpot on a slot machine?
¹ ☐ Playing a slot machine that has not had a jackpot in over a month.
² ☐ Playing a slot machine that had a jackpot an hour ago.
³ ☐ Your chances of winning the jackpot are the same on both machines.

94. How lucky are you? If 10 people's names were put into a hat and one name drawn for a prize, how likely is it that <u>your name</u> would be chosen?
¹ ☐ About the same likelihood as everyone else
² ☐ Less likely than other people
³ ☐ More likely than other people

95. If you were to buy a lottery ticket, which would be the best place to buy it from?
¹ ☐ A place that has sold many previous winning tickets
² ☐ A place that has sold few previous winning tickets
³ ☐ One place is as good as another

96. A positive attitude or doing good deeds increases your likelihood of winning money when gambling.
¹ ☐ Disagree
² ☐ Agree

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97. A gambler goes to the casino and wins 75% of the time. How many times has he or she likely gone to the casino?

¹ ☐ 4 times
² ☐ 100 times
³ ☐ It is just as likely that he has gone either 4 or 100 times

98. You go to a casino with $100 hoping to double your money. Which strategy gives you the best chance of doing this?

¹ ☐ Betting all your money on a single bet
² ☐ Betting small amounts of money on several different bets
³ ☐ Either strategy gives you an equal chance of doubling your money

99. Which game can you consistently win money at if you use the right strategy?

¹ ☐ Slot machines
² ☐ Roulette
³ ☐ Bingo
⁴ ☐ None of the above

100. Your chances of winning a lottery are better if you are able to choose your own numbers.

¹ ☐ Disagree
² ☐ Agree

101. You have flipped a coin and correctly guessed 'heads' 5 times in a row. What are the odds that heads will come up on the next flip. Would you say…?

¹ ☐ 50%
² ☐ More than 50%
³ ☐ Or less than 50%

Prevention Awareness

Now we would like to ask you a few questions about media campaigns and gambling behaviors.

102. In the past 12 months have you seen or heard any media campaigns to prevent problem gambling in Massachusetts?

¹ ☐ Yes
² ☐ No

103. In the past 12 months have you been aware of any programs to prevent problem gambling (other than media campaigns) offered at your school, your place of work, in your community or elsewhere?

¹ ☐ Yes
² ☐ No

*If you selected "No" to both Question 102 **AND** Question 103, then go to Question 106.*

104. Did you participate in any of the problem gambling prevention programs that you heard of in the past 12 months?

¹ ☐ Yes
² ☐ No

105. Did any of these media campaigns or programs cause you to alter your own gambling behavior?

¹ ☐ Yes
² ☐ No

Gambling Problems - Others

106. What portion of your close friends and family members are regular gamblers? Would you say…?

¹ ☐ None of them
² ☐ Some of them
³ ☐ Most of them
⁴ ☐ All of them

107. During the last 12 months, has there been any person in your life that you consider gambles too much?

¹ ☐ Yes
² ☐ No ➡ GO TO 109 ON PAGE 12

108. What is this person's relationship to you?

¹ ☐ Spouse/partner
² ☐ Parent/step parent
³ ☐ Child/step child
⁴ ☐ Other person (in your household)
⁵ ☐ Other family member (not living in your household)
⁶ ☐ Ex-partner
⁷ ☐ Work colleague
⁸ ☐ Friend
⁹ ☐ Neighbor
⁹¹ ☐ Someone else

Gambling Problems - Self

Please answer all of the following questions, even if you think they do not apply to you.

109. In the past 12 months, have you bet more than you could really afford to lose? Would you say…?
1. ☐ Never
2. ☐ Sometimes
3. ☐ Most of the time
4. ☐ Almost always

110. In the past 12 months, have you felt guilty about the way you gamble or what happens when you gamble? Would you say…?
1. ☐ Never
2. ☐ Sometimes
3. ☐ Most of the time
4. ☐ Almost always

111. In the past 12 months, have you needed to gamble with larger amounts of money to get the same feeling of excitement? Would you say…?
1. ☐ Never
2. ☐ Sometimes
3. ☐ Most of the time
4. ☐ Almost always

112. In the past 12 months, when you gambled, did you go back another day to try to win back the money you lost? Would you say…?
1. ☐ Never
2. ☐ Sometimes
3. ☐ Most of the time
4. ☐ Almost always

113. In the past 12 months, have you borrowed money or sold anything to get money to gamble? Would you say…?
1. ☐ Never
2. ☐ Sometimes
3. ☐ Most of the time
4. ☐ Almost always

114. In the past 12 months, has your gambling caused any financial problems for you or your household? Would you say…?
1. ☐ Never
2. ☐ Sometimes
3. ☐ Most of the time
4. ☐ Almost always

115. In the past 12 months, has your gambling caused you any health problems, including stress or anxiety? Would you say…?
1. ☐ Never
2. ☐ Sometimes
3. ☐ Most of the time
4. ☐ Almost always

116. In the past 12 months, have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true? Would you say…?
1. ☐ Never
2. ☐ Sometimes
3. ☐ Most of the time
4. ☐ Almost always

117. In the past 12 months, have you felt that you might have a problem with gambling? Would you say…?
1. ☐ Never
2. ☐ Sometimes
3. ☐ Most of the time
4. ☐ Almost always

118. Has your involvement in gambling caused significant mental stress in the form of guilt, anxiety, or depression for you or someone close to you in the past 12 months?
1. ☐ Yes
2. ☐ No

119. Has your involvement in gambling caused significant problems in your relationship with your spouse/partner or important friends or family in the past 12 months?
1. ☐ Yes
2. ☐ No

120. In the past 12 months, has your involvement in gambling caused you to repeatedly neglect your children or family?
1. ☐ Yes
2. ☐ No

121. Has your involvement in gambling caused significant work or school problems for you or someone close to you in the past 12 months or caused you to miss a significant amount of time off work or school?
1. ☐ Yes
2. ☐ No

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122. In the past 12 months, has your involvement in gambling caused you or someone close to you to write bad checks, take money that didn't belong to you or commit other illegal acts to support your gambling?

¹ ☐ Yes
² ☐ No

123. In the past 12 months, have you often gambled longer, with more money or more frequently than you intended to?

¹ ☐ Yes
² ☐ No

124. In the past 12 months, have you made attempts to either cut down, control or stop gambling?

¹ ☐ Yes
² ☐ No ➡ GO TO 126

125. Were you successful in these attempts to cut down, control or stop gambling?

¹ ☐ Yes
² ☐ No

126. In the past 12 months, is there anyone else who would say that you had difficulty controlling your gambling, regardless of whether you agreed with them or not?

¹ ☐ Yes
² ☐ No

127. In the past 12 months, would you say you have been preoccupied with gambling?

¹ ☐ Yes
² ☐ No

128. In the past 12 months, when you did try cutting down or stopping did you find you were very restless or irritable or that you had strong cravings for it?

¹ ☐ Yes
² ☐ No

129. In the past 12 months, did you find you needed to gamble with larger and larger amounts of money to achieve the same level of excitement?

¹ ☐ Yes
² ☐ No

130. Are there particular types of gambling that have contributed to your problems more than others?

¹ ☐ Yes
² ☐ No ➡ GO TO 132

131. Which types of gambling have contributed to your problems? *Check all that apply.*

¹ ☐ Lottery
² ☐ Instant ticket
³ ☐ Daily lotteries
⁴ ☐ Bingo
⁵ ☐ Slot machines or video lottery terminals
⁶ ☐ Casino table games (i.e., Blackjack, Baccarat, Roulette, Craps, etc.)
⁷ ☐ Poker
⁸ ☐ Horse racing or dog racing
⁹ ☐ Sports betting
¹⁰ ☐ Speculative high risk stocks, options, futures, or day trading
¹¹ ☐ Online gambling
⁹¹ ☐ Other

132. Have you *wanted* help for gambling problems in the past 12 months?

¹ ☐ Yes
² ☐ No ➡ GO TO 136

133. Have you *sought* help for gambling problems in the past 12 months?

¹ ☐ Yes
² ☐ No ➡ GO TO 136

134. Where did you seek help from?
Check all that apply.

¹ ☐ Friends or family
² ☐ Gamesense Information Centre
³ ☐ Gamblers Anonymous
⁴ ☐ Gam Anon (This is a support group for friends/family of problem gamblers)
⁵ ☐ Family doctor
⁶ ☐ Private Psychologist/Psychiatrist/Counselor
⁷ ☐ Problem gambling treatment center/clinic
⁸ ☐ Pastor/Minister/Priest/etc.
⁹ ☐ Telephone help/hotline
¹⁰ ☐ Online help
⁹¹ ☐ Other

135. How helpful was this? Would you say…?

¹ ☐ Very helpful
² ☐ Somewhat helpful
³ ☐ Not very helpful
⁴ ☐ Not at all helpful

136. Have you excluded yourself from any casino or slots parlor in the past 12 months?

¹ ☐ Yes
² ☐ No ➡ GO TO 138 ON PAGE 14

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137. In which states have you excluded yourself?
Check all that apply.
1 ☐ Massachusetts
2 ☐ Connecticut
3 ☐ Rhode Island
4 ☐ New Jersey
5 ☐ New York
6 ☐ Pennsylvania
7 ☐ Maine
8 ☐ Nevada
91 ☐ Other

138. What would you say have been the main cause or causes of your gambling problems (provide as much detail as needed)?

> [blank response box]

139. Do you believe you are having fewer gambling problems than last year?
1 ☐ Yes
2 ☐ No ➡ GO TO 141

140. What would you say is responsible for this improvement (provide as much detail as needed)?

> [blank response box]

If you would like information regarding treatment resources, please see page 19 for contact information.

Social Functioning

We would now like to switch focus and ask a few questions about family and social relationships.

141. How would you rate your current family relationships?
1 ☐ Excellent
2 ☐ Very good
3 ☐ Average
4 ☐ Below average
5 ☐ Poor

142. How would you rate your current marital relationship?
1 ☐ Excellent
2 ☐ Very good
3 ☐ Average
4 ☐ Below average
5 ☐ Poor
6 ☐ Not applicable

143. How would you rate your current level of social support?
1 ☐ Excellent
2 ☐ Very good
3 ☐ Average
4 ☐ Below average
5 ☐ Poor

144. How important is religion in your life?
1 ☐ Very important
2 ☐ Somewhat important
3 ☐ Not too important
4 ☐ Not at all important

145. Have you committed any illegal activities in the past year?
1 ☐ Yes
2 ☐ No

146. Do you have a criminal record?
1 ☐ Yes
2 ☐ No

14

Please rate the extent to which you agree or disagree with each of the following statements.

