



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

## Executive Summary

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## Research Team

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# EXECUTIVE SUMMARY

The **M**assachusetts **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.