	Disagree Strongly	Disagree Somewhat	Agree Somewhat	Agree Strongly
147. Success is based on survival of the fittest; I am not concerned about the losers	1 ☐	2 ☐	3 ☐	4 ☐
148. For me, what's right is whatever I can get away with	1 ☐	2 ☐	3 ☐	4 ☐
149. In today's world, I feel justified in doing anything I can get away with to succeed	1 ☐	2 ☐	3 ☐	4 ☐
150. My main purpose in life is getting as many goodies as I can	1 ☐	2 ☐	3 ☐	4 ☐
151. Making a lot of money is my most important goal	1 ☐	2 ☐	3 ☐	4 ☐
152. I let others worry about higher values; my main concern is with the bottom line	1 ☐	2 ☐	3 ☐	4 ☐
153. People who are stupid enough to get ripped off usually deserve it	1 ☐	2 ☐	3 ☐	4 ☐
154. Looking out for myself is my top priority	1 ☐	2 ☐	3 ☐	4 ☐
155. I tell other people what they want to hear so that they will do what I want them to do	1 ☐	2 ☐	3 ☐	4 ☐
156. I would be upset if my success came at someone else's expense	1 ☐	2 ☐	3 ☐	4 ☐
157. I often admire a really clever scam	1 ☐	2 ☐	3 ☐	4 ☐
158. I make a point of trying not to hurt others in pursuit of my goals	1 ☐	2 ☐	3 ☐	4 ☐
159. I enjoy manipulating other people's feelings	1 ☐	2 ☐	3 ☐	4 ☐
160. I feel bad if my words or actions cause someone else to feel emotional pain	1 ☐	2 ☐	3 ☐	4 ☐
161. Even if I were trying very hard to sell something, I wouldn't lie about it	1 ☐	2 ☐	3 ☐	4 ☐
162. Cheating is not justified because it is unfair to others	1 ☐	2 ☐	3 ☐	4 ☐

15

Demographics

The last few questions are about your background so we can keep track of the characteristics of people who respond to the survey.

163. **Are you male or female?**
 1 ☐ Male
 2 ☐ Female

164. **In what year were you born?**
 ☐☐☐☐ Year

165. **At present are you…?**
 1 ☐ Married
 2 ☐ Living with your partner
 3 ☐ Separated, but still legally married
 4 ☐ Divorced
 5 ☐ Widowed
 6 ☐ Never been married

166. **How many children under 18 years old live in your household?**
 ☐☐ Number of children

167. **What is the highest degree or level of school you have completed?**
 1 ☐ Never attended school or only attended kindergarten
 2 ☐ Grades 1 through 8
 3 ☐ Grades 9 through 11
 4 ☐ Regular High School Diploma or GED
 5 ☐ Some college credit, but less than 1 year of college credit
 6 ☐ 1 or more years of college credit, but no degree
 7 ☐ Associate Degree
 8 ☐ Bachelor's Degree
 9 ☐ Master's Degree
 10 ☐ Professional Degree beyond a Bachelor's Degree
 11 ☐ Doctorate Degree

168. **Are you currently…?**
 1 ☐ Employed for wages
 2 ☐ Self- employed
 3 ☐ Out of work for more than 1 year
 4 ☐ Out of work for less than 1 year
 5 ☐ A Homemaker
 6 ☐ A Student
 7 ☐ Retired
 8 ☐ Unable to work

169. **Have you ever served on active duty in the U.S. Armed Forces, military Reserves, or National Guard? Active duty does not include training for the Reserves or National Guard, but DOES include activation, for example, for the Persian Gulf War.**
 1 ☐ Yes, now on active duty
 2 ☐ Yes, on active duty in the past, but not during the last 12 months
 3 ☐ No, training for Reserves or National Guard only
 4 ☐ No, never served in the military

170. **Do you own the place where you currently live, pay rent or something else?**
 1 ☐ Own
 2 ☐ Rent
 3 ☐ Something else

171. **Is your approximate annual household income from all sources…?**
 1 ☐ Less than $15,000
 2 ☐ $15,000 - $29,999
 3 ☐ $30,000 - $49,999
 4 ☐ $50,000 - $69,999
 5 ☐ $70,000 - $99,999
 6 ☐ $100,000 - $124,999
 7 ☐ $125,000 - $149,999
 8 ☐ $150,000 or more

172. **What do you estimate your current debt to be? Please include mortgages, credit cards, loans, car payments, etc.**
 1 ☐ $0 (no debt)
 2 ☐ Less than $10,000
 3 ☐ $10,000 - $19,999
 4 ☐ $20,000 - $39,999
 5 ☐ $40,000 - $59,999
 6 ☐ $60,000 - $79,999
 7 ☐ $80,000 - $99,999
 8 ☐ $100,000 - $119,999
 9 ☐ $120,000 - $139,999
 10 ☐ $140,000 - $159,999
 11 ☐ $160,000 - $179,999
 12 ☐ $180,000 - $199,999
 13 ☐ $200,000 - $299,999
 14 ☐ $300,000 - $399,999
 15 ☐ $400,000 - $499,999
 16 ☐ $500,000 or more

173. **Were you born in the United States?**
 1 ☐ Yes
 2 ☐ No

16

174. Many people only live in Massachusetts for part of the year. Do you live in Massachusetts for 6 or more months out of the year? *If you recently moved to Massachusetts and plan on staying for 6 months or longer, mark yes. If you are planning on moving out of Massachusetts but have lived there for at least 6 months in 2015, mark yes.*

¹ ☐ Yes
² ☐ No

175. Are you Hispanic or Latino?

¹ ☐ Yes
² ☐ No

176. Which one or more of the following would you say is your race? *Check all that apply.*

¹ ☐ White or Caucasian
² ☐ Black or African American
³ ☐ Asian
⁴ ☐ Native Hawaiian or Other Pacific Islander
⁵ ☐ Native American or Alaskan Native
⁹¹ ☐ Some other race

[ ]

177. How many members of your household, including yourself, are 18 years of age or older?

[ ][ ] Number of adults (18 or older)

178. Do you have an internet connection either at home or at work?

¹ ☐ Yes
² ☐ No

179. Overall, how often do you use the Internet?

¹ ☐ Daily
² ☐ A few times a week
³ ☐ A few times a month
⁴ ☐ A few times a year
⁵ ☐ Not at all

Because we are interested in how opinions change over time, you may be re-contacted in the future to participate in related studies. If you are contacted to participate in future surveys, you have the right to refuse. To document who completed the survey from your household, please provide any edits to your name, email and phone number.

180. First Name:

[ ]

181. Last Name:

[ ]

182. What is the best phone number to reach you if we have more questions about your household? *This number will only be used to contact you about this study. We are prohibited from sharing, distributing, or selling your information to anyone outside this project.*

([ ][ ][ ]) [ ][ ][ ] – [ ][ ][ ]

183. Please enter your email address.

[ ]

17

You have reached the end of the survey. You will be re-contacted again each year about this same time to retake the survey. If any of your contact information changes in the next year please contact NORC via email or by phone at MAHealth@norc.org or 866-900-9601. It is also possible you may be re-contacted to participate in related studies. If you are contacted to participate in any future surveys, you have the right to refuse. I'd like to thank you on behalf of the University of Massachusetts for the time and effort you've spent answering these questions. If you have any questions about this survey, you may contact Dr. Rachel Volberg at 413-545-6700.

Thank you again.

If you would like information regarding treatment resources, please contact:

Massachusetts Substance Abuse Information and Education Helpline
800-327-5050
TTY: 617-536-5872

Drug & Alcohol Treatment Hotline
800-662-HELP

National Alliance on Mental Illness
1-800-950-6264

Samaritans
877-870-4673

National Suicide Prevention Lifeline
1-800-273-8255
1-800-799-4889

To help us contact you, please provide any edits to the names and contact information you previously provided for 3 people who are likely to know where you can be reached. *Please do not include someone who lives in your household.*

Contact #1
Name

Address

Phone

Email

Contact #2
Name

Address

Phone

Email

Contact #3
Name

Address

Phone

Email

18

Please return your completed questionnaire using the enclosed pre-paid envelope to:

University of Massachusetts Amherst
C/O NORC at the University of Chicago
55 East Monroe Street, 16th Floor
Chicago, IL 60603

If you have misplaced the pre-paid envelope, please call 1-866-900-9601 for a new one.

NORC at the University of Chicago is conducting this study on behalf of the University of Massachusetts Amherst. If you have questions or would prefer to complete the survey by phone, please call NORC toll-free at 1-866-900-9601.

If you have questions about your rights as a study participant, you may call the NORC Institutional Review Board toll-free, at 1-866-309-0542.

If you would prefer to complete this survey online, please go to: https://MACohort.norc.org/go/MAGIC.

Your unique survey Personal Identification Number (PIN) is: XXXXX.

OFFICE USE ONLY							
Receipt		CADE		Verification		Adjudication	
Initials	Date	Initials	Date	Initials	Date	Initials	Date

APPENDIX C: Wave 4 Online Questionnaire

Screener (S)

Comorbidities (C)

Associations (A)

Gambling Attitudes (GA)

Past Year Gambling Behavior (GY)

Gambling Motivation (GM)

Gambling Recreation (GR)

Lifetime Gambling (GL)

Gambling Context (GC)

Gambling Fallacies (GF)

Gambling Prevention Awareness (GPA)

Gambling Problems-Others (GPO)

Gambling Problems-Self (GP)

NEO Personality Inventory (NEO)

Social Functioning (SF)

Intelligence (I)

Demographics (D)

WebLog   Thank you for agreeing to participate in the Massachusetts Gambling Impact Cohort (MAGIC) study! You are one of 3,100 participants in this study. The present survey is very similar to the one you filled out a few years ago, but with some additional questions. Each year around this time we will contact you again and ask you to participate. Most people will finish the survey in 20 - 40 minutes. As compensation for your time we will be paying you $50 (plus an additional $20 if you complete the survey within 2 weeks of us first notifying you).

Please enter your Survey Personal Identification Number (PIN) into the field below and click 'Submit'.

[IF LOGGED IN BEFORE, GO TO REENTER, ELSE GO TO INSTRUCT]

REENTER   Welcome back to the Massachusetts Gambling Impact Cohort study! Thank you for the time you have spent answering the survey so far. We still have a few more questions. Click "Next" to resume the survey. To learn more about the survey, you may call NORC toll free at 866-900-9601.

INSTRUCT   Instructions

1. Use the 'Exit Survey' button at the bottom of the page to stop the survey at any time. When you resume, the survey will pick up where you left off. You will need to enter your PIN to re-enter the survey.

2. Please use the 'Next' and 'Back' buttons to navigate between screens within the survey.

[IF NAME AVAILABLE, GO TO S1. ELSE GO TO S1A]

S1   Please confirm that you are [NAME], the individual who previously completed the MAGIC survey in [MONTH], [YEAR].

Continue (I am that person) .... 01(1)   GO TO D1
I am not that person .... 02(2)   GO TO EXIT_18

S1A   Please confirm that you are the [female/male] respondent who previously completed the MAGIC survey which was conducted in [MONTH, YEAR]? The person who filled out that survey told us [he/she] was [AGE] at the time of the survey.

Continue (I am that person) .... 01(1)   GO TO D1
I am not that person .... 02(2)   GO TO EXIT_18

EXIT_18   This survey must be completed by the person who previously completed the MAGIC Survey. If that person is available, please choose "Continue" and click "Next". Otherwise, please have this individual complete the survey at a later time. Thank you.

Continue (I am that person) 01   GO TO S1/S1A
Exit Survey 02   TERMINATE

D1   How many members of your household, including yourself, are 18 years of age or older?

     _____number of adults (18 or older)
     Prefer not to answer .... 99(9999)

     [IF D1 =0, GO TO EXIT_18]
     [IF D1 GT 0 AND NAME NOT AVAILABLE GO TO P_FNAME. ELSE IF NAME
     AVAILABLE, GO TO INTRO2]

P_FNAME Please enter your first name. We will never sell your information to another company or use it to identify you. It will only be used to make sure we are talking to the correct person if we have to call you.

     First Name_____

INTRO2   The University of Massachusetts is conducting a longitudinal study about gambling in Massachusetts. This survey is private and confidential. We have a Federal Certificate of Confidentiality that is designed to protect the confidentiality of your research data from a court order or subpoena. We can provide you with more information if you would like. Taking part is up to you. You don't have to answer any question you don't want to, and you can stop at any time. Almost everyone will be able to finish the survey within 20 to 40 minutes.

     Continue.. 01(1) GO TO FNAME
     Exit .... 02(2) GO TO D1ATERM

D1ATERM You must agree to the terms of the survey in order to participate. Thank you for your time.

     Go back to terms of survey ....01 GO TO INTRO2

     Exit Survey ....02 TERMINATE

D2   Are you male or female?
     MALE.. 01(1)
     FEMALE .... 02(2)
     SKIPPED (WEB).. 95(9995)

D3   In what year were you born?
     _____ Year
     SKIPPED (WEB).. 9995(9995)

COMORBIDITIES (C)

C3   Over the past 12 months, would you say that in general your health has been…

Excellent .... 01(1)
Very good .... 02(2)
Good .... 03(3)
Fair.. 04(4)
Poor... 05(5)

C3a   Do you have any physical disability or chronic health problem that limits the amount or kind of activity you can do at home, work or school?

YES.. 01(1)
NO... 02(0)

C4   In the past 12 months, how would you rate your overall level of stress? Would you say…

Very high .... 01(5)
High .... 02(4)
Moderate .... 03(3)
Low.. 04(2)
Very low .... 05(1)

C4a   Check off any events that have happened to you in the past 12 months. (Adaptation of the Life Events Questionnaire). Check all that apply.

<u>work/school</u>

____started school (1)
____experienced significant difficulties at school (2)
____dropped out of school (3)
____started a new job (4)
____had a significant change in work hours, work demands, or work type (5)
____received an important promotion (6)
____had serious conflict(s) at work (7)
____suffered a significant business loss or failure (8)
____had difficulty finding employment (9)
____was laid off or fired (10)
____retired (11)

<u>family and friends</u>

____moved to new location/house (12)
____became pregnant (or spouse became pregnant) (13)
____experienced a miscarriage or abortion (14)
____had a new addition to the family through birth or adoption (15)
____son or daughter left home (16)
____started a relationship with a new boyfriend/girlfriend (17)
____got married (18)
____had serious conflicts or difficulties with spouse or partner (19)
____broke up with boyfriend/girlfriend (20)
____separated or divorced (21)
____had serious conflicts with family member(s) (22)
____had serious conflicts with close friend(s) (23)
____had serious conflicts with neighbor(s) (24)
____had serious conflicts with ex-spouse (25)
____death of spouse or partner (26)
____death of other close family member (27)
____death of close friend (28)

_____serious illness or injury in family member or close friend (29)
_____death of important family pet (30)
<center>property and finances</center>
_____suffered a significant financial loss (31)
_____declared bankruptcy (32)
_____went on social support or welfare (33)
_____suffered a significant loss or damage of property (34)
_____borrowed a significant amount of money (e.g., mortgage) (35)
_____had a significant financial improvement (36)
<center>legal matters/crime</center>
_____arrested or charged with a crime (37)
_____placed in jail (38)
_____became involved in lawsuit (39)
_____received serious threats or harassment (40)
_____was assaulted (41)
_____was robbed (42)
_____was a victim of some other crime (43)
_____caused a serious accident that injured or killed someone (44)
<center>health</center>
_____witnessed a serious accident that injured or killed someone (45)
_____suffered a serious injury as a result of an accident (46)
_____became seriously overweight or underweight (47)
_____developed a serious physical illness (48)
_____developed a serious mental illness (49)
_____developed a drug or alcohol addiction (50)

ONLY ASK C4b FOR PEOPLE WHO ENDORSED 26, 27, 28, 29, 40, 41, 42, 43, 44, 45, or 46

C4b   Did any of the following symptoms occur for at least a month as a result of [specify the specific event(s) checked off] (check all that apply) (DSM-5 criteria for PTSD):
_____recurrent intrusive distressing memories of the event (1)
_____recurrent distressing dreams about the event (2)
_____flashbacks, in which you felt you were reliving the event (3)
_____intense psychological distress to reminders of the event (4)
_____intense physical reactions to reminders of the event (5)
_____avoidance of distressing memories, thoughts, or feelings about the event (6)
_____avoidance of external reminders (people, places, etc.) that might lead to memories, thoughts, or feelings about the event (7)
_____inability to remember an important part of the event (8)
_____persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., "I am bad", "No one can be trusted", "The world is dangerous") (9)
_____persistent, distorted beliefs about the cause or consequences of the event that has led you to blame yourself or others (10)
_____persistent negative emotions (fear, horror, anger, guilt, shame) (11)
_____markedly decreased interest or participation in activities (12)
_____feelings of detachment from others (13)
_____persistent inability to experience positive emotions (14)
_____irritable behavior and angry outbursts (15)
_____reckless or self-destructive behavior (16)
_____over-vigilance or over-alertness (17)
_____exaggerated startle response (18)
_____difficulty concentrating (19)
_____difficulty sleeping (20)

C5 In the past 12 months, how would you rate your overall level of happiness? Would you say…

Very high .... 01(5)
High .... 02(4)
Moderate .... 03(3)
Low .... 04(2)
Very low .... 05(1)

C6a Have you used tobacco or e-cigarettes in the past 12 months? (includes cigarettes, cigars, pipe tobacco, shisha tobacco, chewing tobacco, dipping tobacco, snuff)
YES .... 01(1)
NO .... 02(0) GO TO C7

C6b Which of the following products have you used? Check all that apply.
Cigarettes 1
Electronic Cigarettes (e-cigarettes) 2
Cigars 3
Pipe tobacco 4
Shisha tobacco 5
Chewing tobacco 6
Dipping tobacco 7
Snuff 8

C6c Have you used tobacco or e-cigarettes in the past 30 days? (includes cigarettes, cigars, pipe tobacco, shisha tobacco, chewing tobacco, dipping tobacco, snuff)
YES .... 01(1)
NO .... 02(0)

C7 How often have you used alcohol in the past 12 months?
4 or more times a week .... 01(6)
2-3 times a week .... 02(5)
Once a week .... 03(4)
2-3 times a month .... 04(3)
Once a month .... 05(2)
Less than once a month, or .... 06(1)
Not at all .... 07(0)

C8 In the past 12 months how often have you used any marijuana, hallucinogens (such as LSD, mushrooms, or PCP), cocaine, amphetamines, heroin, opium, fentanyl, or any other drugs not intended for medical use? "Non-medical" drug use means using it to get high or experience pleasurable effects, see what the effects are like, or use with friends.
4 or more times a week .... 01(6)
2-3 times a week .... 02(5)
Once a week .... 03(4)
2-3 times a month .... 04(3)
Once a month .... 05(2)
Less than once a month, or .... 06(1)
Not at all .... 07(0) (skip C8a)

C8a. Which drugs have you used for nonmedical purposes in the past 12 months? (check all that apply)
Cannabis (marijuana, hashish, weed, pot) (1)
Benzodiazepines (downers) (2)

Amphetamines (methamphetamine, ice, uppers, crystal, speed) (3)
Ecstasy/MDMA (4)
Cocaine (coke, crack) (5)
Opiates and Opioids (opium, morphine, codeine, Oxycontin, fentanyl, heroin, Demerol, Talwin, Percocet) (6)
Hallucinogens (LSD, mushrooms, PCP, mescaline/peyote, ayahuasca) (7)
Other (khat, bath salts, salvia) (8)

IF PERSON HAS USED ALCOHOL OR DRUGS ONCE A MONTH OR MORE IN THE PAST YEAR GO TO C9c.

C9a   In the past 12 months has your use of alcohol or other drugs been associated with any of the following (check all that apply) (DSM-5 criteria for Substance Use Disorder):
_____often taken in larger amounts or over a longer period than intended (1)
_____a persistent desire or unsuccessful efforts to cut down or control use (2)
_____a great deal of time spent in activities necessary to obtain the substance (3)
_____strong cravings for the substance (4)
_____recurrent use resulting in a failure to fulfill major role obligations at work, school, or home (5)
_____continued use despite the substance causing or worsening social or interpersonal problems (6)
_____continued use despite the substance causing or worsening a physical or psychological problem (7)
_____important social, occupational, or recreational activities given up or reduced because of use (8)
_____recurrent use in situations in which it was physically dangerous (9)
_____tolerance to the substance (needing more of it to have the same effect) (10)
_____withdrawal symptoms when not using the substance (11)

C9b   During the past 12 months, have you sought help for your use of alcohol or drugs?
YES.. 01(1)
NO.. 02(0)

ASK C9B1 ONLY IF ANY C9a CRITERIA HAVE BEEN CHECKED.

C9b1   If you would like information regarding treatment resources for substance use, contact the Massachusetts Substance Abuse Information and Education Helpline 800-327-5050 TTY: 617-536-5872 or the Drug & Alcohol Treatment Hotline (National) at 800-662-HELP.

C9c   *Prior to the past 12 months*, have you had any significant problems with overuse of drugs or alcohol?
YES.. 01(1)
NO.. 02(0)

C10a   In the past 12 months have you had any problems with other behavior such as overeating, sex or pornography, shopping, exercise, Internet chat lines, or other things? What we mean is difficulties controlling the behavior which has led to significant negative consequences for you or other people.
YES.. 01(1)
NO.. 02(0)   GO TO C10c

C10b   Which specific activities have you had problems with? Check all that apply.
Overeating.. 01(1)
Sex or pornography... 02(2)
Exercise.. 03(3)
Shopping.. 04(4)

Internet chat lines.. 05(5)
Video or Internet gaming... 06(6)
Other 7

C10c   *Prior to the past 12 months*, have you had any significant problems with excessive involvement in overeating, sex or pornography, shopping, exercise, Internet chat lines, or other things?
YES... 01(1)
NO... 02(0)

C11a   In the past 12 months, was there ever a period of 2 weeks or longer where you had a depressed mood most of the day nearly every day and/or a loss of interest or pleasure in most activities? (DSM-5 criteria for Major Depressive Disorder)
YES... 01(1)
NO... 02(0)   GO TO C12a

C11b   Check off any of the following that occurred during this time period: (DSM-5 criteria for Major Depressive Disorder)
_____significant weight loss or weight gain or an increase or decrease in appetite (1)
_____problems sleeping or excessive sleeping nearly every day (2)
_____physical agitation or being slowed down nearly every day (3)
_____fatigue or loss of energy nearly every day (4)
_____feelings of worthlessness or excessive or inappropriate guilt (5)
_____decreased ability to think or concentrate or indecisiveness nearly every day (6)
_____recurrent thoughts of death or suicide (7)

C12a   Would you describe yourself as chronically anxious? (i.e., having excessive anxiety and worry most days about a variety of things)? (DSM-5 criteria for Generalized Anxiety)
YES... 01(1)
NO... 02(0)   GO TO C13a

C12b   Does this anxiety cause significant distress or impairment in your social functioning, employment, or other areas? (DSM-5 criteria for Generalized Anxiety)
YES... 01(1)
NO... 02(0)   GO TO C13a

C12c   Do you also have any of the following symptoms? (check all that apply) (DSM-5 criteria for Generalized Anxiety)
_____restlessness or feeling keyed up or on edge (1)
_____easily fatigued (2)
_____difficulty concentrating or mind going blank (3)
_____irritability (4)
_____muscle tension (5)
_____difficulty sleeping (6)

C13a   In the past 12 months have you had recurrent unexpected panic attacks during which 4 or more of the following symptoms occur: pounding heart, sweating, trembling, shortness of breath, feelings of choking, chest pain, nausea, dizziness, chills or hot flashes, numbness, feelings of unreality, fear of losing control, fear of dying? (DSM-5 criteria for Panic Disorder)
YES... 01(1)
NO... 02(0)   GO TO C14

C13b   Have these attacks been followed by either a persistent worry about having additional attacks and/or avoidance of activities (e.g., exercise) or unfamiliar places? (DSM-5 criteria for Panic Disorder)

```
YES ......................................................................... 01(1)
NO .......................................................................... 02(0)
```

C14   In the past 12 months have you had *any other* significant mental health problem that has not been mentioned (e.g., bipolar disorder, schizophrenia, bulimia, obsessive-compulsive disorder, agoraphobia)?

```
YES ......................................................................... 01(1)
NO .......................................................................... 02(0)
```

PROVIDE C18 IF PERSON HAS SAID YES TO ANY OF C10a, C11a, C12b, C13b, C14

C18   If you would like information regarding mental health treatment resources, contact the National Alliance on Mental Illness (NAMI) 1-800-950-NAMI (6264) or the Samaritans' at 877-870-4673.

ASSOCIATIONS (A)

For the following words, write down the very first word or phrase that comes to mind after reading the word. (e.g., salt: pepper; black: white; water: drink)

A1a.   Streak: _____
A2a.   Ticket: _____
A3a.   Win: _____
A4a.   Game: _____
A5a.   Money: _____
A6a.   Loss: _____

For the following phrases, write down the very first behavior that comes to mind. For example**:** feeling hungry: have a snack; feeling tired: nap. Keep your answer short; limit yourself to a single word or phrase.

A7a.   Feeling bored: _____
A8a.   Have fun: _____
A9a.   Feeling lonely: _____
A10a. Pass the time: _____
A11a. Do something thrilling: _____
A12a. Make money: _____

These questions ask you to categorize your previous answers. For each answer indicate the category or categories you believe your answer best fits into or relates to. Do not permit alteration of previous response. For paper & pencil administration make sure A1b to A12b are on a different page from A1a to A12a. Also, just say 'your response' where it indicates [participant response]

A1b.   Streak: [insert participant response]
            Recreation/leisure (1)
            Gambling (2)
            Food (3)
            Friends/Family (4)
            Alcohol (5)
            Other (6)

A2b.   Ticket: [insert participant response]
            Recreation/leisure (1)
            Gambling (2)
            Food (3)

Friends/Family (4)
Alcohol (5)
Other (6)

A3b.   Win:_[insert participant response]_
        Recreation/leisure (1)
        Gambling (2)
        Food (3)
        Friends/Family (4)
        Alcohol (5)
        Other (6)

A4b.   Game:_[insert participant response]_
        Recreation/leisure (1)
        Gambling (2)
        Food (3)
        Friends/Family (4)
        Alcohol (5)
        Other (6)

A5b.   Money:_[insert participant response]_
        Recreation/leisure (1)
        Gambling (2)
        Food (3)
        Friends/Family (4)
        Alcohol (5)
        Other (6)

A6b.   Loss:_[insert participant response]_
        Recreation/leisure (1)
        Gambling (2)
        Food (3)
        Friends/Family (4)
        Alcohol (5)
        Other (6)

A7b.   Feeling bored: _[insert participant response]_
        Recreation/leisure (1)
        Gambling (2)
        Food (3)
        Friends/Family (4)
        Alcohol (5)
        Other (6)

A8b.   Have fun: _[insert participant response]_
        Recreation/leisure (1)
        Gambling (2)
        Food (3)
        Friends/Family (4)
        Alcohol (5)
        Other (6)

A9b.   Feeling lonely_[insert participant response]_

Recreation/leisure (1)
Gambling (2)
Food (3)
Friends/Family (4)
Alcohol (5)
Other (6)

A10b.   Pass the time: _[insert participant response]_
             Recreation/leisure (1)
             Gambling (2)
             Food (3)
             Friends/Family (4)
             Alcohol (5)
             Other (6)

A11b.   Do something thrilling: _[insert participant response]_
             Recreation/leisure (1)
             Gambling (2)
             Food (3)
             Friends/Family (4)
             Alcohol (5)
             Other (6)

A12b.   Make money: _[insert participant response]_
             Recreation/leisure (1)
             Gambling (2)
             Food (3)
             Friends/Family (4)
             Alcohol (5)
             Other (6)

GAMBLING ATTITUDES (GA)

GA1   Which best describes your belief about the benefit or harm that gambling has for society? Would you say…

The harm far outweighs the benefits	01(-2)
The harm somewhat outweighs the benefits	02(-1)
The benefits are about equal to the harm	03(0)
The benefits somewhat outweigh the harm, or	04(1)
The benefits far outweigh the harm	05(2)

GA2   Do you believe that gambling is morally wrong?

YES	01(1)
NO	02(-1)

GA3a   Which of the following best describes your opinion about *legalized* gambling? Would you say…

All types of gambling should be legal	01(1)
Some types of gambling should be legal and some should be illegal	02(0)
All types of gambling should be illegal	03(-1)

GA4   Which of the following best describes your opinion about gambling opportunities in Massachusetts? Would you say…

Gambling is too widely available	01(-1)

Gambling is not available enough, or   02(1)
The current availability of gambling is fine   03(0)

The following questions ask about frequency of participation and spending on each type of gambling. Spend means how much you are ahead (+$) or behind (-$), or your net win or loss in an average month in the past 12 months.

GY1a   In the past 12 months, how often have you purchased *lottery tickets* such as Megabucks, Powerball, or Lucky for Life? This does not include daily lottery games (e.g., Mass Cash, Numbers Game, Keno, All or Nothing or instant tickets, pull tabs, or raffle tickets. Would you say…
4 or more times a week .... 01(6)
2-3 times a week .... 02(5)
Once a week.. 03(4)
2-3 times a month .... 04(3)
Once a month.. 05(2)
Less than once a month, or .... 06(1)
Not at all... 07(0)   GO TO GY2a

GY1b   Roughly how much money do you spend on lottery tickets in a typical month?
-$_____

GY1c   Did you purchase these lottery tickets in person or online? (check all that apply)
▪   In person
▪   Online

GY2a   In the past 12 months, how often have you purchased *instant tickets* or *pull tabs*? (Would you say…)?
4 or more times a week .... 01(6)
2-3 times a week .... 02(5)
Once a week.. 03(4)
2-3 times a month .... 04(3)
Once a month.. 05(2)
Less than once a month, or .... 06(1)
Not at all... 07(0)   GO TO GY2c

GY2b   Roughly how much money do you spend on instant tickets or pull tabs in a typical month?
-$_____

GY2bb   Did you purchase these instant tickets or pull tabs in person or online? (check all that apply)
▪   In person
▪   online

GY2c   In the past 12 months, how often have you purchased *raffle tickets*? Would you say…
4 or more times a week .... 01(6)
2-3 times a week .... 02(5)
Once a week.. 03(4)
2-3 times a month .... 04(3)
Once a month.. 05(2)
Less than once a month, or .... 06(1)
Not at all... 07(0)   GO TO GY3a

GY2d   Roughly how much money do you spend on raffle tickets in a typical month?
-$_____

GY3a   In the past 12 months, how often have you played **daily lottery games** such as *Mass Cash, Keno, ~~Jackpot Poker~~, All or Nothing, Numbers Game*? (Would you say…)?

4 or more times a week .... 01(6)
2-3 times a week .... 02(5)
Once a week.. 03(4)
2-3 times a month .... 04(3)
Once a month.. 05(2)
Less than once a month, or .... 06(1)
Not at all.. 07(0)   GO TO GY4a

GY3b   Roughly how much money do you spend on daily lottery games in a typical month?

-$_____

GY4a   In the past 12 months, how often have you bet money or gambled on **sports** (this includes social betting, online betting, fantasy sports, and esports)? (Would you say…)?

4 or more times a week .... 01(6)
2-3 times a week .... 02(5)
Once a week.. 03(4)
2-3 times a month .... 04(3)
Once a month.. 05(2)
Less than once a month, or .... 06(1)
Not at all.. 07(0)   GO TO GY5a

GY4b   Roughly how much money do you spend on sports betting in a typical month?

-$_____

GY4c   What type of sports betting did you engage in? (check all that apply)

_____Office sports pools or social betting against friends or family (1)
_____Placing bets with a legal land-based sportsbook outside of Massachusetts (2)
_____Placing bets with an illegal/underground land-based sportsbook or bookmaker in
        Massachusetts (3)
_____Placing bets on sporting events with an online sportsbook (4)
_____Online fantasy sports (5) GO TO GY4d (otherwise, go to GY5a)
_____eSports

Note: A sportsbook is a venue where someone can place a bet on a sporting event. A bookmaker or a bookie is an organization or person that takes bets on sporting events. Esports are professional video game competitions.

GY4d   Do you play traditional fantasy sports (where results are determined at the end of the season) or daily fantasy sports (where results are determined on a daily or weekly basis)?

- Traditional fantasy sports (1) (go to GY5a if this is the only option endorsed)
- Daily fantasy sports (2)
- Both traditional and daily fantasy sports (3)

GY4e   Which internet sites do you most often use to play daily fantasy sports? (check all that apply)

- DraftKings (1)
- FanDuel (2)
- DraftDay (3)
- Other (4) specify_____

GY4f   In the past 30 days, on the days that you played, how many hours on average did you spend on daily fantasy sports?_____

GY4g   In the past 30 days, what has your usual balance been in your daily fantasy sports account(s)?
$_____

GY4h   In the past 30 days, how much have you deposited into your daily fantasy sports account(s)?
$_____

GY4i   In the past 30 days, how much money have you cashed out from your daily fantasy sports account(s)?
$_____

GY4j   Considering all the time you spend on all your gambling activities, what percentage of time involves playing daily fantasy sports _____%

GY5a   In the past 12 months, how often have you played ***bingo*** either in person or online? (Would you say…)? (this includes electronic bingo machines)
4 or more times a week .... 01(6)
2-3 times a week .... 02(5)
Once a week.. 03(4)
2-3 times a month .... 04(3)
Once a month.. 05(2)
Less than once a month, or .... 06(1)
Not at all... 07(0)   GO TO GY8a

GY5b   Roughly how much money do you spend on bingo in a typical month?
-$_____

GY5c   How and where do you play bingo? (check all that apply)
_____in person at a bingo hall in Massachusetts (1)
_____in person at a bingo hall outside Massachusetts (2)
_____at an online bingo site (3)

GY8a   In the past 12 months, how often have you spent money on ***electronic gambling machines*** (i.e., slot machines, video lottery terminals, electronic casino table games) either in person or online?
4 or more times a week .... 01(6)
2-3 times a week .... 02(5)
Once a week.. 03(4)
2-3 times a month .... 04(3)
Once a month.. 05(2)
Less than once a month, or .... 06(1)
Not at all... 07(0)   GO TO GY5a

GY8b   Roughly how much money do you spend on electronic gambling machines in a typical month?
-$_____

GY8c   In the past 12 months how often have you bet money on any ***casino table game*** such as poker, blackjack, baccarat, roulette, craps, mah-jong, sic-bo, pai gow, either in person or online? (This does not include automated electronic versions of these games, which should be reported in the question about electronic gambling machines).
4 or more times a week .... 01(6)
2-3 times a week .... 02(5)
Once a week.. 03(4)
2-3 times a month .... 04(3)
Once a month.. 05(2)
Less than once a month, or .... 06(1)

Not at all... 07(0)   GO TO GY5a

GO TO GY9a if GY8a & GY8c = 7

GY8d   Roughly how much money do you spend on casino table games in a typical month?
             -$_____

GY8e   Where did you play these electronic gambling machines and/or casino table games (check all that
             apply)
             _____At the Plainridge Park Casino in Plainville, Massachusetts (1) GO TO GY8k IF THIS IS THE
             ONLY OPTION CHOSEN
             _____At a land-based casino, slot parlor, slots at racetrack, or card room outside of
             Massachusetts (2) GO TO GY8g IF THIS IS THE ONLY OPTION CHOSEN
             _____At an online casino or card/poker room (3) GO TO GY9a IF THIS IS THE ONLY
             OPTION CHOSEN
             _____At an underground/illegal casino, slot parlor, or card room in Massachusetts (4)
             GO TO GY9a IF THIS IS THE ONLY OPTION CHOSEN
             _____At a private residence (5) GO TO GY9a IF THIS IS THE ONLY OPTION
             CHOSEN

GY8f   Roughly what percentage of your spending on electronic gambling machines and/or casino table
             games is done at each location? (Your percentages need to add up to 100%) (AUTOMATICALLY
             ENTER 0% FOR ANY OPTION NOT CHOSEN; OTHER OPTIONS HAVE TO ADD TO 100%)
             _____Plainridge Park Casino in Plainville, Massachusetts (1)
             _____Land-based casino, slot parlor, slots at racetrack, or card room outside of
             Massachusetts (2)
             _____Online casino or card/poker room (3)
             _____Underground/illegal casinos, slot parlor, or card room in Massachusetts (4)
             _____At a private residence (5)

GO TO GY8k UNLESS OPTION 2 CHOSEN

GY8g   In the past 12 months, how many times have you played electronic gambling machines or casino
             table games at a casino, slots parlor, slots at racetrack, or card room outside of Massachusetts?
             _____number of times

GY8h   In the past 12 months, roughly how much money did you spend *on gambling* per visit in out of state
             casinos, slots parlors, slots at racetracks, and card rooms?
             -$_____

GY8i   In the past 12 months, roughly how much money did you spend on *nongambling activities* (such as
             food, travel, lodging, entertainment) per visit in out of state casinos, slots parlors, slots at racetracks,
             and card rooms?
             $_____

GY8j   Which specific casino or slots parlor do you most often go to?
             ATLANTIC CITY CASINO (NJ)   01(1)
             NEVADA CASINO   02(2)
             EMPIRE CITY (Yonkers, NY)   03(3)
             FOXWOOD (Ledyard, CT)   04(4)
             HOLLYWOOD SLOTS (Bangor, ME)   05(5)
             MOHEGAN SUN (Uncasville, CT)   06(6)
             MONTICELLO (Monticello, NY)   07(7)

NEWPORT GRAND (Newport, RI)   08(8)
OXFORD CASINO (Oxford, ME)   09(9)
RESORTS WORLD (Queens, NY)   10(10)
RIVERS CASINO & RESORT (Schenectady, NY) (15)
SARATOGA CASINO & RACEWAY
(Saratoga, NY) 11(11)
TIVERTON CASINO (RI)   (16)
TURNING STONE (Verona, NY)   12(12)
TWIN RIVER (Lincoln, RI)   13(13)
VERNON DOWNS (Vernon, NY)   14(14)
OTHER   91(91)

GY8k   Do you have a casino player rewards card (e.g., Marquee Rewards)?
YES   01(1)
NO   02(0)   GO TO GY9a

GY8l   Is this a rewards card for a Massachusetts casino?
YES   01(1)
NO   02(0)   GO TO GY9a

GY8m   Have you used the PlayMyWay tool on your card allowing you to set spending limits?
YES   01(1)
NO   02(0)   GO TO GY9a

GY8n   Have you found this tool useful in managing your gambling?
YES   01(1)
NO   02(0)

GY9a   In the past 12 months, how often have you bet on *horse racing* or *dog racing* either in person, by phone, or online? (Would you say…)?
  4 or more times a week .... 01(6)
  2-3 times a week .... 02(5)
  Once a week... 03(4)
  2-3 times a month .... 04(3)
  Once a month.. 05(2)
  Less than once a month, or .... 06(1)
  Not at all.. 07(0)   GO TO GY10a

GY9b   Roughly how much money do you spend on horse or dog racing in a typical month?
-$_____

GY9c   Where do you most often bet on horse or dog racing?
SUFFOLK DOWNS   01(1)
PLAINRIDGE RACECOURSE 02(2)
RAYNHAM PARK   3
OTHER MASSACHUSETTS RACECOURSE (e.g., Brockton)   4
ONLINE RACEBOOK……………………………..5
OTHER   91(91)

GY10a   In the past 12 months how often have you gambled or bet money on *other types of gambling* that have not yet been mentioned, such as betting on card games other than poker, blackjack, and baccarat; board games (e.g., chess, backgammon); television events; political events; video games;

cock fighting; dog fights; financial indices betting on a gambling website (including spread betting); or anything else?

4 or more times a week	01(6)
2-3 times a week	02(5)
Once a week	03(4)
2-3 times a month	04(3)
Once a month	05(2)
Less than once a month, or	06(1)
Not at all	07(0) GO TO GY11a

GY10b   What are these other types of gambling you bet money on? (check all that apply)
_____Non-casino card games (1)
         _____Board games (2)
         _____Television events (3)
         _____Political events (4)
         _____Video games (5)
         _____Cock fights (6)
         _____Dog fights (7)
         _____Financial indices betting (8)
         _____Other (9)

GY10c   Did you make these bets in person or remotely via a computer, phone, television, or other device? (check all that apply)
         _____In person
         _____Remotely via a computer, phone, television, or other device

GY10d   Roughly how much money do you spend on these other types of gambling in a typical month?
         -$_____

GY11a   Do you personally manage most of your own *stock market* investments (i.e., make your own decisions and purchases of stocks, bonds, etc. independent of a financial advisor or fund manager)?
         YES   01(1)
         NO   02(0)   GO TO GM0
         I HAVE NO STOCK MARKET INVESTMENTS   03   GO TO GM0

GY11b   In the past 12 months, which of the following financial products/activities have you purchased, sold, or engaged in? (check all that apply)
         _____Mutual funds (1)
         _____Bonds (2)
         _____Individual stocks (3)
         _____Penny stocks (4)
         _____Options (5)
         _____Futures (6)
         _____Other derivatives (e.g., Swaps) (7)
         _____Shorting stocks (8)
         _____Day trading (9)

GY11c What do you estimate your net loss or gain in a typical month is from your stock market activity?
         -$_____

GM0   To what extent do you agree with the statement: "wealth is a good measure of success in life"
         Strongly agree (1)
         Agree (2)

Neutral (3)
Disagree (4)
Strongly disagree (5)

GY12 ONLY ASKED OF PEOPLE WHO PATRONIZE LAND-BASED BINGO HALLS (GY5c), CASINOS (GY8e), OR RACETRACKS (GY9c)

GY12   How often do you use automatic teller machines at casinos, slot parlors, racetracks, or bingo halls?
NEVER...0
OCCASIONALLY...1
MOST TIMES THAT I GO....................................2

[IF GY1A AND GY2A AND GY2C AND GY3A AND GY4A AND GY5A AND GY8A AND GY8C AND GY9A AND GY10A = 7 AND GY11A =2, 3, OR 95 GO TO GC2]

GY13a   In the past 12 months what was the largest amount of money you have won gambling in
a single day?
$0 (0)
+$1 to +$199 (1)
+$200 to +$499 (2)
+$500 to +$999 (3)
+$1000 to +$1999 (4)
+$2000 or more (5)

GY13b   In the past 12 months what was the largest amount of money you have lost gambling in
a single day?
$0 (0)
-$1 to -$199 (1)
-$200 to -$499 (2)
-$500 to -$999 (3)
-$1000 to -$1999 (4)
-$2000 or more (5)

GAMBLING MOTIVATION (GM)

GM1   What would you say is the main reason that you gamble? Would you say…
For excitement/entertainment .... 01(1)
To win money .... 02(2)
To escape or distract yourself .... 03(3)
To socialize with family or friends .... 04(4)
To support worthy causes .... 05(5)
Because it makes you feel good about yourself........ 06(6)
Other .... 91(91)

GAMBLING RECREATION (GR)

GR1   How important is gambling to you as a recreational activity? Would you say…
Very important... 01(3)
Somewhat important.. 02(2)
Not very important... 03(1)
Not at all important... 04(0)

GR2a   Has gambling replaced other recreational activities for you in the past year?

```
YES........................................................................ 01(1)
NO......................................................................... 02(0)
```

GR2b   Which recreational activities has gambling replaced?

_____

GAMBLING CONTEXT (GC)

GC1   Do you typically gamble alone or with friends?
More often alone (1)
More often with friends (2)

GC2   How available are gambling opportunities at your workplace or school?
Not available (0)
Somewhat available (1)
Extensively available (2)

GC3   How close is the nearest casino to you?
More than a 30 minute drive from either home, work, or school (1)
A 16 to 30 minute drive from either home, work, or school (2)
A 5 to 15 minute drive from either home, work, or school (3)
Less than a 5 minute drive from either home, work, or school (4)

LIFETIME GAMBLING (GL) (Wave 3 & 4 only)

GL1   At what age do you recall gambling for money for the first time?_____ (drop down numbers from 7 to 70; with 'have never gambled for money' being an option)

GL2a   Have any of your parents, brothers or sisters, or children ever been regular gamblers?
```
YES........................................................................ 01(1)
NO......................................................................... 02(0)    GO TO GF1
UNSURE ............................................................... 03 (2)
```

GL2b   Have any of your parents, brothers or sisters, or children ever been problem gamblers (i.e., had difficulty controlling their gambling to the extent that it caused significant problems)?
```
YES........................................................................ 01(1)
NO......................................................................... 02(0)
UNSURE ............................................................... 03 (2)
```

GAMBLING FALLACIES (GF) (Gambling Fallacies Measure)

GF1   Which of the following set of lottery numbers has the greatest probability of being selected as the winning combination?
a) 1, 2, 3, 4, 5, 6 (0)
b) 8, 18, 3, 55, 32, 28 (2)
c) Each of the above have an equal probability of being selected (1)

GF2   Which gives you the best chance of winning the jackpot on a slot machine?
a) Playing a slot machine that has not had a jackpot in over a month. (2)
b) Playing a slot machine that had a jackpot an hour ago. (0)
c) Your chances of winning the jackpot are the same on both machines. (1)

GF3 How lucky are you? If 10 people's names were put into a hat and one name drawn for a prize, how likely is it that <u>your name</u> would be chosen?
  a) About the same likelihood as everyone else (1)
  b) Less likely than other people (0)
  c) More likely than other people (2)

GF4 If you were to buy a lottery ticket, which would be the best place to buy it from?
  a) A place that has sold many previous winning tickets (2)
  b) A place that has sold few previous winning tickets (0)
  c) One place is as good as another (1)

GF5 A positive attitude or doing good deeds increases your likelihood of winning money when gambling.
  a) Disagree (1)
  b) Agree (0)

GF6 A gambler goes to the casino and wins 75% of the time. How many times has he or she likely gone to the casino?
  a) 4 times (1)
  b) 100 times (0)
  c) It is just as likely that he has gone either 4 or 100 times (2)

GF7 You go to a casino with $100 hoping to double your money. Which strategy gives you the best chance of doing this?
  a) Betting all your money on a single bet (1)
  b) Betting small amounts of money on several different bets (0)
  c) Either strategy gives you an equal chance of doubling your money (2)

GF8 Which game can you consistently win money at if you use the right strategy?
  a) Slot machines (0)
  b) Roulette (2)
  c) Bingo (3)
  d) None of the above (1)

GF9 Your chances of winning a lottery are better if you are able to choose your own numbers.
  a) Disagree (1)
  b) Agree (0)

GF10 You have flipped a coin and correctly guessed 'heads' 5 times in a row. What are the odds that heads will come up on the next flip. Would you say…
  a) 50% (1)
  b) More than 50% (0)
  c) Or less than 50% (2)

GAMBLING PREVENTION AWARENESS (GPA)

GPA1 In the past 12 months have you seen or heard any media campaigns to prevent problem gambling in Massachusetts?
  YES.. 01(1)
  NO.. 02(0)

GPA2a In the past 12 months have you been aware of any programs to prevent problem gambling (other than media campaigns) offered at your school, your place of work, in your community or elsewhere?
  YES.. 01(1)

NO.. 02(0)

[IF GPA2A=01, GO TO GPA2B. ELSE IF GPA1=01, GO TO GPA3. ELSE, GO TO GPO1]

GPA2b   Did you participate in any of the problem gambling prevention programs that you heard of in the past 12 months?
YES.. 01(1)
NO.. 02(0)

GPA3   Did any of these media campaigns or programs cause you to alter your own gambling behavior?
YES.. 01(1)
NO.. 02(0)

GAMBLING PROBLEMS – OTHERS (GPO)

GPO1   What portion of your close friends and family members are regular gamblers? Would you say…
None of them .... 01(0)
Some of them.. 02(1)
Most of them... 03(2)
All of them.. 04(3)

GPO2   During the last 12 months, has there been any person in your life that you consider gambles too much?
YES.. 01(1)
NO.. 02(0)

IF GPO2=1, GO TO GPO3. GO TO GP1 IF PERSON INDICATES GAMBLING ONCE A MONTH OR MORE IN EITHER GY1a, GY2a, GY2c, GY3a, GY4a, GY5a, GY8a, GY8c, GY9a, or GY10a. OTHERWISE GO TO NEXT SECTION

GPO3   What is this person's relationship to you?
SPOUSE/PARTNER .... 01(1)
PARENT/STEP PARENT .... 02(2)
CHILD/STEP CHILD... 03(3)
OTHER PERSON (IN YOUR HOUSEHOLD) .... 04(4)
OTHER FAMILY MEMBER (NOT LIVING
IN YOUR HOUSEHOLD) .... 05(5)
EX-PARTNER... 06(6)
WORK COLLEAGUE .... 07(7)
FRIEND .... 08(8)
NEIGHBOR... 09(9)
SOMEONE ELSE... 91(91)

SKIP THE GP SECTION IF PERSON INDICATES GAMBLING LESS THAN ONCE A MONTH OR NOT AT ALL IN GY1a, GY2a, GY2c, GY3a, GY4a, GY5a, GY8a, GY8c, GY9a, GY10a AND GY11a = NO; AND GR1 = 4 AND GR2A = 2.

GAMBLING PROBLEMS – SELF (GP)

Please answer all of the following questions, even if you think they do not apply to you.

GP1   In the past 12 months, have you bet more than you could really afford to lose? Would you say...PGSI1

Never.. 01(0)
Sometimes.. 02(1)
Most of the time... 03(2)
Almost always... 04(3)

GP2   In the past 12 months, have you felt guilty about the way you gamble or what happens when you gamble? Would you say…PGSI9

Never.. 01(0)
Sometimes.. 02(1)
Most of the time... 03(2)
Almost always... 04(3)

GP3   In the past 12 months, have you needed to gamble with larger amounts of money to get the same feeling of excitement? Would you say… PGSI2

Never.. 01(0)
Sometimes.. 02(1)
Most of the time... 03(2)
Almost always... 04(3)

GP4   In the past 12 months, when you gambled, did you go back another day to try to win back the money you lost? Would you say… PGSI3/PPGM9

Never.. 01(0)
Sometimes.. 02(1)
Most of the time... 03(2)
Almost always... 04(3)

GP5a   In the past 12 months, have you borrowed money or sold anything to get money to gamble? Would you say… PGSI4/PPGM1a

Never.. 01(0)
Sometimes.. 02(1)
Most of the time... 03(2)
Almost always... 04(3)

GP6a   In the past 12 months, has your gambling caused any financial problems for you or your household? Would you say… PGSI8/PPGM1b

Never.. 01(0)
Sometimes.. 02(1)
Most of the time... 03(2)
Almost always... 04(3)

GP7a   In the past 12 months, has your gambling caused you any health problems, including stress or anxiety? Would you say…PGSI6/PPGM4

Never.. 01(0)
Sometimes.. 02(1)
Most of the time... 03(2)
Almost always... 04(3)

GP8   In the past 12 months, have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true? Would you say… PGSI7/PPGM7

Never.. 01(0)
Sometimes.. 02(1)
Most of the time... 03(2)
Almost always... 04(3)

GP9   In the past 12 months, have you felt that you might have a problem with gambling? Would you say… PGSI5

Never	01(0)
Sometimes	02(1)
Most of the time	03(2)
Almost always	04(3)

PGSI   [CREATE THIS BACKGROUND VARIABLE. INCLUDE THE FOLLOWING VARIABLES: GP1, GP2, GP3, GP4, GP5a, GP6a, GP7a, GP8, and GP9. FOR EACH QUESTION WITH ANSWER (2) SOMETIMES, ADD 1; FOR EACH QUESTION WITH ANSWER (3) MOST OF THE TIME, ADD 2; FOR EACH QUESTION WITH ANSWER (4) ALMOST ALWAYS, ADD 3. FOR ALL OTHER VALUES, DO NOT ADD ANYTHING. VALID VALUES CAN RANGE FROM 0-27.]

GP10a   Has your involvement in gambling caused significant mental stress in the form of guilt, anxiety, or depression for you or someone close to you in the past 12 months? PPGM2

YES	01(1)
NO	02(0)

GP11a   Has your involvement in gambling caused significant problems in your relationship with your spouse/partner or important friends or family in the past 12 months? PPGM3a

YES	01(1)
NO	02(0)

GP12a   In the past 12 months, has your involvement in gambling caused you to repeatedly neglect your children or family? PPGM3b

YES	01(1)
NO	02(0)

GP13a   Has your involvement in gambling caused significant work or school problems for you or someone close to you in the past 12 months or caused you to miss a significant amount of time off work or school? PPGM5

YES	01(1)
NO	02(0)

GP14a   In the past 12 months, has your involvement in gambling caused you or someone close to you to write bad checks, take money that didn't belong to you or commit other illegal acts to support your gambling? PPGM6

YES	01(1)
NO	02(0)

GP15   In the past 12 months, have you often gambled longer, with more money or more frequently than you intended to? PPGM8

YES	01(1)
NO	02(0)

GP16a   In the past 12 months, have you made attempts to either cut down, control or stop gambling? PPGM10a

YES	01(1)	
NO	02(0)	GO TO GP17

GP16b   Were you successful in these attempts to cut down, control or stop gambling? PPGM10b

YES.. 01(1)
NO.. 02(0)

GP17   In the past 12 months, is there anyone else who would say that you had difficulty controlling your gambling, regardless of whether you agreed with them or not? PPGM11
YES.. 01(1)
NO.. 02(0)

GP18   In the past 12 months, would you say you have been preoccupied with gambling? PPGM12
YES.. 01(1)
NO.. 02(0)

GP19   In the past 12 months, when you did try cutting down or stopping did you find you were very restless or irritable or that you had strong cravings for it? PPGM13
YES.. 01(1)
NO.. 02(0)

GP20   In the past 12 months, did you find you needed to gamble with larger and larger amounts of money to achieve the same level of excitement? PPGM14
YES.. 01(1)
NO.. 02(0)

[IF PGSI<5, GO TO NEXT SECTION. ELSE IF PGSI>=5, GO TO GP21]

GP21   Are there particular types of gambling that have contributed to your problems more than others?
YES.. 01(1)
NO.. 02(0)

IF GP21=1, GO TO GP22. ELSE GO TO GP23a. IF BLANK, GO TO GP23a

GP22   Which types of gambling have contributed to your problems? (check all that apply)
LOTTERY ....   01(1)
INSTANT TICKET ....   02(2)
DAILY LOTTERIES...   03(3)
BINGO..   04(4)
SLOT MACHINES OR VIDEO LOTTERY TERMINALS   05(5)
CASINO TABLE GAMES (i.e., BLACKJACK,
BACCARAT, ROULETTE, CRAPS, ETC.) ....   07(7)
POKER ....   08(8)
HORSE RACING OR DOG RACING............................   09(9)
SPORTS BETTING..   11(11)
SPECULATIVE HIGH RISK STOCKS, OPTIONS, FUTURES, OR
DAY TRADING ....   12(12)
ONLINE GAMBLING ....   13(13)
OTHER ....   91(91)

GP23a   Have you *wanted* help for gambling problems in the past 12 months?
YES.. 01(1)
NO.. 02(0)   GO TO GP23e

GP23b   Have you *sought* help for gambling problems in the past 12 months?
NO.. 02(0)   GO TO GP23e

IF GP23b=1, GO TO GP23c. ELSE GO TO GP23e. IF BLANK, GO TO GP23e

GP23c   Where did you seek help from? CHECK ALL THAT APPLY
         FRIENDS OR FAMILY .... 01(1)
         GAMESENSE INFORMATION CENTRE 10
         GAMBLERS ANONYMOUS.................................. 02(2)
         GAM ANON (THIS IS A SUPPORT GROUP FOR
         FRIENDS/FAMILY OF PROBLEM GAMBLERS) 03(3)
         FAMILY DOCTOR... 04(4)
         PRIVATE PSYCHOLOGIST/PSYCHIATRIST/
         COUNSELOR .... 05(5)
         PROBLEM GAMBLING TREATMENT
         CENTER/CLINIC .... 06(6)
         PASTOR/MINISTER/PRIEST/ETC. .... 07(7)
         TELEPHONE HELP/HOTLINE............................. 08(8)
         ONLINE HELP... 09(9)
         OTHER .... 91(91)   GO TO GP23c1

         [IF GP23c=91, GO TO GP23c1. ELSE GO TO GP23d].

GP23c1   Where did you seek help from?

         _____

GP23d   How helpful was this? Would you say…
         Very helpful .... 01(1)
         Somewhat helpful .... 02(2)
         Not very helpful.. 03(3)
         Not at all helpful .... 04(4)

GP23e   Have you excluded yourself from any casino or slots parlor in the past 12 months?
         YES.. 01(1)
         NO.. 02(0)

         IF GP23e=1, GO TO GP23f. ELSE GO TO GP24. IF BLANK, GO TO GP24]

GP23f   In which states have you excluded yourself? Check all that apply
         MASSACHUSETTS 0
         CONNECTICUT .... 01(1)
         RHODE ISLAND .... 02(2)
         NEW JERSEY .... 03(3)
         NEW YORK... 04(4)
         PENNSYLVANIA.. 05(5)
         MAINE .... 06(6)
         NEVADA... 07(7)
         OTHER .... 91(91)

GP24   What would you say have been the main cause or causes of your gambling problems (provide as
         much detail as needed)?
         _____

GP25 ONLY ASKED OF PEOPLE WHO WERE PGSI5+ IN PREVIOUS ASSESSMENT AND ARE
<PGSI5 IN PRESENT ASSESSMENT

GP25a	Do you believe you are having fewer gambling problems than last year?

YES.. 01(1)

NO... 02(0)   GO TO GP26a

GP25b	What would you say is responsible for this improvement (provide as much detail as needed)?

_____

GP26a	Would you like to know about the problem gambling treatment services in your local area?

YES.. 01(1)

NO... 02(0)   GO TO NEXT SECTION

GP26b	1-800-426-1234 is the Massachusetts Council on Compulsive Gambling's toll-free problem gambling help line. You can also speak directly to your doctor or health provider.

NEO PERSONALITY INVENTORY (NEO) Wave 4 ONLY (58 questions)

NEO-Short Form for main dimensions of: Neuroticism-Emotional Stability (N); Agreeableness-Disagreeableness (A); Conscientiousness-Nonconscientiousness (C) supplemented by NEO-PI-R (full form) for subfacets of vulnerability (N-V), impulsivity (N-I), and excitement-seeking (E-ES) (Costa & McCrae, 1992)

For each statement, select the response that best represents your opinion.

NEO-N1 I am not a worrier.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-A1 I try to be courteous to everyone I meet.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-C1 I keep my belongings neat and clean.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-N2 I rarely feel fearful or anxious.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-A2 I often get into arguments with my family and co-workers.
- Strongly disagree (4)
- Disagree (3)

- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-N-I3 I have little difficulty resisting temptation.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-N-V8 I'm pretty stable emotionally.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-N-I1 I rarely overindulge in anything.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-C2 I'm pretty good about pacing myself so as to get things done on time.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-N-I4 When I am having my favorite foods, I tend to eat too much.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-N3 I often feel tense and jittery.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-E-ES2 I often crave excitement.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-A3 Some people think I'm selfish and egotistical.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-N-I5 I seldom give in to my impulses.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-N-I6 I sometimes eat myself sick.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-C3 I am not a very methodical person.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-N4 I often get angry at the way people treat me.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-A4 I would rather cooperate with others than compete with them.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-C4 I try to perform all the tasks assigned to me conscientiously.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-N5 At times I have been so ashamed I just wanted to hide.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)

- Agree (3)
- Strongly agree (4)

NEO-A5 I tend to be cynical and sceptical of others' intentions.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-C5 I have a clear set of goals and work toward them in an orderly fashion.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-N6 I often feel inferior to others.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-A6 I believe that most people will take advantage of you if you let them.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-C6 I waste a lot of time before settling down to work.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-N7 I rarely feel lonely or blue.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-A7 Most people I know like me.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-C7 When I make a commitment, I can always be counted on to follow through.

- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-N8 Sometimes I feel completely worthless.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-A8 Some people think of me as cold and calculating.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-C8 Sometimes I'm not as dependable or reliable as I should be.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-N9 I am seldom sad or depressed.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-A9 I'm hard-headed and tough-minded in my attitudes.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-E-ES5 I tend to avoid movies that are shocking or scary.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-E-ES6 I love the excitement of roller coasters.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)

- Strongly agree (4)

NEO-C9 I am a productive person who always gets the job done.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-N10 Too often, when things go wrong, I get discouraged and feel like giving up.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-A10 I generally try to be thoughtful and considerate.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-E-ES8 I like being part of the crowd at sporting events.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-N-V4 I keep a cool head in emergencies.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-C10 I work hard to accomplish my goals.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-N11+NEO-N-V1 I often feel helpless and want someone else to solve my problems.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-N-V5 It's often hard for me to make up my mind.
- Strongly disagree (0)

- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-A11 If I don't like people, I let them know it.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-C11 I never seem to be able to get organized.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-N12+NEO-N-V2 When I'm under a great deal of stress, sometimes I feel like I'm going to pieces.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-E-ES1 I like to be where the action is.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-A12 If necessary, I am willing to manipulate people to get what I want.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-C12 I strive for excellence in everything I do.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-N-V3 I feel I am capable of coping with most of my problems.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-E-ES7 I'm attracted to bright colours and flashy styles.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-N-V6 I can handle myself pretty well in a crisis.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-N-V7 When everything seems to be going wrong, I can still make good decisions.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-N-I2 I have trouble resisting my cravings.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-N-I7 Sometimes I do things on impulse that I later regret.
- Strongly disagree (0)
- Disagree (1)
- Neutral (2)
- Agree (3)
- Strongly agree (4)

NEO-E-ES3 I wouldn't enjoy vacationing in Las Vegas.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-N-I8 I am always able to keep my feelings under control.
- Strongly disagree (4)
- Disagree (3)
- Neutral (2)
- Agree (1)
- Strongly agree (0)

NEO-E-ES4 I have sometimes done things just for "kicks" or "thrills."
- Strongly disagree (0)
- Disagree (1)

- Neutral (2)
- Agree (3)
- Strongly agree (4)

SOCIAL FUNCTIONING (SF)

SF1   How would you rate your current family relationships?
Excellent (1)
Very good (2)
Average (3)
Below average (4)
Poor (5)

SF2   How would you rate your current marital relationship?
Excellent (1)
Very good (2)
Average (3)
Below average (4)
Poor (5)
Not applicable (9999)

SF3   How would you rate your current level of social support?
Excellent (1)
Very good (2)
Average (3)
Below average (4)
Poor (5)

SF4   How important is religion in your life?
Very important (1)
Somewhat important (2)
Not too important (3)
Not at all important (4)

SF5   Have you committed any illegal activities in the past year?
YES (1)
NO (0)

SF6   Do you have a criminal record?
YES (1)
NO (0)

DEMOGRAPHICS (D)

D4   The last few questions are about your background so we can keep track of the characteristics of people who respond to the survey.
At present are you.............?
Married... 01(2)
Living with your partner .... 02(1)
Separated, but still legally married .... 03(3)
Divorced.. 04(4)
Widowed... 05(5)
Never been married.. 06(0)

D5   How many children under 18 years old live in your household?
_____number of children

D6   What is the highest degree or level of school you have completed?

NEVER ATTENDED SCHOOL OR ONLY ATTENDED KINDERGARTEN	01(1)
GRADES 1 THROUGH 8	02(2)
GRADES 9 THROUGH 11	03(3)
REGULAR HIGH SCHOOL DIPLOMA OR GED	04(4)
SOME COLLEGE CREDIT, BUT LESS THAN 1 YEAR OF COLLEGE CREDIT	05(5)
1 OR MORE YEARS OF COLLEGE CREDIT, BUT NO DEGREE	06(6)
ASSOCIATE DEGREE	07(7)
BACHELOR'S DEGREE	08(8)
MASTER'S DEGREE	09(9)
PROFESSIONAL DEGREE BEYOND A BACHELOR'S DEGREE	10(10)
DOCTORATE DEGREE	11(11)

D7a   Are you currently...?

Employed for wages	01(1)
Self- employed	02(2)
Out of work for more than 1 year	03(3)
Out of work for less than 1 year	04(4)
A Homemaker	05(5)
A Student	06(6)
Retired	07(7)
Unable to work	08(8)

D7b   Have you ever served on active duty in the U.S. Armed Forces, military Reserves, or National Guard? Active duty does not include training for the Reserves or National Guard, but DOES include activation, for example, for the Persian Gulf War.

YES, NOW ON ACTIVE DUTY	01(1)
YES, ON ACTIVE DUTY IN THE PAST, BUT NOT DURING THE LAST 12 MONTHS	02(2)
NO, TRAINING FOR RESERVES OR NATIONAL GUARD ONLY	03(3)
NO, NEVER SERVED IN THE MILITARY	04(4)

D9   Do you own the place where you currently live, pay rent or something else?

OWN	01(1)
RENT	02(2)
SOMETHING ELSE	91(3)

D10   Is your approximate annual household income from all sources…

Less than $15,000	01(1)
$15,000 - $29,999	02(2)
$30,000 - $49,999	03(3)
$50,000 - $69,999	04(4)
$70,000 - $99,999	05(5)
$100,000 - $124,999	06(6)

$125,000 - $149,999 .... 07(7)
$150,000 or more... 08(8)
Prefer not to answer .... 99(9999)

D11   What do you estimate your current debt to be? Please include mortgages, credit cards, loans, car payments, etc.

$0 (no debt).. 01(0)
Less than $10,000 .... 02(1)
$10,000 - $19,999 .... 03(2)
$20,000 - $39,999 .... 04(3)
$40,000 - $59,999 .... 05(4)
$60,000 - $79,999 .... 06(5)
$80,000 - $99,999 .... 07(6)
$100,000 - $119,999 .... 08(7)
$120,000 - $139,999 .... 09(8)
$140,000 - $159,999 .... 10(9)
$160,000 - $179,999 .... 11(10)
$180,000 - $199,999 .... 12(11)
$200,000 - $299,999 .... 13(12)
$300,000 - $399,999 .... 14(13)
$400,000 - $499,999 .... 15(14)
$500,000 or more... 16(15)
Prefer not to answer .... 99(9999)

D12   Were you born in the United States?

YES... 01(1)
NO... 02(0)

D12a   Many people only live in Massachusetts for part of the year. Do you live in Massachusetts for 6 or more months out of the year?

YES... 01(1)
NO... 02(0)

D13   Are you Hispanic or Latino?

        YES   01(1)
        NO   02(0)

D14   Which one or more of the following would you say is your race? Check all that apply.

White or Caucasian   01(1)
Black or African American   02(2)
Asian   03(3)
Native Hawaiian or Other Pacific Islander   04(4)
Native American or Alaskan Native   05(5)
Some other race91(91) GO TO D14a

[IF D14=91, GO TO D14a. ELSE GO TO D15]

D14a   PLEASE SPECIFY YOUR RACE.

_____

D15a   Do you have an internet connection either at home or at work?

YES   01(1)

NO   02(0)

D15b   Overall, how often do you use the Internet?
              Daily   01(1)
              A few times a week   02(2)
              A few times a month   03(3)
              A few times a year   04(4)
              Not at all   05(5)

D18FN   Because we are interested in how opinions change over time, you may be re-contacted in the future to participate in related studies. If you are contacted to participate in future surveys, you have the right to refuse. To document who completed the survey from your household, please provide any edits to your name, email and phone number.

              First Name_____

D18LN   Last Name_____

D18EM   Email:_____

D18PH   Phone: (XXX-XXX-XXXX)

              [D18FN-D18PH DISPLAY ON SAME SCREEN. IF D18FN-D18PH BLANK, GO TO TERM]

D19FN1   To help us contact you, please provide any edits to the names and contact information you previously provided for 3 people who are likely to know where you can be reached. Please do not include someone who lives in your household.

              First Name_____

D19LN1   Last Name_____

D19EM1   Email:_____

D19ADD11   Address1_____

D19ADD21   Address2_____

D19CITY1   City_____

D19ST1   State_____

D19PH1   Phone (XXX-XXX-XXXX)

              [IF D19FN1 AND D19LN1 AND D19EM1 AND D19ADD11 AND D19ADD21 AND D19CITY1 AND D19ST1 AND D19PH1 ARE BLANK AND COMPLETION DATE – P_ADVDAT <= 14 DAYS GO TO INCENTX. ELSE IF ALL ARE BLANK AND NOT ELIGIBLE FOR INCENTIVE GO TO TERM. ELSE, GO TO D19FN2]

              [D19FN1-D19PH1 DISPLAY ON SAME SCREEN]

D19FN2   First Name_____

D19LN2   Last Name_____

D19EM2	Email_____
D19ADD12	Address 1_____
D19ADD22	Address 2_____
D19CITY2	City_____
D19ST2	State_____
D19PH2	Phone (XXX-XXX-XXXX)

[IF D19FN2 AND D19LN2 AND D19EM2 AND D19ADD12 AND D19ADD22 AND D19CITY2 AND D19ST2 AND D19PH2 ARE BLANK AND COMPLETION DATE – P_ADVDAT <= 14 DAYS, GO TO INCENTX. ELSE IF NOT ELIGIBLE FOR INCENTIVE AND ALL ARE BLANK, GO TO TERM. ELSE, GO TO D19FN3]

[D19FN2-D19PH2 DISPLAY ON SAME SCREEN]

D19FN3	First Name_____
D19LN3	Last Name_____
D19EM3	Email_____
D19ADD13	Address 1_____
D19ADD23	Address 2_____
D19CITY3	City_____
D19ST3	State_____
D19PH3	Phone (XXX-XXX-XXXX)

[IF COMPLETION DATE - P_ADVDAT<=14 DAYS, GO TO INCENTX. ELSE IF NOT ELIGIBLE FOR INCENTIVE ALL ARE BLANK, GO TO TERM]

[D19FN3-D19PH3 DISPLAY ON SAME SCREEN]

INCENTX   Congratulations, you are eligible for a $20 Amazon gift code. Would you like to collect your gift code?

    Yes 01   GO TO INCENT2
    No 02   GO TO TERM

INCENT2   Below is your gift code number:

    [GIFT CODE NUMBER]

    Would you like us to email the gift code number to you?

    Yes 01   GO TO WEBINEM1
    No 02   GO TO TERM

WEBINEM1   Please enter your email address.

WEBINEM2   Please reenter your email address.

        [DISPLAY ON SAME SCREEN AS WEBINEM1]

TERM You have reached the end of the survey. You will be re-contacted again each year about this same time to retake the survey. If any of your contact information changes in the next year please contact XXXXXX. It is also possible you may be re-contacted to participate in related studies. If you are contacted to participate in any future surveys, you have the right to refuse. I'd like to thank you on behalf of the University of Massachusetts for the time and effort you've spent answering these questions. If you have any questions about this survey, you may contact Dr. Rachel Volberg at 413-545-6700. Thank you again.